Dear Water Use Permittee:

Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp.,
Well Nos. 1900-02, 1900-17 to 20, 1901-03, WUP No. 469, 0.301 mgd, TMK 9-1-10:6
Haseko (Ewa), Inc., Well Nos. 1901-06, 1902-01, 1902-09 to 11, WUP No. 650, 3.300 mgd, TMK 9-1-12:5
Department of Parks and Recreation, Well No. 2001-03, WUP No. 167, 0.030 mgd, TMK 9-1-61:35
Palm Court Association, Well No. 2002-12, WUP No. 169, 0.040 mgd, TMK 9-1-61:22
Palm Villa II Association, Well No. 2001-08, WUP No. 168, 0.048 mgd, TMK 9-1-61:27
Arbors Association, Well No. 2001-07, WUP No. 171, 0.063 mgd, TMK 9-1-61:32
U.S. Fish & Wildlife, Well No. 2101-14, WUP No. 247, 0.216 mgd, TMK 9-1-17:12
Gentry Development Co., Well No. 2001-04, WUP No. 302, 0.040 mgd, TMK 9-1-61:7
Gentry Development Co., Well No. 2001-09, WUP No. 344, 0.023 mgd, TMK 9-1-61:2
Ewa by Gentry Community Association, Well No. 2001-05, WUP No. 450, 0.066 mgd, TMK 9-1-70:132
Gentry Homes, Ltd., Well No. 2001-12, WUP No. 504, 0.249 mgd, TMK 9-1-102:31
Gentry Homes, Ltd., Well No. 1901-05, WUP No. 505, 0.056 mgd, TMK 9-1-69:8
U.S. DOC/NOAA/NWS, Well No. 1900-23, WUP No. 501, 0.023 mgd, TMK 9-1-11:1
Coral Creek Golf, Inc., Well No. 2002-17, WUP No. 577, 0.498 mgd, TMK 9-1-69:10
Coral Creek Golf, Inc., Well No. 2001-13, WUP No. 578, 0.800 mgd, TMK 9-1-69:10
Coral Creek Golf, Inc., Well Nos. 2001-14, 2002-15, 17, 19, WUP No. 579, 0.892 mgd, TMK 9-1-69:10:17
AOAO Suncrest/The Shores/Lombard Way/Avalon, Well No. 2001-10, WUP No. 629, 0.022 mgd, TMK 9-1-10:17
State Housing Community Development Corporation of Hawaii, Well Nos. 2003-04, WUP No. 432, 0.494 mgd, TMK 9-1-16:25
State Housing Community Development Corporation of Hawaii, Well Nos. 2003-08, WUP No. 520, 0.237 mgd, TMK 9-1-16:108
Kapolei People’s Inc., Well Nos. 2003-01, 02, 05, WUP No. 438, 1.000 mgd, TMK 9-1-16:25
Honolulu Board of Water Supply, Well Nos. 1905-08, WUP No. 740, 0.302 mgd, TMK 9-1-16:1

Conversion of Interim Water Use Permits for New Irrigation Uses to Permanent Water Use Permits Puauloa and Kapolei Ground Water Management Areas, Oahu

This letter serves as your official notice of action by the Commission on Water Resource Management (Commission) on the subject water use permits.
By a unanimous vote at their meeting on July 12, 2006, the Commission corrected the error of approving and issuing interim permits for new irrigation uses in the Puuloa and Kapolei Ground Water Management Areas of the Ewa Caprock Aquifer Sector Area by converting the subject interim water use permits to permanent water use permits. All terms and conditions of the permits shall remain unchanged, except for Special Condition d., which is deleted.

The Commission ruled that permittees shall be notified by letter of the Commission’s action to convert these water use permits from interim to permanent and the deletion of Special Condition d. The Commission further ruled that re-issuance of these water use permits is not necessary.

Please be advised that a compliance review will be initiated shortly as required under §174C-56 Hawaii Revised Statutes. We recommend that you carefully review the conditions of your permit and ensure that you are in compliance with all Standard and Special Conditions.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

DEAN A. NAKANO
Acting Deputy Director

LYN:ss
4. The permittee shall submit a detailed agriculture plan to support any future water use permit application for increased agricultural use at this parcel.

MOTION: (Ching/Frazier)
To approve submittal as amended by staff
UNANIMOUSLY APPROVED

C. GROUND WATER REGULATION


CONVERSION OF INTERIM WATER USE PERMITS, FOR NEW IRRIGATION USES TO PERMANENT WATER USE PERMITS, Puuloa and Kapolei Ground Water Management Areas, Oahu

Presentation of submittal: Lenore Nakama
RECOMMENDATION:

Staff recommends that the Commission correct the error of approving and issuing interim permits for new irrigation uses in the Pualoa and Kapolei Ground Water Management Areas of the Ewa Caprock Aquifer Sector Area by converting the subject interim water use permits to permanent water use permits. All terms and conditions of the permits shall remain unchanged, except for Special Condition d., which is deleted. The permittees shall be notified by letter of the Commission's action to convert these water use permits from interim to permanent and the deletion of Special Condition d. Re-issuance of these water use permits is not necessary.

DISCUSSION:

Ms. Nakama stated that these interim permits expired on July 1, 2006 and staff is recommending that the Commission correct the error that was made in issuing the permits as interim, rather than permanent, water use permits. Action is also requested to inform these users that they may continue to pump their wells in accordance with their allocations and the chloride limit placed on irrigation wells in the Ewa Caprock Aquifer Sector Area.

Commissioner Ching inquired whether the subject permits covered all the users in the Ewa Caprock Aquifer Sector Area. She was concerned that giving certain permits a permanent status may give them a higher priority or status over other interim permits.

Ms. Nakama stated that the submittal covered all the new irrigation users which had a duration of July 1, 2006 attached to their interim permits. There are other interim permits that have been issued for industrial and other non-irrigation uses in the Ewa Caprock Aquifer Sector Area, there are also other interim permits that have been issued for other new and existing uses elsewhere in the State. Staff will address the rest of the interim permits as part of the 20-year compliance review that is mandated by the Water Code. Staff does not feel that the type of permit (i.e., interim or permanent) under which the water is being used will have a bearing on water use priorities should a future competition situation arise.

MOTION: (Ching/Frazier)
Approval of staff recommendation
UNANIMOUSLY APPROVED

G. NON-ACTION ITEMS

1. Rainfall Index Update Presentation by Dr. Pao Shin Chu, State Climatologist, University of Hawaii, Department of Meteorology

Presentor of non-action item: Neal Fujii
Graduate student, Ms. Cindy Ditner presented an update of rainfall throughout the state through a PowerPoint presentation. She stated that it has been 33 years since the last update was done. In preparing this index they gathered rainfall data throughout the State through temperature, elevation and rain gages. If a station did not submit information for 4 months within a calendar year then it was deleted.

H. NEXT COMMISSION MEETING (TENTATIVE)

1. August 16, 2006
2. September 20, 2006

The meeting was adjourned at 12:00 p.m.

Respectfully submitted,

PAULYNE K. ANAKALEA
Secretary

Approved as submitted:

DEAN A. NAKANO
Acting Deputy Director
Ref: ewa caprock interim wup conversion.sub

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

July 12, 2006
Honolulu, Oahu

Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp.,
Well Nos. 1900-02, 1900-17 to 20, 1901-03, WUP No. 469, 0.301 mgd, TMK 9-1-10:6
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Coral Creek Golf, Inc., Well Nos. 2001-14, 2002-15,17,19,
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CONVERSION OF INTERIM WATER USE PERMITS
FOR NEW IRRIGATION USES TO PERMANENT WATER USE PERMITS
Puuloa and Kapolei Ground Water Management Areas, Oahu

ITEM C-2
PERMITTEES: See Exhibit 1  
LANDOWNERS: See Exhibit 1

SUMMARY OF REQUEST:

Staff recommends that the Commission correct past water use permit approval errors in the Puuloa and Kapolei Aquifer Systems Areas of the Ewa Caprock Ground Water Management Area and convert the interim water use permits for new irrigation uses to permanent water use permits.

LOCATION MAP: See Exhibit 2

BACKGROUND:

On March 3, 1993, the Commission officially adopted the boundary of the entire brackish Ewa Caprock Aquifer as a separate aquifer overlying the existing designated ground water management areas of the Waipahu-Waiauwa, Ewa-Kunia, and Makaiwa Aquifer System Areas. Due to uncertainties regarding the caprock's sustainable yield and nonpotable utility, the Commission did not adopt a sustainable yield estimate for the caprock. All permitted Ewa Caprock irrigation uses prior to 1993 were operating under permanent water use permits.

Designation of the Ewa Caprock and its Aquifer System Areas as water management areas was precipitated by the City and County of Honolulu's (City) urbanization plans for the Ewa area and a City ordinance requiring dual water systems for all new developments. Potable water was to be provided through the municipal system. Possible sources of non-potable water were brackish ground water from the Ewa Caprock Aquifer Sector Area and reclaimed sewage effluent from the Honolulu Wastewater Reclamation Facility. The estimated non-potable demand of 25 mgd after full buildout (Kumagai, 1996) far exceeded the estimated natural recharge to the caprock aquifer of less than 16 mgd (Bauer, 1996).

Because there were concerns regarding the future viability of the caprock as a dependable source of brackish water due to the significant loss of return irrigation recharge from sugarcane agriculture, in 1993, the Commission began awarding temporary one-year permits for new uses of caprock ground water. In analyzing water availability, the Commission used guidelines for estimating sustainable yields for the Puuloa, Kapolei, and Malakole Aquifer System Areas (Yuen & Associates, Inc., 1989; Exhibit 2).

On July 13, 1994, the Commission extended temporary one-year permits. The duration of the extended permits was to July 12, 1995.

On July 5, 1995, the Commission extended the permits, which were now called interim (instead of temporary) permits.

On March 13, 1996, the Commission deferred action on existing interim permits and new applications pending a decision on the establishment of a formal sustainable yield for the caprock.

Also on March 13, 1996, the Commission adopted the following policy statement, clearing the way for application of reclaimed water on lands overlying the Ewa Caprock Aquifer Sector Area:
"It is the policy of the Commission on Water Resource Management (Commission) to promote the viable and appropriate reuse of reclaimed water in so far as it does not compromise beneficial uses of existing water resources.

I. Ewa Caprock

Recognizing that reclaimed water is a valuable resource in the Ewa Plain, direct or indirect reuse will be championed by the Commission. It is the policy of the Commission that the water resources of the Ewa Caprock Aquifer will be allocated only for nonpotable uses."

On May 14, 1997, the Commission adopted a sustainable yield based on a sustainable capacity for each individual irrigation well at 1,000 milligrams per liter (mg/l) of chloride as an interim management plan, subject to review within two (2) years. The rationale behind the chloride cap was to limit pumpage in those wells approaching the limit, to prevent a build-up of sodium in the clay soils, and to protect other users adjacent to those pumping higher chloride water. The Commission also adopted the Puuloa, Kapolei, and Malakole Aquifer System Areas in the Ewa Caprock Aquifer Sector Area and approved pending applications for new and continued irrigation uses. The interim water use permits were to expire on October, 1998 or until such time that a significant change in permitted, actual, or projected uses or water supply occurs. The October, 1998 date coincided with the possible revocation of unused (former Oahu Sugar Company) agricultural permits and also provided a milestone date to check on the progress of wastewater reuse for private caprock well owners, the availability of which was then scheduled for July, 1999. (Note: Wastewater reuse was anticipated due to the 309 Consent Decree settlement between the City and DOH/EPA in 1994, which required the City to implement a reuse program with agreed-upon time schedule and associated volumes: 2.0 mgd by 7/1/98, 5 mgd by 6/30/99 and 10 mgd by 7/1/01. The City requested and received extensions to the implementation schedule.)

On October 22, 1998, the Commission extended the interim water use permits, subject to the Standard Conditions of a water use permit and new special conditions. The interim permits specified a duration to July, 2001, or 1) until treated wastewater is available and acceptable for use, or 2) until such time that a significant change in permitted, actual, or projected uses or water supply occurs.

On July 20, 2000, an agreement was reached between the Honolulu Board of Water Supply (BWS), the City, and U.S. Filter for BWS' purchase of the Honolulu Wastewater Reclamation Facility. The agreement includes BWS becoming the purveyor of reuse water, with the task of securing customers for 10 mgd by July 1, 2001. U.S. Filter will operate the facility for BWS under a 20-year service agreement. The City will provide secondary effluent to the facility and will take back 4 mgd of the R-1 water for City reuse applications. Some of the reclaimed water will supply industrial uses at Campbell Industrial Park.

On July 18, 2001, the Commission extended the interim water use permits, subject to the Standard Conditions of a water use permit and new special conditions (Exhibits 3 and 4). Special Condition 3 specifies that the duration of the interim permits is to July 1, 2006, or 1) until treated wastewater is available and acceptable for use, or 2) until such time that a significant change in permitted, actual, or projected uses of water supply occurs.
ANALYSIS/ISSUES:

All of the subject permits are for new irrigation uses that have a July 1, 2006 expiration date. Under the Water Code and Administrative Rules, interim permits are only mentioned in the sections dealing with existing uses. Section §174C-50 HRS contains the provisions for existing uses. Subsection (e) provides for the issuance of interim permits for existing uses:

"§174C-50 Existing uses. ...(e) The commission shall issue an interim permit; provided that the existing use meets the conditions of subsection (b). The commission shall also issue an interim permit for an estimated, initial allocation of water if the quantity of water consumed under the existing use is not immediately verifiable, but the existing use otherwise meets the conditions of subsection (b) for a permit of an interim permit. An interim permit is valid for such time period specified therein. The commission may issue successive interim permits of limited duration. Interim permits are subject to revocation under section 174C-58. Whenever interim permits are to be issued, the time periods specified in subsection (d) apply to the issuance or nonissuance of interim permits." §174C-50(e) HRS

Staff believes the intent of the provision is to bring existing users in newly-designated areas under regulation in a timely manner by issuing interim permits pending verification of the quantity of the existing use. Subsection (f) provides for the installation of metering or gauging devices, and if so prescribed, "...such metering or gauging devices shall be in place and operational for at least one year before a determination is made as to the quantity of water being consumed in an existing use and a final permit is issued." §174C-50(f) HRS

Because the Water Code gives preference to existing uses over new uses and water reservations, it is important that permitted existing use quantities be verified. In the event of future competition, existing uses may have a higher priority than new uses.

In issuing permits for new uses, the applicable statute, §174C-53 HRS, does not mention interim permits.

The recommended action is to correct the error that was made in issuing interim permits for new uses and to let users know that they can continue their use beyond July 1, 2006, subject to the Standard and Special Conditions that have been attached to these permits (Exhibits 3 and 4), with the exception of Special Condition d., which limits the duration of these new use permits. Special Condition d. is not necessary because the Water Code provides for review of water use permits (§174C-56 HRS), modification of water use permits (§174C-57 HRS), and revocation of water use permits (§174C-58 HRS); therefore, permanent permits are still subject to review, modification, and revocation.

The Deputies Attorney General have concurred that the awarding of interim permit for new uses is an error. The erroneous practice of approving and issuing interim permits for new uses was corrected beginning in about 2003. The current practice of the Commission is to approve permanent permits for new uses, which are always subject to standard and special conditions that define limitations of these permits.

There are other instances in which the Commission has issued interim permits for new uses in the Ewa Caprock and other water management areas. However, the Commission did not attach specific expiration dates to other interim permits for new uses. Therefore, the staff is planning to address the status of other interim permits, as well as all permanent water use permits, including the subject permits, as part of the 20-year compliance review that is required under §174C-56 HRS. This compliance review will be initiated in 2007 and completed in 2008.
Staff Submittal

July 12, 2006

RECOMMENDATION:

Staff recommends that the Commission correct the error of approving and issuing interim permits for new irrigation uses in the Puuloa and Kapolei Ground Water Management Areas of the Ewa Caprock Aquifer Sector Area by converting the subject interim water use permits to permanent water use permits. All terms and conditions of the permits shall remain unchanged, except for Special Condition d., which is deleted. The permittees shall be notified by letter of the Commission's action to convert these water use permits from interim to permanent and the deletion of Special Condition d. Re-issuance of these water use permits is not necessary.

Respectfully submitted,

DEAN A. NAKANO
Acting Deputy Director

Exhibit(s):
1 (Interim Water Use Permittee)
2 (Location Map)
3 (Standard Water Use Permit Conditions)
4 (Special Water Use Permit Conditions)

APPROVED FOR SUBMITTAL:

PETER T. YOUNG
Chairperson
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<td>96843</td>
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</table>
STANDARD WATER USE PERMIT CONDITIONS

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground-water use here must not interfere with surface or other ground-water rights or reservations.

5. The ground-water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its July 18, 2001 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. Protect the water sources (quantity or quality);
   b. Meet other legal obligations including other correlative rights;

EXHIBIT 3
c. insure adequate conservation measures;
d. require efficiency of water uses;
e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
g. carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

11. This permit shall be subject to the Commission's periodic review of the [Puuloa or Kapolei] Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the [Puuloa or Kapolei] Aquifer System, or relevant modified aquifer(s), is reduced.

12. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

13. The use(s) authorized by law and by this permit do not constitute ownership rights.

14. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use.

15. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

EXHIBIT 3
16. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the [Puualo or Kapolei] Ground-Water Management Area.

17. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

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

19. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.
SPECIAL CONDITIONS

a. Should an alternate permanent source of water be found, the Commission reserves the right to revoke the permit, after a hearing.

b. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

c. Pumping shall cease immediately if the chloride reports show that the brackish water developed in the well exceeds 1,000 mg/l of chloride, unless a variance from the chloride limit has been granted. The authority to approve future variance requests is delegated to the Chairperson.

d. The duration of the interim permit shall be
   a) to July 1, 2006, or
   b) until treated wastewater is available and acceptable for use, or
   c) until such time that a significant change in permitted, actual, or projected uses or water supply occurs.

e. Action on any interim permit may be initiated by the Commission or any permittee upon letter request or pursuant to §174C-57 Haw. Rev. Stat. (Modification of permit terms).

f. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.

g. Require adherence to the chloride sampling protocol shown in Attachment B and the submittal of weekly chloride data. The authority to approve variances from the weekly reporting requirement is delegated to the Chairperson.

h. Require adherence to the Conservation Conditions shown in Attachment C.

i. In the event a water shortage is declared by the Commission, permittees in the Puuloa Aquifer System shall comply with the Puuloa Water Shortage Plan adopted by the Commission.

Exhibit 4
GUIDELINES FOR CHLORIDE CONCENTRATION SAMPLING FOR EWA CAPROCK

1. Sample Collection

   • Sampling Schedule

     The sampling schedule depends upon your pump capacity:

     | Pump Capacity (gpm) | Sampling Schedule   |
     |---------------------|---------------------|
     | Less than or equal to 50 | Once a month        |
     | Greater than 50      | Once a week         |

   • When to Sample

     Before taking a sample, allow a minimum length of time to elapse after turning on the pump. This minimum time can be read off the attached table for your well casing diameter and your pump capacity. If you sample 20 minutes after the minimum time, you should consistently sample 20 minutes after the minimum time each time you take samples.

   • Sample Bottle

     Use a plastic container and cap that holds a volume of about a pint. Rinse the container three times with the water to be sampled before taking the sample. Also rinse the cap with sample water.

   • Labeling

     On the sample bottle, affix a label that contains the following information:

     Well No.
     Date
     Time Sampled
     Elapsed Time after pump on
     Sampler's Name
     Water Temperature (if available)
     Pumping Rate (prior to sampling)
2. Determination of Chloride Concentration

- Private Laboratories

If the sample is sent to a private laboratory, then prepare the water sample and label the bottle in the manner described above.

Private laboratories will use methods that are more accurate than field methods described below.

- Hach Kit (Drop Count Titrator)

Be aware of the approximate chloride concentration range in your well. Use the appropriate sample bottle for titration. Be consistent with the end-point color change.

For low chloride concentrations (5-100 mg/l) each drop will equal 5 mg/l. For higher concentrations (20-400 mg/l) each drop equals 20 mg/l. Other kits for concentrations greater than 400 mg/l (500-10,000 mg/l) each drop is equal to 500 mg/l. Obviously, for water greater than 400 mg/l, a "drop-count" Hach Kit is not appropriate, and a digital titrator, described below, should be used.

- Hach Kit (Digital Titrator)

A digital titrator is the appropriate method for water with greater than 400 mg/l chloride. A digital titrator using silver nitrate is accurate to within 10 mg/l for a chloride range from 10-10,000 mg/l, and for a titrator using mercuric nitrate accuracy varies from 0.1-20 mg/l for a chloride range of 10-8,000 mg/l.

Note: Be consistent with the end-point color. Silver nitrate ages and needs to be replenished within the recommended guidelines of the Hach Company.

- Other Methods

An ion-selective probe for chloride is available, and can measure concentration from 1.8-35,500 mg/l.
3. Reporting Results

• How to Report

The following information should be entered on the "Monthly Ground Water Use Report" form provided by the Commission on Water Resource Management:

1. Chloride concentration (mg/l) and temperature (°F) in the columns provided.

   Under "Notes" Section of the Monthly Water Use Report:

2. Method used for chloride analysis:________________

3. Total elapsed time before sampling:______________

If there are any questions, please call the Commission on Water Resource Management staff at 587-0265 on Oahu or toll free from the neighbor islands 1-800-468-4644 ext. 70265.
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1 Assumes saturated well depth of 100 feet.

2 Five well volumes is a standard guideline recommended by EPA.
1. The permittee shall adopt self-administered water conservation programs and plans with collective monitoring to protect and maintain the caprock resource. Water conservation programs and plans shall be submitted to the Commission within 60 days from the date of Commission approval.

2. Water conservation programs and plans shall address (as applicable) but not be limited to the following:

   a. Reduce the demand for non-potable water by:
      
      • Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
      • Mulching planting areas with organic materials, etc., to minimize evaporation;
      • Efficiently maintaining the plants;
      • Improving land management practices to conserve water.

   b. Improve efficiency in use and reduce losses and waste of non-potable water by:
      
      • Using efficiently designed landscaping and irrigation systems;
      • Monitoring irrigation requirements and controlling usage accordingly;
      • Managing irrigation scheduling to minimize water demand;
      • Eliminating opportunities for water wastage;
      • Maintaining and improving irrigation systems as necessary.

   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.

Attachment C
Mr. Gerald Yooza  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Road  
Ewa Beach, HI 96706

Dear Mr. Yooza:

We have recently confirmed with the Honolulu Board of Water Supply that the Hawaii Prince Golf Club began receiving reclaimed water for irrigation supply on October 31, 2001. This is a reminder that the variance from the 1,000 mg/l chloride limit expired on April 30, 2002, six (6) months after the first date of reclaimed water delivery. In accordance with the Commission’s action on July 18, 2001, individual well pumping shall cease immediately if the chloride concentrations from individual wells exceed the 1,000 mg/l chloride limit, unless a new variance from the chloride limit is granted.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

[Signature]

ERNEST Y.W. LAU  
Deputy Director

LN:ss
Mr. Gerald Yoza
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

Dear Mr. Yoza:

Notice of Action
Extension of Interim Water Use Permit
Puuloa Ground Water Management Area, Oahu

This letter serves as your official notice of action by the Commission on Water Resource Management (Commission). By a unanimous vote at the meeting on July 18, 2001, the Commission:

1. Extended your interim water use permit (WUP No. 469, Well Nos. 1900-02, 1900-17 to 20, & 1901-03), subject to the Standard Conditions of a Water Use Permit (Attachment A) and the following Special Conditions (which replace former special conditions):

   a. Should an alternate permanent source of water be found, the Commission reserves the right to revoke the permit, after a hearing.

   b. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

   c. Pumping shall cease immediately if the chloride reports show that the brackish water developed in the well exceeds 1,000 mg/l of chloride, unless a variance from the chloride limit has been granted. The authority to approve future variance requests is delegated to the Chairperson.

   d. The duration of the interim permit shall be
      a) to July 1, 2006, or
      b) until treated wastewater is available and acceptable for use, or
      c) until such time that a significant change in permitted, actual, or projected uses or water supply occurs.
SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

1. Article Addressed to:
   Mr. Geral Yoza
   Hawaii Prince Golf Club
   91-1200 Fort Weaver Road
   Ewa Beach, HI 96706

2. Article Number
   P 354 448 616

3. Service Type
   □ Registered
   □ Certified
   □ Express Mail
   □ Insured
   □ Return Receipt for Merchandise
   □ COD

4. Article Addressed to:
   ewa_13i.act

5. Received By: (Print Name)
   Lorrie Silva

6. Sic X

7. Date of Delivery

8. Addressee's Address (Only if requested and fee is paid)
   91-1200 Fort Weaver Road
   Ewa Beach, HI 96706

I also wish to receive the following services (for an extra fee):

1. □ Addressee's Address
2. □ Restricted Delivery
3. Complete items 3, 4a, and 4b.
4. Print your name and address on the reverse of this form so that we can return this card to you.
5. Attach this form to the front of the mailpiece, or on the back if space does not permit.
6. Write "Return Receipt Requested" on the mailpiece below the article number.
7. The Return Receipt will show to whom the article was delivered and the date delivered.

Consult postmaster for fee.

Thank you for using Return Receipt Service.
e. Action on any interim permit may be initiated by the Commission or any permittee upon letter request or pursuant to §174C-57 Haw. Rev. Stat. (Modification of permit terms).

f. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.

g. Require adherence to the chloride sampling protocol shown in Attachment B and the submittal of weekly chloride data. The authority to approve variances from the weekly reporting requirement is delegated to the Chairperson.

h. Require adherence to the Conservation Conditions shown in Attachment C.

i. In the event a water shortage is declared by the Commission, permittees in the Puuloa Aquifer System shall comply with the Puuloa Water Shortage Plan adopted by the Commission.

2. Granted a variance from the 1,000 mg/l chloride limit for Well Nos. 1900-02, 1900-17 to 20, & 1901-03. The variances shall expire six (6) months after the first date of reclaimed water service deliver.

3. Suspended the four-year nonuse for Well Nos. 1900-02, 1900-17 to 20, & 1901-03, beginning from the first date of reclaimed water service delivery under the agreement with the Board of Water Supply. The suspension will be for the duration of this interim permit or until the agreement with Board of Water Supply for reclaimed water service delivery ends, whichever comes first. This condition shall apply to any other interim permittee that converts to reclaimed water service.

The Commission decided that interim permittees shall be notified by letter of the Commission action and extended permit duration and that re-issuance of new interim water use permits for these extended permits is unnecessary.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

LN:ky
Attachments
July 20, 2001

Gilbert Coloma-Agaran
Chairman
Commission on Water Resource Management
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

Re: Request for Relief from Weekly Chloride Monitoring Requirement for Hawaii Prince Golf Club and Coral Creek Golf Course

Dear Chairman Coloma-Agaran:

On July 18, 2001, the Commission on Water Resource Management ("CWRM") extended the interim water use permits for Hawaii Prince Golf Club and Coral Creek Golf Course (collectively "Golf Courses"), subject to a number of special conditions. Special Condition g. requires the Golf Courses to adhere to a specified chloride sampling protocol and submit weekly chloride data.

At the July 18, 2001 meeting, the Golf Courses requested permission to submit monthly instead of weekly chloride data. The CWRM indicated that the Golf Courses should submit a written request that would be reviewed by the Chairman.

The Golf Courses request approval to submit monthly instead of weekly chloride sampling data. Once the Golf Courses begin receiving R-1 treated effluent, the wells will not be operating on a weekly basis. If they were operated once a week of sufficient duration to obtain representative samples, the output of the wells would significantly diminish the volume of R-1 effluent purchased from BWS. In addition, based on past experience, the monthly data adequately depicts the trends in chlorides. The two attached charts, which show the weekly and monthly chloride data for the Hawaii Prince Golf Course wells from 1996 to the present, demonstrate this to be the case.
We appreciate your consideration of our request. Please contact us should you have any questions or require additional information.

Very truly yours,

TERI Y. KONDO
for
WATANABE ING & KAWASHIMA

Enclosures
TYK:rc1

cc: Hawaii Prince Golf Club (w/encl).
    Coral Creek Golf Course (w/encl).
    Tom Nance (w/out encl).
HAWAII PRINCE GOLF COURSE WELLS
WEEKLY CHLORIDE DATA, 1996 TO PRESENT

CHLORIDES (MG/L)

YEAR


WELL 1  WELL 2  WELL 3
WELL 4  WELL 5  EP-22
TESTIMONY BY APPLICANT:

Mrs. Harms stated that according to the Hawaii County Department of Water Supply (DWS), she would need 2 hookups per unit and a total of 16 units that require water. She stated that the units are located approximately 100 feet from where the County system terminates at the entrance to Vacationland. Mrs. Harms stated that DWS informed her that only 50 hookups were allowable to the Association meter, and that the association meter was filled to the maximum. At the present, Mrs. Harms stated that she has a temporary hookup of 10 lines with DWS.

MOTION: (RICHARDS/NOBRIGA)
To approve the submittal as amended in Alternate Recommendation #1.
UNANIMOUSLY APPROVED AS AMENDED.

4. Extension Of Interim Water Use Permits, Puuloa and Kapolei Ground Water Management Areas, Oahu

PRESENTATION OF SUBMITTAL: Ms. Lenore Nakama

AMENDED RECOMMENDATIONS:

That the Commission:

1. Extend the interim permits shown in Exhibit 4, subject to the Standard Conditions of a Water Use Permit (Attachment A) and the following Special Conditions (which replace the former special conditions):

   a. Should an alternate permanent source of water be found, the Commission reserves the right to revoke the permit, after a hearing.

   b. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

   c. Pumping shall cease immediately if the chloride reports show that the brackish water developed in the well exceeds 1,000 mg/l of chloride, unless a variance from the chloride limit has been granted.

   d. The duration of the interim permit shall be

      a) to July 1, 2006, or
      b) until treated wastewater is available and acceptable for use, or
      c) until such time that a significant change in permitted, actual, or projected uses or water supply occurs.
Action on any interim permit may be initiated by the Commission or any permittee upon letter request or pursuant to §174C-57 Haw. Rev. Stat. (Modification of permit terms).

This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.

Require adherence to the chloride sampling protocol shown in Exhibit 8 and the submittal of weekly chloride data. The authority to approve variances from the weekly reporting requirements is delegated to the Chairperson.

Require adherence to the Conservation Conditions shown in Exhibit 9.

In the event a water shortage is declared by the Commission, permittees in the Puuloa Aquifer System shall comply with the Puuloa Water Shortage Plan adopted by the Commission.

Grant variances from the 1,000 mg/l chloride limit to Hawaii Prince Golf Club (Well Nos. 1900-02, 1900-17 to 20, 1901-03), Pacific Tsunami Warning Center (Well No. 1900-23), and The Estate of James Campbell (Well Nos. 1905-08,10). The variances shall expire six (6) months after the first date of reclaimed water service delivery.

Delegate the authority to the Chairperson to approve future variance requests.

The permittees shall be notified by letter of the Commission action and extended permit duration. Re-issuance of new interim water use permits for these extended permits is unnecessary.

Suspend the four-year period of nonuse for the Hawaii Prince Golf Club, Coral Creek Golf Course and Barbers Point Kapolei Golf Course, beginning from the first date of reclaimed water service delivery under their agreement with the Board of Water Supply. The suspension will be for the duration of these interim permits or until the agreement with Honolulu Board of Water Supply for reclaimed water service delivery ends whichever comes first. This condition shall apply to any other interim permittee that converts to reclaimed water service.

TESTIMONY BY APPLICANT:

Ms. Terry Kondo of Watanabe Ing & Kawashima representing Hawaii Prince Golf Course expressed concerns on staff recommendations #2, and 1g.

Mr. Tom Nance stated that when the golf course switches over to the effluent, the wells will not be run weekly. They will be run on occasion to keep them viable for use when effluent is not available. They will not be used on a weekly basis so providing a weekly data will become difficult. In the case of Hawaii Prince, samples that were obtained at one-half to
one-hour intervals were misleading. An internal sample protocol was developed so that all wells have to be run continuously for 24 hours before samples can be obtained. For that reason, Mr. Nance asked if condition 1 g could be modified that reporting be done on a monthly basis. He stated that trends are better noticed on a monthly data report.

Ms. Nakama stated that an administrative waiver was granted for Kapolei Golf Course because the long-term data was so stable. No significant movements were indicated in the water levels. Hawaii Prince and Coral Creek could request an administrative waiver from the weekly chloride-sampling requirement from the Chairperson.

Mr. Glenn Bauer stated that records showed that there were no major differences for Hawaii Prince’s chlorides in the weekly and monthly data. He felt that monthly data reporting would be sufficient.

MOTION: (NOBRIGA/GIRALD)
To approve the submittal as amended.
UNANIMOUSLY APPROVED AS AMENDED.

5. County of Hawaii, Department of Public Works, Application for a Stream Channel Alteration Permit (SCAP-HA-325), Install Three Concrete Culverts and Replace Bridge Structures, Waiakea Stream, Hilo, Hawaii (TMK 2-4-01:007, 010, 122)

PRESENTATION OF SUBMITTAL: Mr. Edwin Sakoda

RECOMMENDATION:

That the Commission:

Approve a stream channel alteration permit for the construction of culverts at Puainako Street and bridge modifications at Komohana Street, Waiakea Stream, Hilo, Hawaii (TMK: 2-4-01:007, 010, 122). The permit shall be valid for two years subject to the standard stream channel alteration permit conditions in Exhibit 5.

MOTION: (NOBRIGA/RICHARDS)
To approve the submittal.
UNANIMOUSLY APPROVED.


PRESENTATION OF SUBMITTAL: Mr. Ryan Imata
STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

July 18, 2001
Honolulu, Oahu

EXTENSION OF INTERIM WATER USE PERMITS
Puuloa and Kapolei Ground Water Management Areas, Oahu

PERMITTEE(S): See Exhibit 1       LANDOWNER(S): See Exhibit 1

LOCATION MAP: See Exhibit 2

BACKGROUND:

On March 3, 1993, the Commission officially adopted the boundary of the entire brackish Ewa Caprock Aquifer as a separate aquifer overlying the existing designated ground water management areas of the Waipahu-Waiawa, Ewa-Kunia, and Makaiwa Aquifer Systems. Due to uncertainties regarding the caprock's sustainable yield and nonpotable utility, the Commission did not adopt a sustainable yield estimate for the caprock. Then-current uses were operating under permanent water use permits.

Designation of the Ewa Caprock as a water management area was precipitated by the City and County of Honolulu's (City) urbanization plans for the Ewa area and a City ordinance requiring dual water systems for all new developments. Potable water was to be provided through the municipal system. Possible sources of non-potable water were brackish ground water from the Ewa Caprock aquifer and reclaimed sewage effluent. The estimated non-potable demand of 25 mgd after full buildout (Kumagai, 1996) far exceeded the estimated natural recharge to the caprock aquifer of less than 16 mgd (Bauer, 1996).

Because there were concerns regarding the future viability of the caprock as a dependable source of brackish water due to the significant loss of return irrigation recharge from sugarcane agriculture, in 1993, the Commission began awarding temporary one-year permits for new uses of caprock ground water. In analyzing water availability, the Commission used guidelines for estimating sustainable yields for the Puuloa, Kapolei, and Malakole areas (Yuen & Associates, Inc., 1989).
On July 13, 1994, the Commission extended temporary one-year permits. The duration of the extended permits was to July 12, 1995.

At the July 5, 1995 Commission meeting in Honokaa, Hawaii, the Commission extended the permits, which were now called interim permits, until such time that a formal decision could be made on Oahu.

On March 13, 1996, the Commission deferred action on existing interim permits and new applications pending a decision on the establishment of a sustainable yield for the caprock.

Also on March 13, 1996, the Commission adopted the following policy statement, clearing the way for application of reclaimed water on lands overlying the Ewa Caprock Aquifer:

"It is the policy of the Commission on Water Resource Management (Commission) to promote the viable and appropriate reuse of reclaimed water in so far as it does not compromise beneficial uses of existing water resources.

I. Ewa Caprock

Recognizing that reclaimed water is a valuable resource in the Ewa Plain, direct or indirect reuse will be championed by the Commission. It is the policy of the Commission that the water resources of the Ewa Caprock Aquifer will be allocated only for nonpotable uses."

On May 14, 1997, the Commission adopted a sustainable yield based on a sustainable capacity for individual irrigation wells at 1,000 milligrams per liter (mg/l) of chloride as an interim management plan, subject to review within two (2) years. The rationale behind the chloride cap was to limit pumpage in those wells approaching the limit, to prevent a build-up of sodium in the clay soils, and to protect other users adjacent to those pumping higher chloride water. The Commission also adopted the Puuola, Kapolei, and Malakole Aquifer Systems in the Ewa Caprock Sector and approved pending applications for new and continued irrigation uses. The specified duration of the interim water use permits was to October, 1998 or until such time that a significant change in permitted, actual, or projected uses or water supply occurs. The October, 1998 date coincided with the possible revocation of unused (former Oahu Sugar Company) agricultural permits and also provided a milestone date to check on the progress of wastewater reuse for private caprock well owners, the availability of which was then scheduled for July, 1999.

On October 22, 1998, the Commission extended the interim water use permits, subject to the Standard Conditions of a water use permit and new special conditions (Exhibit 3). The interim permits specified a duration to: 1) July, 2001, or 2) until treated wastewater is available and acceptable for use, or 3) until such time that a significant change in permitted, actual, or projected uses or water supply occurs. The list of interim permits due to expire in July, 2001 is shown in Exhibit 4. The graphs of reported pumpage and chlorides are shown in Exhibit 5.

On July 20, 2000, an agreement was reached between the Honolulu Board of Water Supply (BWS), the City, and U.S. Filter for BWS' purchase of the Honolulu Wastewater Reclamation Facility. The agreement includes BWS becoming the purveyor of reuse water, with the task of securing customers for 10 mgd by July 1, 2001. U.S. Filter will operate the facility for BWS under a 20-year service agreement. The City will provide secondary effluent to the facility and will take back 4 mgd of the R-1 water for City reuse applications. Some of the reclaimed water will supply industrial uses at Campbell
Industrial Park. (A briefing by the BWS on their reclamation program is scheduled as a separate item on this agenda.)

ANALYSIS/ISSUES:

A significant change in the water supply picture has been the acquisition of the Honouliuli Wastewater Reclamation Facility by the BWS and BWS' new role as purveyor of reclaimed water. Since their recent acquisition of the plant, BWS has been actively promoting the use of reclaimed water for non-potable needs over the Ewa Caprock Aquifer. Negotiations have been finalized for some City projects (West Loch and Ewa Villages developments) and for some of the golf courses that have interim caprock permits. Currently, we understand that a memorandum of understanding for golf course irrigation has been negotiated with Coral Creek, Hawaii Prince, and Barber's Point. The agreement provides for a set rate to July 1, 2006. The staff feels that this would be a good time to revisit these permits and the progress of the reclaimed water effort.

Even with reclaimed water as the primary irrigation source, ground water would still be used for the golf course water features, to maintain the pumps, and to mitigate potential reclaimed water quality or odor issues that may arise. The long-term goal of the golf courses is to blend reclaimed water with caprock ground water. Until reclaimed water is actually delivered and has been shown to be a reliable and acceptable source, the golf courses have requested that their interim permits be renewed for the same quantities. They have also requested that the Commission suspend the four-year nonuse clause for permit revocation. Section 174C-58 Haw. Rev. Stat. provides for the Commission and permittee to enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year revocation period. The staff feels that the promotion of alternative non-potable sources to meet non-potable needs is a satisfactory reason to suspend the four-year revocation period, given the uncertainties associated with this new source conversion, provided that other users and the resource are adequately protected.

PROTECTION OF THE RESOURCE

The current sustainable yield for the caprock aquifers is defined by a sustainable capacity at all irrigation wells in the Puuloa and Kapolei Aquifer Systems which prohibits individual pumpages that cause the specific well to exceed a 1,000 mg/l chloride cap. Enforcement of the chloride cap provides adequate protection for the aquifer. Management of the resource via a chloride cap was adopted on May 14, 1997 as an interim management plan. The staff feels that this management approach has been effective and is not recommending that the strategy be changed at this time.

MAXIMIZING THE UTILITY OF THE RESOURCE

Maximizing the utility of the caprock is intimately tied to wastewater reuse. As wastewater reuse comes on line, the sustainable yield of the caprock will increase, meaning more pumpage may be sustained under the 1,000 mg/l chloride limit. However, the distribution of reclaimed wastewater is uncertain, which will affect chloride distributions and total nonpotable supply. Of the projected total 13 mgd of R-1 water from the Honouliuli Wastewater Reclamation Plant, 1 mgd is needed for in-plant process water, and 2 mgd is planned for industrial uses at James Campbell Industrial Park. This leaves about 10 mgd available for irrigation needs in the region.
Given the City's current plans, the staff estimates that the potential future supply of nonpotable water for irrigation uses on lands overlying the Puuloa Aquifer System, where the competition for nonpotable irrigation water is most severe, could be up to about 15 mgd: 10 mgd reclaimed water plus approximately 5 mgd natural sustainable yield (Bauer, 1996). This assumes that 100% of the treated effluent will be available for reuse in Puuloa, which is improbable. But the availability of reclaimed water will present permittees with a possible alternative should their wells exceed the 1,000 mg/l chloride limit. Likewise, should the 1,000 mg/l limit not be exceeded, the permittees may continue to pump and may even work out a management plan which would allow for alternating between caprock and wastewater reuse to maximize the economical use of both resources. But ultimately, based on current reclaimed water plans, total allocations for the Puuloa Aquifer System should not exceed 15 mgd. Current allocations in the Puuloa Aquifer System total 14.817.

WELL INTERFERENCE

Since there are no ground-water models (solute-transport) that can predict chloride response to pumpage at individual well sites, close monitoring of the resource and enforcement of the chloride cap is critical to protect the resource in this interim period while the City finalizes plans to fully implement its reclamation program. Exhibit 6 shows that the caprock aquifer was significantly influenced by sugarcane irrigation practices and is still in a state of flux. Currently, all interim permittees are required to submit weekly reports of pumpage, water levels, chlorides, and water temperature (unless a variance from this requirement has been approved). All permittees have been put on notice that the reporting requirement will be strictly enforced.

Although enforcement of the 1,000 mg/l chloride cap at each well site will provide adequate protection for the resource, it may not be sufficient to preclude well interference. However, not only will wastewater reuse further protect the resource, it will also help to reduce the effects of well interference that may cause individual wells to exceed the 1,000 mg/l chloride cap. Special Condition f. has been added to the existing interim permits recommended for extension and will be added to all future caprock permits to put the permittees on notice of the risk of reliance on caprock ground water and its uncertain sustainable yield.

The staff has been sending all interim permittees in Puuloa the monthly bulletin which shows all pending permit applications, which should provide the permittees sufficient notice of new proposed uses of Puuloa Caprock ground water. Permittees should review new applications and water data from other nearby wells to proactively protect their sources. Permittees are encouraged to submit comments or objections in accordance with Administrative Rule 13-171-18 (Objection to Proposed Water Use Permit). Further, the staff has been analyzing the weekly water data reports, and we are continuing to work on triggers to implement a water shortage plan. These triggers may be related to some modification of Exhibit 6. Should valid claims of well interference be raised, either by permittees or as a result of the staff's analysis, the Commission may consider implementing a water shortage plan to address the well interference issue.

At this time, only an informal and incomplete water shortage plan exists. On May 14, 1997, the Commission approved a permit classification system for a water shortage plan for the Puuloa Aquifer System as provided under Administrative Rule 13-171-42:

" (a) The commission shall formulate a plan for implementation during periods of water shortage. As a part of the plan, the commission shall adopt a reasonable system of permit..."
classification according to source of water supply, method of extraction or diversion, use of water, or a combination thereof.

(b) In accordance with this chapter, the commission may impose such restrictions on one or more classes of permits as may be necessary to protect the water resources of the area from serious harm and to restore them to their previous condition.

(c) All permittees, unless exempted by the commission, shall submit a water shortage plan outlining how it will reduce its own water use in case of a shortage. Every water shortage plan shall be subject to approval or modification by the commission.

For the Puuloa Aquifer System, the Commission established the highest priority of nonpotable use as agriculture because the State’s policy is to promote agriculture, and also because agricultural correlative uses are assured by the 1978 Constitutional Amendment. The second priority in water use is golf course irrigation because of the economic impacts that may result from inadequate water supply. The lowest priority in water use is landscape irrigation and dust control.

Water shortage plans were requested from all of the users in Puuloa, with the exception of United States Fish and Wildlife Service. The requirement to submit individual water shortage plans is highlighted in the cover letter that transmits the permit and is also stated in Standard Condition 17. The staff will continue to work with users to develop their individual plans. As part of the May 14, 1997 action, the Commission has also delegated the authority to the Chairperson to approve individual water shortage plans and the regional water shortage plan for the Puuloa Aquifer System.

CHLORIDE CONCENTRATION TRENDS

The Commission staff established a caprock well monitoring network in 1993. Each month, the staff collects water level and chloride data at selected caprock wells. The staff’s analysis of the chloride trends at the individual wells and regionally is attached (Exhibit 7). The data show that the chloride concentration in the caprock water varies significantly from place-to-place and from well to well. Some of the reasons for these disparities include the subsurface geology, distance from the coast, well construction, pump capacity, and pumping schedule. Many of the sources have not exceeded the 1,000 mg/l chloride limit. The baseline data suggest that those wells that have exceeded the limit will continue to pump water exceeding 1,000 mg/l of chloride unless there is an influx of less saline water or a complete cessation of pumpage. The staff recommends that those operators with wells and/or batteries having >1,000 mg/l of chloride should apply for a variance from the established limit. Once reclaimed water is available, these wells should only be used for back-up purposes or for blending with reclaimed water to a quality of 1,000 mg/l of chloride or less.

Currently, variances from the chloride cap have been granted to Hawaii Prince Golf Club (Well Nos. 1900-02, 1901-17 to 20, 1901-03) and Pacific Tsunami Warning Center (Well No. 1900-23). In a letter dated August 7, 2000, The Estate of James Campbell (Campbell) requested that the Commission waive the salinity limit for its two nonpotable wells (Well Nos. 1905-08,10). The Commission denied the request on November 16, 2000 because Campbell was in the process of transferring the nonpotable system to the BWS and an alternative source (reclaimed water) would soon be in place. Negotiations are still ongoing for the transfer of the nonpotable water system. Chloride levels at the Campbell wells are now about 1,200 ppm. The staff is recommending that the Commission approve temporary variances from the chloride limit pending the implementation of the reclaimed water system for those users that have requested variances. Other users whose wells are close to the chloride cap may also request variances. Unless a variance is requested and approved, wells exceeding the chloride limit
must shut down. The staff's recommendation on a variance request would be made with consideration to the well's proximity to the ocean and to other wells, it's history of chloride and pumpage, the availability of alternative sources of water and possibility for conversion. The staff is recommending that future variance requests be delegated to the Chairperson for disposition.

RECOMMENDATIONS:

That the Commission:

1. Extend the interim permits shown in Exhibit 4, subject to the Standard Conditions of a Water Use Permit (Attachment A) and the following Special Conditions (which replace the former special conditions):
   a. Should an alternate permanent source of water be found, the Commission reserves the right to revoke the permit, after a hearing.
   b. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.
   c. Pumping shall cease immediately if the chloride reports show that the brackish water developed in the well exceeds 1,000 mg/l of chloride, unless a variance from the chloride limit has been granted.
   d. The duration of the interim permit shall be
      a) to July 1, 2006, or
      b) until treated wastewater is available and acceptable for use, or
      c) until such time that a significant change in permitted, actual, or projected uses or water supply occurs.
   e. Action on any interim permit may be initiated by the Commission or any permittee upon letter request or pursuant to §174C-57 Haw. Rev. Stat. (Modification of permit terms).
   f. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.
   g. Require adherence to the chloride sampling protocol shown in Exhibit 8 and the submittal of weekly chloride data.
   h. Require adherence to the Conservation Conditions shown in Exhibit 9.
   i. In the event a water shortage is declared by the Commission, permittees in the Puuloa Aquifer System shall comply with the Puuloa Water Shortage Plan adopted by the Commission.

2. Grant variances from the 1,000 mg/l chloride limit to Hawaii Prince Golf Club (Well Nos. 1900-02, 1900-17 to 20, 1901-03), Pacific Tsunami Warning Center (Well No. 1900-23), and
The Estate of James Campbell (Well Nos. 1905-08,10). The variances shall expire six (6) months after the first date of reclaimed water service delivery.

3. Delegate the authority to the Chairperson to approve future variance requests.

4. The permittees shall be notified by letter of the Commission action and extended permit duration. Re-issuance of new interim water use permits for these extended permits is unnecessary.

5. Suspend the four-year period of nonuse for the Hawaii Prince Golf Club, Coral Creek Golf Course and Banzai Pipeline Golf Course, beginning from the first date of reclaimed water service delivery under their agreement with the Board of Water Supply. The suspension will be for the duration of these interim permits or until the agreement with Honolulu Board of Water Supply for reclaimed water service delivery ends whichever comes first. This condition shall apply to any other interim permittee that converts to reclaimed water service.

Respectfully submitted,

LINNEL T. NISHIOKA
Deputy Director

Attachment(s): A (Standard Conditions for a Water Use Permit)

Exhibit(s):
1 (Interim Permittees and Landowners at the Source Location)
2 (Well Location Map)
3 (Standard and Special Conditions, approved October 28, 1998)
4 (Interim Permitted Uses, Puuloa and Kapolei Aquifer Systems)
5 (Graphs of Reported Pumpage and Chlorides)
6 (Chloride and Pumpage of Ewa Plantation Shallow Wells)
7 (Chloride Concentration Trends)
8 (Chloride Sampling Protocol)
9 (Conservation Conditions)
STANDARD WATER USE PERMIT CONDITIONS

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground-water use here must not interfere with surface or other ground-water rights or reservations.

5. The ground-water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its July 20, 2001 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:

ATTACHMENT A
a. protect the water sources (quantity or quality);
b. meet other legal obligations including other correlative rights;
c. insure adequate conservation measures;
d. require efficiency of water uses;
e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
g. carry out such other necessary and proper exercise of the State’s and the Commission’s police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

11. This permit shall be subject to the Commission’s periodic review of the applicable aquifer system’s sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the applicable aquifer system, or relevant modified aquifer(s), is reduced.

12. A permit may be transferred, in whole or in part, from the permittee to another, if:

   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

13. The use(s) authorized by law and by this permit do not constitute ownership rights.

14. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee’s water use.

15. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage

ATTACHMENT A
pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

16. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the applicable Ground-Water Management Area.

17. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

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

19. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.
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EXHIBIT 2
EWA CAPROCK INTERIM PERMITS
Special Conditions
(approved on October 22, 1998)

a. Should an alternate permanent source of water be found for this use, then the Commission reserves the right to revoke this permit, after a hearing.

b. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

c. Pumping shall cease immediately if the chloride reports show that the brackish water developed in the well exceeds 1,000 mg/l of chloride.

d. The duration of the interim permit shall be to
   a) to July, 2001, or
   b) until treated wastewater is available and acceptable for use, or
   c) until such time that a significant change in permitted, actual, or projected uses or water supply occurs.

e. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.

f. Require adherence to the chloride sampling protocol (Attachment C) and the submittal of weekly chloride data.

g. Require adherence to the Conservation Conditions (Attachment D).

EXHIBIT 3
STANDARD WATER USE PERMIT CONDITIONS

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground water use here must not interfere with surface or other ground water rights or reservations.

5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its October 22, 1998 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. protect the water sources (quantity or quality);
   b. meet other legal obligations including other correlative rights;
   c. insure adequate conservation measures;
   d. require efficiency of water uses;

EXHIBIT 3
e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
g. carry out such other necessary and proper exercise of the State’s and the Commission’s police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

12. This permit shall be subject to the Commission’s periodic review of the Puuloa or Kapolei Aquifer System’s sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the Puuloa or Kapolei Aquifer System, or relevant modified aquifer(s), is reduced.

13. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

14. The use(s) authorized by law and by this permit do not constitute ownership rights.

15. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee’s water use.

16. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

17. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance
of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the Puuloa or Kapolei Ground Water Management Area.

18. The water use permit granted shall be an interim water use permit, pursuant to HAR § 13-167-3(6). The final determination of the water use quantity shall be made within five years.

19. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

20. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.
Aquifer System Water Use Permit Index

ISLAND OF OAHU

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<tr>
<th>WUP No</th>
<th>Approved</th>
<th>Applicant</th>
<th>Well No.</th>
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Summary for 'SYSTEM' = KAPOLEI (8 detail records) Totalling 2.033

**WMA Aquifer System: PUULOA**

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Summary for 'SYSTEM' = PUULOA (25 detail records)

Totalling 4.867 3.468
Hawaii Prince G.C. Combined Pumpage
(Well Nos. 1900-02,17 to 20;1901-03)

- 12-MAV
- WUP
- combined monthly withdrawal
Haseko (Ewa) Inc. Pumpage (EP27)
Well No. 1902-01

Date (latest data 4/01)

Pumpage (mgd)

- Monthly pumpage
- 12-MAV
- WUP
- Max CI-
Campbell Estate Caprock Pumpage
Kapolei Irr. Wells 1&2 (1905-08,10)

Combined Monthly Pumpage —— 12-MAV —— WUP —— 1905-08 Chloride
Gentry Pacific, Ltd. Pumpage
Sunrise Apt. Well (Well No. 2001-04)

Pumpage (mgd)

Date (latest data 11/00)

- monthly values
- requested amount
- 12-MAV
Ewa By Gentry Community Association
Soda Creek III (Well No. 2001-05)

(pumpage (mgd))

(chloride (mg/l))

date (latest data 4/01)

monthly values WUP 12-MAV Cl- (mg/l)
Palm Villa II Homeowners Association
Palm Villa II Well (Well No. 2001-08)

EXHIBIT 5

Pumpage (mgd)

Date (latest data 04/01)

-- monthly values  -- WUP  --- 12-MAV
Gentry Pacific, Ltd. Pumpage
Coronado Well (Well No. 2001-09)

EXHIBIT 5

Date (latest data 12/00)

Pumpage (mgd)

- Monthly values
- WUP
- 12-MAV
Coral Creek Golf Course Withdrawals
Well 4 (2001-13)

pumpage (mgd)  12-MAV  max chloride level

date (latest data 4/01)

1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8
0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6
0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4
0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

drawdown (foot)
Coral Creek Golf Course Withdrawals
Well 1 (2002-15)

pumpage (mgd)  12-MAV  max chloride level

EXHIBIT 5
Coral Creek Golf Course Withdrawals
Well 2 (2002-17)

[Graph showing water pumpage in mgd and chloride levels over time, with key dates and latest data indicated.]
Coral Creek Golf Course Withdrawals
Lake A (2002-19)

EXHIBIT 5

pumpage (mgd)  12-MAV  max chloride level

Date (latest data 4/01)
State HCDCH Kapolei Wells
Well Nos. 2003-04,07 Combined

Date (latest data 4/01)

pumpage (mgd)

chlordae (mg/l)

monthly pumpage
12-MAV
2003-04 CI
2003-07 CI
WUP
Chloride and Pumpage of Ewa Plantation
Shallow Wells, Ewa Caprock, Oahu

- Basal (high Cl) irrigation
- Basal (low Cl) irrigation
- Initial caprock Cl (average year)

Average Yearly pumpage (mgd)

Year

200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

Average monthly pumpage (mgd)

Ref. CWRM, BWS files, & R-79
June 5, 2001

MEMORANDUM FOR THE RECORD

FROM: Glenn Bauer

SUBJECT: Chloride Concentration Trends in the Ewa Caprock Aquifer

Background

Commission staff has been collecting water samples from various wells and well batteries within the caprock aquifer from Puuloa to Malakole since 1993. Our baseline sampling effort began before the demise of Oahu Sugar Company in 1994, and was augmented by the required reporting of weekly chlorides by caprock water users.

The end of sugar cultivation on the Ewa Plain brought with it an end to the importation of low to moderate salinity basal ground water for irrigation. Prior to 1994, when drip irrigation practices were employed, the estimated return irrigation component from basal ground water was 16 mgd (Mink, 1989) with 8 mgd going to the Puuloa area and 8 mgd going to the Kapolei-Malakole area. At the same time, the plantation pumped an average of 14 mgd (Bauer, 1996) from their shallow wells. After 1994, ground-water input to the caprock included natural inflow from the basal aquifer into the caprock and direct recharge from rainfall and storm runoff. Various authors report a range of natural inflow into the caprock from the basalt. Most of these numbers were derived by numerical models or by salinity mixing model equations and are small when considered on a flux/mile basis. Estimates range from <1 mgd to 3± mgd/mile (Bauer, 1996). Long-term annual average rainfall input over the Ewa Plain has been estimated to be about 5± mgd (summary of results in Bauer, 1996). In addition, long-term annual average for storm runoff recharge over the caprock from Kaloi and Makakilo Gulches was estimated to be between 1 and 2 mgd (Mink, 1989).

In 1997 the Commission adopted a 1,000 mg/l chloride cap for individual wells developing caprock water. The reasoning behind this cap was to limit pumpage in those wells approaching the limit and to prevent a sodium build-up in the clay soils which would adversely affect the growth of certain grasses for golf courses, and to protect other users adjacent to those using higher chloride water.

Chloride Trends Since 1994 East of Fort Weaver Road

The chloride concentration in the caprock water varies significantly from place-to-place, and from well to well. Some of the reasons for these disparities include the subsurface geology, distance from the coast, well construction, pump capacity, and pumping schedule.

Generally, those pumping batteries that have long-term records, are east and south of Fort Weaver Road and Iroquois Point Road respectively, show a rising trend in

EXHIBIT 7
chlorides over time. This trend is partly due to irrigation practices and partly due to the lack of recharge of fresher water into the aquifer and proximity to the shoreline.

Ewa Beach International Golf Club

For Ewa Beach International, chlorides have risen from a low of 1,000 mg/l in late 1996 (due to recharge from a large storm on Election night) to 1,800± mg/l at the present time. CWRM staff samples Well No. 1900-21 at a 1-acre pond (Pond E). Evaporation from the pond undoubtedly affects chloride concentration. Pumpage from this source is less than 1 mgd.

Hawaii Prince Golf Club

Hawaii Prince Golf Club pumps water from 6 wells. Total average pumpage is slightly greater than 1 mgd. CWRM staff typically samples the wells after they have been running for several hours. Hawaii Prince Irrigation Wells 1-5 (1901-03, 1900-17-20) and EP-22 (1900-02). Chloride concentration in Hawaii Prince Wells 1 and 2 have remained relatively stable over the period of record. Well 1 remains about 1,000 mg/l, while Well 2 changed from about 1,000 mg/l in 1994 to 1,200± mg/l at the present time. Wells east of Well 2 are much more saline. The magnitude of the increase in salinity has ranged from 300 mg/l (Well 3) to 500 mg/l (Well 5 and EP-22) over the period of record.

U. S. Fish and Wildlife Well 2101-14

This well is north of Iroquois Point Road. Average pumpage is less than 0.5 mgd. The chloride concentration has shown an improvement since 1996 and remains stable at 1,000± mg/l.

Chloride Trends Since 1994 West of Fort Weaver Road

Gentry Wells

CWRM staff has monitored 5 of the 9 wells developed by Gentry. These wells are low capacity and are used exclusively for irrigation of the common areas within each development. Total Gentry pumpage is less than 0.5 mgd. Since 1997, chloride concentration has remained consistently between 400 and 800 mg/l, well below the 1,000 mg/l cap. The wells monitored are Palm Villa I (2001-06), Palm Villa II (2001-08), Palm Court III (2002-12, monitoring discontinued in 1997), Sunrise (2001-04), and Sun Terra (2001-05). Pump capacities for these wells range from 100-110 gpm.

Haseko EP-27 Well (1902-01)

CWRM staff began monitoring this source in 1994 just after the closing of Oahu Sugar. Static (non-pumping) samples were collected from the open pit near the pump house. Chlorides ranged from 800 to 900 mg/l. In 1997, Haseko began to pump this source at rates approaching 2 mgd. The average rate is about 1 mgd. Chloride
concentration remains stable at 900± mg/l. The stable nature could be that the pumping source skims the top water from the pit.

Coral Creek Golf Course

In 1998, several large pits were excavated and noted north and south of Geiger Road just east of the Honouliuli STP. These pits and drilled wells became part of the Coral Creek battery. Water from the pits is used for water features and for a back-up source (Lake Well 1, 2002-19). Coral Creek Golf Club irrigates using water from Coral Creek Well 1 (2002-15), Coral Creek Well 2 (2002-17), and Coral Creek Well 4 (2001-13). Pumpage is slightly greater than 1 mgd; however, the chloride concentration from the sources ranges between 1,000 mg/l to almost 4,000 mg/l at Well 2. According to golf course personnel, Well 4 pumps the least amount and is the most stable in terms of chloride concentration. It was also noted by golf course personnel that the longer Well 1 and 2 pumps, the saltier the water becomes. Pump capacities for these wells are high. Coral Creek 1 and 2 have 800 gpm pumps, while Coral Creek 4 has a 1,000 gpm pump.

High evaporation rate (close to 90 inches/year) in the Ewa Plain could cause the salinization of the lakes, which, in turn, could be the reason for the high chlorides localized at Well 1 and 2. However, the chloride samples taken from the Lake Well 1 show concentrations ranging from 1,000 to 1,200 mg/l. At the present time, Coral Creek’s saline water does not seem to affect the Gentry sources to the east.

Chloride Trends Since 1994 in the Kapolei Region

HFDCH Kapolei Golf Course

The Kapolei Golf Course utilizes Kapolei Irrigation Wells A, B, C, D, E, and C-I (well nos. 2003-01-05, 07). Well C-I is a replacement well for Well C. Chlorides have been remarkably stable, hovering between 200± mg/l to 600 mg/l, with little variation or trends. It is thought that basal ground-water inflow from the Waianae aquifer in conjunction with a thin caprock is responsible for the stability of the water chemistry in this area. Variations in pumpage are seasonal, but average about 1 mgd.

Kapolei City Wells

Campbell Estates’ Kapolei City Wells (1905-08, 10) supply irrigation water for Kapolei. Average daily pumpage is less than 0.5 mgd. Since 1995 chloride concentrations in both wells have been rising from 600 mg/l to 1,200-1,400 mg/l at the present time. Well 1905-08 (east well) water quality is slightly better than 1905-10. Duration of pumpage prior to sample collection probably influences the chloride concentration. However, it is evident that the overall trend is upwards.

Conclusions
Since the cessation of sugar irrigation, the common chloride trend is generally a linear increase for wells that exceed the 1,000 mg/l cap. The long-term prognosis for these wells will be a continued increase in salinity. However, there are several well batteries and wells that do not fit this trend (e.g. U.S. Fish and Wildlife, Gentry, Haseko, HFDCH Kapolei), and exhibit remarkable chloride stability. The scatter of chloride data associated with Coral Creek cannot be easily explained. Bottom hole elevations are not as great as some of the Gentry Wells, yet the chlorides are much greater and the sensitivity of chloride concentration to pumpage suggest that localized upconing, in conjunction with the high pump capacities, is taking place. Moreover, the relationship of the large lakes (surface evaporation) to the wells is not clearly understood and could play a role in contributing to the pool of high chloride ground water.

As stated above, many of the sources have not exceeded the 1,000 mg/l cap. Those that have, the baseline data suggest that these wells will never pump ≥1,000 mg/l again unless there is an influx of less saline water (e.g. reuse, an increase of recharge from storms i.e. a more normal weather pattern) or a complete cessation of pumpage. In the meantime, those operators with wells and/or batteries >1,000 mg/l chloride should apply for a variance from the 1,000 mg/l cap. It should be implicitly stipulated that once reuse is available, then these wells will only be used as back-up sources or blended with reuse water to a quality of 1,000 mg/l or less.

References:


Hawaii Prince Golf Course
Pumpage and Chlorides

Month/Year

Average Monthly Pumpage (mgd)

Monthly Chloride (mg/l)

1,000 Cl Cap • EP22 ■ HP Well 1 ▼ HP Well 2
x HP Well 3 ▲ HP Well 4 + HP Well 5
U. S. Fish and Wildlife Well 2101-14
Pumpage and Chlorides

Average Monthly Pumpage (mgd)

Monthly Chloride (mg/l)

Month/Year

1,000 Cl Cap
Gentry Wells
Pumpage and Chlorides

![Graph showing monthly pumpage and chlorides over the years from 1994 to 2002. The graph includes data points for various locations such as 1,000 Cl Cap, Palm Villa I, Palm Villa II, Palm Court, Sun Terra, and Sunrise. The x-axis represents the month/year, and the y-axis represents average monthly pumpage in mgd. The graph also shows monthly chlorides in mg/l.]
Coral Creek Golf Course
Pumpage and Chlorides

Average Monthly Pumpage (mgd)

Month/Year

Month/Year

1,000 Cl Cap
Lake Well 1
Well 2
Well 1
Well 4

1,000 Cl Cap
Lake Well 1
Well 2
Well 1
Well 4

Month/Year

Month/Year

Month/Year

Month/Year

Month/Year
Kapolei City Wells (Campbell Estate)
Pumpage and Chlorides

![Graph showing average monthly pumpage and monthly chlorides for the years 1994 to 2002. The graph includes data for Well 1905-10 (West Well) and Well 1905-08 (East Well). There is also a 1,000 Ci Cap indicated.](image)
GUIDELINES FOR CHLORIDE CONCENTRATION SAMPLING FOR EWA CAPROCK

1. Sample Collection

   • Sampling Schedule

      The sampling schedule depends upon your pump capacity:

      | Pump Capacity (gpm) | Sampling Schedule  |
      |--------------------|-------------------|
      | Less than or equal to 50 | Once a month     |
      | Greater than 50       | Once a week       |

   • When to Sample

      Before taking a sample, allow a minimum length of time to elapse after turning on the pump. This minimum time can be read off the attached table for your well casing diameter and your pump capacity. If you sample 20 minutes after the minimum time, you should consistently sample 20 minutes after the minimum time each time you take samples.

   • Sample Bottle

      Use a plastic container and cap that holds a volume of about a pint. Rinse the container three times with the water to be sampled before taking the sample. Also rinse the cap with sample water.

   • Labeling

      On the sample bottle, affix a label that contains the following information:

      Well No.
      Date
      Time Sampled
      Elapsed Time after pump on
      Sampler's Name
      Water Temperature (if available)
      Pumping Rate (prior to sampling)
2. **Determination of Chloride Concentration**

- **Private Laboratories**

If the sample is sent to a private laboratory, then prepare the water sample and label the bottle in the manner described above.

Private laboratories will use methods that are more accurate than field methods described below.

- **Hach Kit (Drop Count Titrator)**

Be aware of the approximate chloride concentration range in your well. Use the appropriate sample bottle for titration. **Be consistent with the end-point color change.**

For low chloride concentrations (5-100 mg/l) each drop will equal 5 mg/l. For higher concentrations (20-400 mg/l) each drop equals 20 mg/l. Other kits for concentrations greater than 400 mg/l (500-10,000 mg/l) each drop is equal to 500 mg/l. Obviously, for water greater than 400 mg/l, a "drop-count" Hach Kit is not appropriate, and a digital titrator, described below, should be used.

- **Hach Kit (Digital Titrator)**

A digital titrator is the appropriate method for water with greater than 400 mg/l chloride. A digital titrator using silver nitrate is accurate to within 10 mg/l for a chloride range from 10-10,000 mg/l, and for a titrator using mercuric nitrate accuracy varies from 0.1-20 mg/l for a chloride range of 10-8,000 mg/l.

**Note:** **Be consistent with the end-point color.** Silver nitrate ages and needs to be replenished within the recommended guidelines of the Hach Company.

- **Other Methods**

An ion-selective probe for chloride is available, and can measure concentration from 1.8-35,500 mg/l.
3. Reporting Results

- How to Report

The following information should be entered on the "Monthly Ground Water Use Report" form provided by the Commission on Water Resource Management:

1. Chloride concentration (mg/l) and temperature (°F) in the columns provided.

Under "Notes" Section of the Monthly Water Use Report:

2. Method used for chloride analysis:

3. Total elapsed time before sampling:

If there are any questions, please call the Commission on Water Resource Management staff at 587-0265 on Oahu or toll free from the neighbor islands 1-800-468-4644 ext. 70265.
<table>
<thead>
<tr>
<th>CASING DIAMETER (in.)</th>
<th>PUMP CAPACITY (gpm)</th>
<th>MINIMUM TIME (min.)</th>
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1 Assumes saturated well depth of 100 feet.

2 Five well volumes is a standard guideline recommended by EPA.
1. The permittee shall adopt self-administered water conservation programs and plans with collective monitoring to protect and maintain the caprock resource. Water conservation programs and plans shall be submitted to the Commission within 60 days from the date of Commission approval.

2. Water conservation programs and plans shall address (as applicable) but not be limited to the following:

   a. Reduce the demand for non-potable water by:
      - Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
      - Mulching planting areas with organic materials, etc., to minimize evaporation;
      - Efficiently maintaining the plants;
      - Improving land management practices to conserve water.

   b. Improve efficiency in use and reduce losses and waste of non-potable water by:
      - Using efficiently designed landscaping and irrigation systems;
      - Monitoring irrigation requirements and controlling usage accordingly;
      - Managing irrigation scheduling to minimize water demand;
      - Eliminating opportunities for water wastage;
      - Maintaining and improving irrigation systems as necessary.

   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.

EXHIBIT 9
Print your name, address and ZIP Code here

COMMISSION ON WATER RESOURCE MANAGEMENT
P. O. Box 621
Honolulu, Hawaii  96809

Attn: Lenore
Is your RETURN ADDRESS complete on the reverse side?

**SENDER:**
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

3. Article Addressed to:
   Garrick K. Iwamuro
   Hawaii Prince Golf Club
   91-1200 Fort Weaver Rd
   Ewa Beach 911 96708

(Well # 1900-02 17 & 20 '901-03)

5. Signature (Addressee) 

6. Signature (Agent) 

4a. Article Number 
   ZO60768182 

4b. Service Type 
   ☐ Registered  ☐ Insured  ☐ Certified  ☐ COD  ☐ Express Mail  ☐ Return Receipt for Merchandise 

7. Date of Delivery 
   1/1/256 

8. Addressee’s Address (Only if requested and fee is paid) 

I also wish to receive the following services (for an extra fee):

1. ☑ Addressee’s Address 
2. ☐ Restricted Delivery 

Consult postmaster for fee.

Thank you for using Return Receipt Service.
Dear Mr. Iwamuro:

Notice Of Action
Extension of Interim Water Use Permits
Puuloa and Kapolei Ground Water Management Areas, Oahu

This letter serves as your official notice of action by the Commission on Water Resource Management (Commission) on October 22, 1998, to extend your interim water use permit, subject to the Standard Conditions of a Water Use Permit (Attachment A) and the following Special Conditions (which replace the former special conditions):

a. Should an alternate permanent source of water be found for this use, then the Commission reserves the right to revoke this permit, after a hearing.

b. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

c. Pumping shall cease immediately if the chloride reports show that the brackish water developed in the well exceeds 1,000 mg/l of chloride.

d. The duration of the interim permit shall be to
a) to July, 2001, or
b) until treated wastewater is available and acceptable for use, or
c) until such time that a significant change in permitted, actual, or projected uses or water supply occurs.

e. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.
f. Require adherence to the chloride sampling protocol (Attachment C) and the submittal of weekly chloride data.

g. Require adherence to the Conservation Conditions (Attachment D).

Although specific action was not taken, the Commission did note that variances approved through the May 14, 1997 action are also extended.

The Commission decided that interim permittees shall be notified by letter of the Commission action and extended permit duration and that re-issuance of new interim water use permits for these extended permits is unnecessary. Attachment B shows the list of extended interim permits.

Please be advised that the Commission directed staff to strictly enforce the weekly water data reporting requirement and the requirement to submit a water shortage plan. (If you have not done so already, please submit your water shortage plan, as required under Standard Condition 17.) In addition, all interim permittees will be sent the monthly bulletin which shows all pending permit applications. Permittees are encouraged to review new applications and water data from nearby wells to proactively protect their sources.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

TIMOTHY E. JOHNS
Deputy Director

LN:ss

Attachment(s): A (Standard Conditions for a Water Use Permit)
B (Extended Interim Water Use Permits)
C (Chloride Sampling Protocol)
D (Conservation Conditions)
STANDARD WATER USE PERMIT CONDITIONS

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground water use here must not interfere with surface or other ground water rights or reservations.

5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its October 22, 1998 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. protect the water sources (quantity or quality);
   b. meet other legal obligations including other correlative rights;
   c. insure adequate conservation measures;
   d. require efficiency of water uses;
   e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
   f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
   g. carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

ATTACHMENT A
10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

12. This permit shall be subject to the Commission's periodic review of the Puuloa or Kapolei Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the Puuloa or Kapolei Aquifer System, or relevant modified aquifer(s), is reduced.

13. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

   Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

14. The use(s) authorized by law and by this permit do not constitute ownership rights.

15. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use.

16. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

17. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the Puuloa or Kapolei Ground Water Management Area.

18. The water use permit granted shall be an interim water use permit, pursuant to HAR § 13-167-3(6). The final determination of the water use quantity shall be made within five years.

19. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

20. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.

ATTACHMENT A
## Extended Interim Water Use Permits

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<th>Permittee</th>
<th>Well No(s.)</th>
<th>WUP No.</th>
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<td>The Estate of James Campbell</td>
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<td>State of Hawaii, Housing Finance &amp; Development Corp.</td>
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<td>Hawaii Prince Golf Club</td>
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<td>The Arbors Association</td>
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<td>U.S. DOC/NOAA/National Weather Service</td>
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</tbody>
</table>

ATTACHMENT B
GUIDELINES FOR CHLORIDE CONCENTRATION SAMPLING FOR EWA CAPROCK

1. Sample Collection
   • Sampling Schedule
     
     The sampling schedule depends upon your pump capacity:

     | Pump Capacity (gpm) | Sampling Schedule  |
     |---------------------|-------------------|
     | Less than or equal to 50 | Once a month      |
     | Greater than 50      | Once a week        |

   • When to Sample
     
     Before taking a sample, allow a minimum length of time to elapse after turning on the pump. This minimum time can be read off the attached table for your well casing diameter and your pump capacity. If you sample 20 minutes after the minimum time, you should consistently sample 20 minutes after the minimum time each time you take samples.

   • Sample Bottle
     
     Use a plastic container and cap that holds a volume of about a pint. Rinse the container three times with the water to be sampled before taking the sample. Also rinse the cap with sample water.

   • Labeling
     
     On the sample bottle, affix a label that contains the following information:

     Well No.
     Date
     Time Sampled
     Elapsed Time after pump on
     Sampler's Name
     Water Temperature (if available)
     Pumping Rate (prior to sampling)

Attachment C
2. Determination of Chloride Concentration

- Private Laboratories

If the sample is sent to a private laboratory, then prepare the water sample and label the bottle in the manner described above.

Private laboratories will use methods that are more accurate than field methods described below.

- Hach Kit (Drop Count Titrator)

Be aware of the approximate chloride concentration range in your well. Use the appropriate sample bottle for titration. Be consistent with the end-point color change.

For low chloride concentrations (5-100 mg/l) each drop will equal 5 mg/l. For higher concentrations (20-400 mg/l) each drop equals 20 mg/l. Other kits for concentrations greater than 400 mg/l (500-10,000 mg/l) each drop is equal to 500 mg/l. Obviously, for water greater than 400 mg/l, a "drop-count" Hach Kit is not appropriate, and a digital titrator, described below, should be used.

- Hach Kit (Digital Titrator)

A digital titrator is the appropriate method for water with greater than 400 mg/l chloride. A digital titrator using silver nitrate is accurate to within 10 mg/l for a chloride range from 10-10,000 mg/l, and for a titrator using mercuric nitrate accuracy varies from 0.1-20 mg/l for a chloride range of 10-8,000 mg/l.

Note: Be consistent with the end-point color. Silver nitrate ages and needs to be replenished within the recommended guidelines of the Hach Company.

- Other Methods

An ion-selective probe for chloride is available, and can measure concentration from 1.8-35,500 mg/l.
3. Reporting Results

- How to Report

The following information should be entered on the "Monthly Ground Water Use Report" form provided by the Commission on Water Resource Management:

1. Chloride concentration (mg/l) and temperature (°F) in the columns provided.

Under "Notes" Section of the Monthly Water Use Report:

2. Method used for chloride analysis: ______________

3. Total elapsed time before sampling: ______________

If there are any questions, please call the Commission on Water Resource Management staff at 587-0265 on Oahu or toll free from the neighbor islands 1-800-468-4644 ext. 70265.
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      - Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
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      - Eliminating opportunities for water wastage;
      - Maintaining and improving irrigation systems as necessary.

   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.

Attachment D
EXTENSION OF INTERIM WATER USE PERMITS
Puuloa and Kapolei Ground Water Management Areas, Oahu

PERMITEE(S):
(Well Nos. 1905-08, 10)
The Estate of James Campbell
1001 Kamokila Blvd.
Kapolei, HI 96707

(Well Nos. 2003-04, 07)
State of Hawaii,
Housing Finance & Development Corp.
7 Waterfront Plaza, Suite 300
500 Ala Moana Blvd.
Honolulu, HI 96813

(Well Nos. 2003-01, 02, 05)
Kapolei People's Inc.
91-701 Farrington Hwy.
Kapolei, HI 96707

(Well Nos. 1900-02, 17 to 20 & 1901-03)
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

(Well No. 2001-03)
City and County of Honolulu
Department of Parks and Recreation
650 South King Street
Honolulu, HI 96813

(Well Nos. 2001-04, 09, 10)
Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809

LANDOWNER(S):
Same

Same

Same

Same

Same
On March 3, 1993, the Commission officially adopted the boundary of the entire brackish Ewa Caprock Aquifer as a separate aquifer overlying the existing designated ground water management areas of the Waipahu-Waiawa, Ewa-Kunia, and Makaiwa Aquifer Systems. Due to uncertainties regarding the caprock's sustainable yield and nonpotable utility, the Commission did not adopt a sustainable yield estimate for the caprock.

On April 28, 1993, the Commission awarded temporary one-year permits for new irrigation uses of ground water in the Ewa Caprock because there were concerns regarding the future viability of the caprock as a dependable source of brackish water due to the significant loss of return irrigation recharge from sugarcane agriculture. In analyzing water availability, the Commission used guidelines for sustainable yields for the Puuloa, Kapolei, and Malakole areas (Yuen & Associates, Inc., 1989).

On July 13, 1994, the Commission extended temporary one-year permits. The duration of the extended permits was to July 12, 1995.
At the July 5, 1995 Commission meeting in Honokaa, Hawaii, the Commission extended the permits, which were now called interim permits, until such time that a formal decision could be made on Oahu.

On March 13, 1996, the Commission deferred action on existing interim permits and new applications pending a decision on the establishment of a sustainable yield for the caprock.

On May 14, 1997, the Commission adopted a sustainable yield based on a sustainable capacity for individual irrigation wells at 1,000 milligrams per liter (mg/l) of chloride as an interim management plan, subject to review within two (2) years. The Commission also adopted the Puuloa, Kapolei, and Malakole Aquifer Systems in the Ewa Caprock Sector and approved pending applications for new and continued irrigation uses. The specified duration of the interim water use permits is to October, 1998 or until such time that a significant change in permitted, actual, or projected uses or water supply occurs. The October, 1998 date coincides with the possible revocation of unused (former Oahu Sugar Company) agricultural permits and also provides a milestone date to check on the progress of wastewater reuse for private caprock well owners, the availability of which was then scheduled for July, 1999.

ANALYSIS/ISSUES:

There has been no significant change in permitted, actual, or projected uses or water supply. Current interim water use permits and 12-month moving average withdrawals are shown in Exhibit 2. (Standard and Special Conditions of the interim permits are shown in Attachments A and B.) Exhibit 3 contains a complete listing of all permitted uses in the Puuloa and Kapolei Aquifer Systems. (Please note that the October 22, 1998 agenda includes three items that, if approved, will reduce the total permitted uses in Puuloa.)

PROTECTION OF THE RESOURCE

The current sustainable yield for the caprock aquifers is defined by a sustainable capacity at all irrigation wells in the Puuloa and Kapolei Aquifer Systems which prohibits individual pumpages that cause the specific well to exceed a 1,000 mg/l chloride cap. Enforcement of the chloride cap provides adequate protection for the aquifer.

The chloride cap is tied to anticipated wastewater reuse, which was planned to occur via a percolation trench to recharge the caprock aquifer with up to 13 million gallons per day (mgd) of treated effluent (Kumagai, 1996, Final Report, Recommendation for Water Reclamation, Nonpotable Water Plan for Oahu, Prepared for: Commission on Water Resource Management, State of Hawaii, and Department of Wastewater Management, City and County of Honolulu). However, the City now plans to deliver R-1 water directly to individual users. In either reuse application, the current sustainable yield method is and has been an effective means to protect the aquifer.

MAXIMIZING THE UTILITY OF THE RESOURCE(S)

Maximizing the utility of the caprock is intimately tied to wastewater reuse. As wastewater reuse comes on line, the sustainable yield of the caprock will increase, meaning more pumpage may be sustained under the 1,000 mg/l chloride limit. However, the distribution of reclaimed wastewater is uncertain, which will affect chloride distributions and total nonpotable supply. Although the City has not yet made reclaimed water available for nonpotable uses that will support their plans for urbanization of the Ewa area and the City-required dual water systems for new urban
development, the City has indicated that private irrigation uses over the caprock may be served by reclaimed water by July, 2001. Of the projected total 13 mgd R-1 water from the Honouliuli Wastewater Treatment Plant, 1 mgd is needed for in-plant process water, and 2 mgd is planned for industrial uses at James Campbell Industrial Park. This leaves about 10 mgd available for irrigation needs in the region.

The City is in the process of finalizing a contract with U.S. Filters for the construction, operation, and marketing for a reclamation system. Until the contract is finalized, the City will not enter into any agreements with individual users for the purchase of the R-1 water. As such, Special Condition D (Attachment B) could not be met by the users, and these users should not be penalized for this noncompliance.

Given the City's current plans, the staff estimates that the potential future supply of nonpotable water for irrigation uses on lands overlying the Puuloa Aquifer System, where the competition for nonpotable irrigation water is most severe, could be up to about 15 mgd: 10 mgd reclaimed water plus approximately 5 mgd natural sustainable yield (Bauer, 1996). This assumes that 100% of the treated effluent will be available for reuse in Puuloa, which is improbable. But the availability of reclaimed water will present permittees with a possible alternative should their wells exceed the 1,000 mg/l chloride limit. Likewise, should the 1,000 mg/l limit not be exceeded, the permittees may continue to pump and may even work out a management plan which would allow for alternating between caprock and wastewater reuse to maximize the economical use of both resources. But ultimately, based on current reclaimed water plans, total allocations should not exceed 15 mgd.

Management of the resource via a chloride cap was adopted on May 14, 1997 as an interim management plan, subject to review in two (2) years. By May, 1999 or as total allocations begin to approach the total nonpotable supply in Puuloa, the Commission may consider establishing a regional sustainable yield, which would be something less than 15 mgd for the Puuloa area, unless additional water supply (e.g., expansion of the wastewater reclamation plant) becomes available. It is uncertain whether the chloride cap would be supplanted by a regional sustainable yield number.

WELL INTERFERENCE

Since there are no ground-water models (solute-transport) which can predict chloride response to pumpage at individual well sites, close monitoring of the resource and enforcement of the chloride cap is critical to protect the resource in this interim period while the City finalizes plans to implement a reclamation program. Exhibit 6 shows that the caprock aquifer was significantly influenced by sugarcane irrigation practices and is still in a state of flux. Currently, all interim permittees are required to submit weekly reports of pumpage, water levels, chlorides, and water temperature (unless a variance from this requirement has been approved). All permittees are put on notice that the reporting requirement will be strictly enforced.

Although enforcement of the 1,000 mg/l chloride cap at each well site will provide adequate protection for the resource, it may not be sufficient to preclude well interference. However, not only will wastewater reuse further protect the resource, it will also help to reduce the effects of well interference that may cause individual wells to exceed the 1,000 mg/l chloride cap. Special Condition e. has been added to the existing interim permits recommended for extension and will be added to all future caprock permits to put the permittees on notice of the risk of reliance on caprock ground water and its uncertain sustainable yield.

The staff proposes to send all interim permittees in Puuloa the monthly bulletin which shows all pending permit applications, which should provide the permittees sufficient notice of new proposed uses of Puuloa Caprock ground water. Permittees should review new applications and water data from other nearby wells to proactively protect their sources. Permittees are encouraged to submit comments or objections in accordance with Administrative Rule 13-171-18 (Objection to Proposed...
Water Use Permit. Further, the staff has been analyzing the weekly water data reports, and we are currently working on triggers to implement a water shortage plan. These triggers may be related to some modification of Exhibit 6. Should valid claims of well interference be raised, either by permittees or as a result of the staff's analysis, the Commission may consider implementing a water shortage plan to address the well interference issue.

However, at this time, only an informal and incomplete water shortage plan exists. On May 14, 1997, the Commission approved a permit classification system for a water shortage plan for the Puuloa Aquifer System as provided under Administrative Rule 13-171-42:

- (a) The commission shall formulate a plan for implementation during periods of water shortage. As a part of the plan, the commission shall adopt a reasonable system of permit classification according to source of water supply, method of extraction or diversion, use of water, or a combination thereof.
- (b) In accordance with this chapter, the commission may impose such restrictions on one or more classes of permits as may be necessary to protect the water resources of the area from serious harm and to restore them to their previous condition.
- (c) All permittees, unless exempted by the commission, shall submit a water shortage plan outlining how it will reduce its own water use in case of a shortage. Every water shortage plan shall be subject to approval or modification by the commission."

The highest priority of nonpotable use is agriculture because the State's policy is to promote agriculture, and also because agricultural correlative uses are assured through the 1978 Constitutional Amendment. The second priority in water use is golf course irrigation because of the economic impacts that may result from inadequate water supply. The lowest priority in water use is landscape irrigation and dust control.

The priorities assigned to each permitted use and the maximum reductions indicated in the individual users' water shortage plans are shown in the last two columns of Exhibit 7. Individual water shortage plans outline smaller initial cutbacks (i.e., 10% to 30%), however under the most severe shortage situations, Exhibit 7 shows the maximum reduction in Puuloa Aquifer System pumpage would have been at least 3.718 mgd. However, this 3.718 mgd amount is subject to change following proposed revocation actions for unused agricultural allocations and formulation and adoption of a regional shortage plan.

Water shortage plans were requested from all of the users in Puuloa, with the exception of United States Fish and Wildlife Service. The requirement to submit individual water shortage plans is highlighted in the cover letter which transmits the permit and is also stated in Standard Condition 17. Not all users have submitted water shortage plans nor returned signed permits (see Exhibit 8). The staff will continue to work with these users to develop their individual plans. As part of the May 14, 1997 action, the Commission has also delegated the authority to the Chairperson to approve individual water shortage plans and the regional water shortage plan for the Puuloa Aquifer System.

RECOMMENDATIONS:

That the Commission:

1. Extend the interim permits shown in Exhibit 2, subject to the Standard Conditions of a Water Use Permit (Attachment A) and the following Special Conditions (which replace the former special conditions):

   a. Should an alternate permanent source of water be found for this use, then the Commission reserves the right to revoke this permit, after a hearing.
b. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

c. Pumping shall cease immediately if the chloride reports show that the brackish water developed in the well exceeds 1,000 mg/l of chloride.

d. The duration of the interim permit shall be to
   a) to July, 2001, or
   b) until treated wastewater is available, acceptable, and affordable for use, or
   c) until such time that a significant change in permitted, actual, or projected uses or water supply occurs.

e. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.

f. Require adherence to the chloride sampling protocol shown in Exhibit 4 and the submittal of weekly chloride data.

g. Require adherence to the Conservation Conditions shown in Exhibit 5.

h. In the event a water shortage is declared by the Commission, permittees shall comply with the Puuloa Water Shortage Plan adopted by the Commission.

2. The permittees shall be notified by letter of the Commission action and extended permit duration. Re-issuance of new interim water use permits for these extended permits is unnecessary.

Respectfully submitted,

TIMOTHY E. JOHNS
Deputy Director

Attachment(s):

A (Standard Conditions for a Water Use Permit)
B (Special Interim Water Use Permit Conditions)

Exhibit(s):

1 (Location Map)
2 (Current Interim Permitted Uses, Puuloa and Kapolei Aquifer Systems)
3 (Current Permitted Uses, Puuloa and Kapolei Aquifer Systems)
4 (Chloride Sampling Protocol)
5 (Conservation Conditions)
6 (Chloride and Pumpage of Ewa Plantation Shallow Wells)
7 (Partial Water Shortage Plan)
8 (Summary of Unsigned Permits and No Water Shortage Plan)
STANDARD WATER USE PERMIT CONDITIONS

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground water use here must not interfere with surface or other ground water rights or reservations.

5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its October 22, 1998 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. protect the water sources (quantity or quality);
   b. meet other legal obligations including other correlative rights;
   c. insure adequate conservation measures;
   d. require efficiency of water uses;
   e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
   f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
   g. carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

ATTACHMENT A
Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

12. This permit shall be subject to the Commission's periodic review of the Puuola or Kapolei Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the Puuola or Kapolei Aquifer System, or relevant modified aquifer(s), is reduced.

13. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

14. The use(s) authorized by law and by this permit do not constitute ownership rights.

15. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use.

16. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

17. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the Puuola or Kapolei Ground Water Management Area.

18. The water use permit granted shall be an interim water use permit, pursuant to HAR § 13-167-3(6). The final determination of the water use quantity shall be made within five years.

19. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

20. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.

ATTACHMENT A
SPECIAL INTERIM WATER USE PERMIT CONDITIONS

a. The duration of the interim permits shall be to October, 1998 or until such time that a significant change in permitted, actual, or projected use or water supply occurs.

b. Require adherence to the chloride sampling protocol shown in Exhibit 8 and the submittal of weekly chloride data.

c. Require adherence to the Conservation Conditions shown in Exhibit 12.

d. Require the following PCUG members to sign a contract within twelve (12) months with the City Department of Wastewater Management to buy reclaimed water by July 1, 1999 for the cumulative amounts specified in Exhibit 7 (Pro-Rata Share):

1) Gentry Investment Co. - Commitment to use a total of 0.430 mgd of R-1 by July, 1999 for a corresponding reduction in allocation for Well No. 2002-15 and Well No. 2001-10.

2) Haseko (Ewa), Inc. - Commitment to use a total of 0.40 mgd of R-1 by July, 1999 for a corresponding reduction in allocation for Well No. 1902-01.

3) Hawaii Prince Golf Club - Commitment to use a total of 0.40 mgd of R-1 by July, 1999 for a corresponding reduction in allocation for Well Nos. 1900-02, 17 to 20 & 1901-03.

4) Ewa Beach International Golf Club - Commitment to use a total of 0.27 mgd of R-1 by July, 1999 for a corresponding reduction in allocation for Well Nos. 1900-21, 22 & 1959-08.

ATTACHMENT B
# Current Active Water Use Permits

(Excluding salt water use per [f:/work/database/reports/wup-wma.rpt])

**ISLAND OF OAHU**  
**WMA Aquifer System:** PUULOA  
**Sustainable Yield =** mgd

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21 Permits Totalling 4,826 mgd  
Available SY 4,987 mgd

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**EXHIBIT 2**

(f:/work/database/reports/wup-wma.rpt)
## Current Active Water Use Permits (Excluding salt water use permits)

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**Sustainable Yield:** mgd

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7 Permits Totalling 1.796 Available SY

**EXHIBIT 2**

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<td>GENTRY PACIFIC, LTD.</td>
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<td>HONOLULIULI UNIT</td>
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38 Permits Totalling 17.196
Available SY

EXHIBIT 3
Current Active Water Use Permits (Excluding salt water use permits)

October 7, 1998

ISLAND OF OAHU
WMA Aquifer System: KAPOLEI

Sustainable Yield = mgd

<table>
<thead>
<tr>
<th>No. Approved</th>
<th>Applicant</th>
<th>Well No</th>
<th>Well Name</th>
<th>WUP (mgd)</th>
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<td>438</td>
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<td>2003-01</td>
<td>KAPOLEI G.COURSE A</td>
<td>1.000</td>
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<tr>
<td>438</td>
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<td>KAPOLEI IRR D</td>
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</table>

9 Permits Totalling Available SY

2.946

EXHIBIT 3

(f:\work\database\reports\wup-wma.rpt)
GUIDELINES FOR CHLORIDE CONCENTRATION SAMPLING FOR EPA CAPROCK

1. Sample Collection

• Sampling Schedule

The sampling schedule depends upon your pump capacity:

<table>
<thead>
<tr>
<th>Pump Capacity (gpm)</th>
<th>Sampling Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than or equal to 50</td>
<td>Once a month</td>
</tr>
<tr>
<td>Greater than 50</td>
<td>Once a week</td>
</tr>
</tbody>
</table>

• When to Sample

Before taking a sample, allow a minimum length of time to elapse after turning on the pump. This minimum time can be read off the attached table for your well casing diameter and your pump capacity. If you sample 20 minutes after the minimum time, you should consistently sample 20 minutes after the minimum time each time you take samples.

• Sample Bottle

Use a plastic container and cap that holds a volume of about a pint. Rinse the container three times with the water to be sampled before taking the sample. Also rinse the cap with sample water.

• Labeling

On the sample bottle, affix a label that contains the following information:

Well No.
Date
Time Sampled
Elapsed Time after pump on
Sampler's Name
Water Temperature (if available)
Pumping Rate (prior to sampling)
2. Determination of Chloride Concentration

- Private Laboratories

If the sample is sent to a private laboratory, then prepare the water sample and label the bottle in the manner described above.

Private laboratories will use methods that are more accurate than field methods described below.

- Hach Kit (Drop Count Titrator)

Be aware of the approximate chloride concentration range in your well. Use the appropriate sample bottle for titration. **Be consistent with the end-point color change.**

For low chloride concentrations (5-100 mg/l) each drop will equal 5 mg/l. For higher concentrations (20-400 mg/l) each drop equals 20 mg/l. Other kits for concentrations greater than 400 mg/l (500-10,000 mg/l) each drop is equal to 500 mg/l. Obviously, for water greater than 400 mg/l, a "drop-count" Hach Kit is not appropriate, and a digital titrator, described below, should be used.

- Hach Kit (Digital Titrator)

A digital titrator is the appropriate method for water with greater than 400 mg/l chloride. A digital titrator using silver nitrate is accurate to within 10 mg/l for a chloride range from 10-10,000 mg/l, and for a titrator using mercuric nitrate accuracy varies from 0.1-20 mg/l for a chloride range of 10-8,000 mg/l.

**Note:** **Be consistent with the end-point color.** Silver nitrate ages and needs to be replenished within the recommended guidelines of the Hach Company.

- Other Methods

An ion-selective probe for chloride is available, and can measure concentration from 1.8-35,500 mg/l.

EXHIBIT 4
3. **Reporting Results**

   - How to Report

   The following information should be entered on the **"Monthly Ground Water Use Report"** form provided by the Commission on Water Resource Management:

   1. Chloride concentration (mg/l) and temperature (°F) in the columns provided.

   **Under "Notes" Section of the Monthly Water Use Report:**

   2. Method used for chloride analysis:

   3. Total elapsed time before sampling:

   If there are any questions, please call the Commission on Water Resource Management staff at 587-0265 on Oahu or toll free from the neighbor islands 1-800-468-4644 ext. 70265.
<table>
<thead>
<tr>
<th>CASING DIAMETER (in.)</th>
<th>PUMP CAPACITY (gpm)</th>
<th>MINIMUM TIME (min.)</th>
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</thead>
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<td>6</td>
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<td>140</td>
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<tr>
<td></td>
<td>20-50</td>
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<td>10-20</td>
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<td></td>
<td>20-50</td>
<td>125</td>
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<td>85</td>
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<tr>
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<td>700-1000</td>
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<tr>
<td></td>
<td>&gt;1000</td>
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</table>

1 Assumes saturated well depth of 100 feet.

2 Five well volumes is a standard guideline recommended by EPA.
1. The permittee shall adopt self-administered water conservation programs and plans with collective monitoring to protect and maintain the caprock resource. Water conservation programs and plans shall be submitted to the Commission within 60 days from the date of Commission approval.

2. Water conservation programs and plans shall address (as applicable) but not be limited to the following:
   a. Reduce the demand for non-potable water by:
      i. Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
      ii. Mulching planting areas with organic materials, etc., to minimize evaporation;
      iii. Efficiently maintaining the plants;
      iv. Improving land management practices to conserve water.
   b. Improve efficiency in use and reduce losses and waste of non-potable water by:
      i. Using efficiently designed landscaping and irrigation systems;
      ii. Monitoring irrigation requirements and controlling usage accordingly;
      iii. Managing irrigation scheduling to minimize water demand;
      iv. Eliminating opportunities for water wasting;
      v. Maintaining and improving irrigation systems as necessary.
   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.

EXHIBIT 5
Chloride and Pumpage of Ewa Plantation
Shallow Wells, Ewa Caprock, Oahu

FIGURE 7
- EP-20
- EP-21
- EP-22
- EP-23
- EP-24
- EP27,28
- EP30

Ref: CHRol, BNVS Res. R-76, & Sheets (1983, 1940)
### Allocation Plan, Ewa Caprock Ground Water Management Area, Puuloa

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<th>User</th>
<th>Well Name/No.</th>
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<th>Recommended Allocation</th>
<th>Basis</th>
<th>Water Shortage Plan</th>
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1. Highest priority (Ag)
2. Intermediate priority (G. Course)
3. Lowest priority (Landscape Irr, dust control)

Maximum reduction indicated in water shortage plan.
### Current Active Water Use Permits

(Excluding salt water use permits)

**ISLAND OF OAHU**

**WMA Aquifer System:** PUULOA

**Sustainable Yield:** mgd

**WUP Project:**

<table>
<thead>
<tr>
<th>Well No</th>
<th>Well Name</th>
<th>Signed (mgd)</th>
<th>WUP (mgd)</th>
<th>Shortage Plan</th>
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38 Permits Totalling 17.196

Available SY
# Current Active Water Use Permits

(Excluding salt water use permits)

October 15, 1998

**ISLAND OF OAHU**

**WMA Aquifer System:** KAPOLEI

**Sustainable Yield:** mgd

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9 Permits Totalling 2.946

Available SY
Mr. Edwin Sakoda, Acting Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809  

Dear Mr. Edwin Sakoda:

Subject: Reuse Agreements Between the City and County of Honolulu and Gentry, Ltd.; Haseko, Inc./Coral Creek Golf Course; and Hawaii Prince Golf Course

This is to inform you that the City and County of Honolulu has issued an award to U.S. Filter Corporation (USF) for a contract to design, build, and operate a 13 mgd wastewater reclamation facility for beneficial reuse of the secondary effluent from the Honouliuli Wastewater Treatment Plant.

The project will be implemented in two phases. Phase 1 will treat 8 mgd of secondary effluent to R-1 quality standards: 2 mgd will undergo further treatment for use as industrial service water for Campbell Industrial Park; 2 mgd is for Honouliuli in-plant uses; 2 mgd is for irrigation of City owned golf courses West Loch and Ewa Villages and 2 mgd is available for customers between the Honouliuli plant and the City of Kapolei. In Phase 2 of the project USF will expand the capacity of the plant to 13 mgd by July 1, 2001. The remaining 5 mgd will be available to non potable users in the Ewa Plain for landscape and golf course irrigation.

We are aware that our reclamation facility is an integral factor in managing the Ewa Caprock and are pleased to be part of this effort. We have continued to meet with Gentry, Haseko, Hawaii Prince Golf Course, Coral Creek Golf Course and New Ewa Beach Golf Course and keep them informed of the City’s progress for the R-1 facility. The City, however, will not be able to enter into formal agreements regarding the purchase of reclaimed water in accordance with the timetable established for these permit users in their interim permits.

We suggest that the date to enter into agreements to purchase the reclaimed water be extended to October 31, 1999, or soon thereafter. As Phase 2 of the reclamation facility is developed, we will have a more definite time frame for the availability and cost of the
reclaimed water. The City will then be able to obtain commitments from customers to buy reclaimed water. We do look forward to coordinating the City's efforts with the Water Commission to make this water available for those now using groundwater from the Ewa Caprock.

If there are any questions, please do not hesitate to contact me at 527-6663.

Sincerely,

KENNETH E. SPRAGUE
Director

cc: Gentry Homes, Ltd.; Attn.: Jeffrey C. Dinsmore
560 N. Nimitz Highway, Suite 213
Honolulu, Hawaii 96817

Hawaii Prince Golf Club; Attn.: Garrick Iwamuro
91-1200 Fort Weaver Road
Ewa Beach, Hawaii 96706

Haseko, Inc.; Attn.: Nelson Lee
820 Millani Street, Suite 820
Honolulu, Hawaii 96813-2938
Mr. Garrick K. Iwamuro  
Hawaii Prince Golf Club  
91-1200 Ft. Weaver Road  
Ewa Beach, HI  96706

Dear Mr. Iwamuro:

Thank you for your letter dated January 27, 1998, regarding the conditions of Water Use Permit No. 469. We understand that you have some questions about the permit conditions. In order to address your concerns, we need to more fully understand them.

Please elaborate on your references to contract law and what you mean by "...the Commission does not intend for the conditions of the permit to be governed by contract law in the State of Hawaii." Could you also explain your reservation of a right to challenge the conditions of the permit and why you feel the need to do so. Upon receipt of your response, we will attempt to address your concerns.

If you have any questions, please call the Commission staff at 587-0218.

Sincerely,

[Signature]
EDWIN T. SAKODA  
Acting Deputy Director

LN:ss
TELECOPY MESSAGE

TO: Lenore

FROM: Debrah Blockman

SUBJECT: Hawaii Prince Golf Club

COMMENTS: Enclosed is a sample letter requesting more information. Feel free to modify as you feel necessary.

Number of pages transmitted, including this transmittal: 2

If you do not receive any of the pages, please call 587-2985.

WARNING: This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged or confidential. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone, and return the original to us at the above address via the U.S. postal service. Thank you.
March 30, 1998

Mr. Garrick K. Iwamuro
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Thank you for your letter dated January 27, 1998, regarding the conditions of Water Use Permit No. 469. We understand that you have some questions about the permit conditions. In order to address your concerns, we need to more fully understand them.

Please elaborate on your references to contract law and what you mean by "...the Commission does not intend for the conditions of the permit to be governed by contract law in the State of Hawaii." Could you also explain your reservation of a right to challenge the conditions of the permit and why you feel the need to do so. Upon receipt of your response, we will attempt to address your concerns.

If you have any questions, please feel free to call the Commission staff at 587-0218.

Sincerely,

Michael D. Wilson
Chairperson
MEMORANDUM

TO: Edwin T. Sakoda, Branch Chief, Regulation Branch, Commission on Water Resource Management
THRU: Sonia Faust, Supervising Deputy Attorney General
FROM: Deborah L. Brockman, Deputy Attorney General

RE: Request for legal advice regarding permit conditions for Hawaii Prince Golf Course

We understand that Garrick Iwamuro, a representative of the Hawaii Prince Golf Course (HPGC), has requested your concurrence with the statement that "...the Commission does not intend for the conditions of the permit to be governed by contract law in the State of Hawaii." The letter which included this rather vague request provided little explanation as to what concerns, if any, HPGC was actually attempting to raise.

In an effort to understand HPGC's request, we telephoned Mr. Iwamuro, Director of Golf Operations to seek clarification. Mr. Iwamuro stated that he needed to speak to other individuals before answering our questions but that he would call back. Mr. Iwamuro never called back. Instead, Douglas Ing, attorney for HPGC, telephoned. After numerous questions to Mr. Ing, we were still unable to learn exactly what the issue of concern to HPGC was or why it had been raised. Mr. Ing was somewhat evasive and reiterated that HPGC does not want the permit to be interpreted as a contract, or an offer by the Water Commission to be accepted by HPGC but rather as a decision by a public body listing a series of conditions. He indicated that HPGC did not wish to reject the permit.
In light of HPGC's reluctance to fully explain their concerns, we are unable to offer a meaningful response. To offer a response based on mere speculation would be unwise.

We recommend that you write a response saying that we would need a clearer picture of what his concerns are in order to address them. If you like, we could prepare a draft letter for your use.
REF:CWRM-SS

TO: Honorable Margery S. Bronster, Attorney General

State of Hawaii

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Request for Legal Advice Regarding Permit Conditions

LEGAL PROBLEM:

Please advise us as to a proper response to the statement(s) made by Hawaii Prince Golf Club (HPGC) in their cover letter, dated January 27, 1998, (attached) which transmitted an executed copy of their recently-approved water use permit.

HPGC is seeking our concurrence that "...the Commission does not intend for the conditions of the permit to be governed by contract law in the State of Hawaii." They have requested that we advise them immediately if this statement is not correct.

We are not familiar with contract law in the State of Hawaii, or what legal implications may be associated with such a statement.

CHRONOLOGY OF FACTS:

On October 10, 1997, a completed water use permit application was received from Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corporation (Hawaii Prince) to modify the permitted use from their six (6) existing wells (Well Nos. 1900-02, 17 to 20, 1901-03) for an additional 0.150 million gallons per day (mgd).

The requested increase was in addition to: 1) a permanent water use permit for 0.900 mgd (WUP No. 152) that was approved in October, 1988; and 2) an interim water use permit for 0.151 mgd that was approved in May, 1997 (WUP No. 203).

On January 14, 1998, the Commission approved the application subject to standard conditions and special conditions.
On January 21, 1998, the Commission sent a notice of the action and copies of the approved water use permit to HPGC (Exhibit 1, showing standard and special conditions).

On January 30, 1998, we received an executed copy of the permit under cover letter dated January 27, 1998 (Exhibit 2).

**DISCUSSION:**

We understand that a party has thirty (30) days after receiving a notice of a Commission action within which to appeal that action. We feel it prudent to clarify this matter with HPGC prior to the expiration of the thirty (30) day period.

**ADMINISTRATIVE INTERPRETATIONS AND PAST PRACTICE:**

Questions regarding governance of permit conditions have not previously been addressed by the Commission or its staff. This is the first instance of a permittee requesting such clarification.

LN:ss
Attachments

c: Ms. Sonia Faust, Supervisor
Division of Land/Transportation

Ms. Dawn Chang, Deputy Attorney General
Ms. Linnel Nishioka, Deputy Attorney General
January 27, 1998

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

RE: Water Use Permit No. 469, Approval for Water Use Permit for Wells No. 1900-02, 17-20 and 1901-03 Puuloa Ground Water Management Area, Oahu

Dear Gentlemen:

Your letter of January 21, 1998 was received along with a copy of Water Use Permit No. 469. Hawaii Prince Golf Club thanks the Commission for taking action on its request for a water use in accordance with the Water Code and for favorable action.

Hawaii Prince Golf Club understands that the permit is not considered by the Commission to be a contract that is bargained for at arms length. Hence, we do not read the permit conditions to be an offer from the Commission seeking an acceptance by Hawaii Prince Golf Club in order to form a binding contract. Rather, we understand that this permit is issued by this Commission under the State’s Water Code following provisions and procedures established by H.R.S. Chapter 91 and 92. In other words, it represents a decision by the Water Commission. We also understand that the Commission does not intend for the conditions of this permit to be governed by contract law in the State of Hawaii. If this statement is not correct, please advise us immediately.

Hawaii Prince Golf Club therefore notes its receipt of the permit and returns it for the record. In doing so, Hawaii Prince Golf Club reserves its right to challenge any or all of the conditions on all legal or equitable grounds and does not waive its right to seek modification or amendment for such conditions.
Please contact us should you have any questions.

Sincerely,

[Signature]

Garrick K. Iwamuro
Director of Golf Operations

GKI/sy
Enclosures
cc: William F. Mielcke
GROUND WATER USE PERMIT
WUP NO. 469

PERMITTEE

Applicant/Water User
Address: HAWAII PRINCE GOLF CLUB
91-1200 FORT WEAVER RD.
EWA BEACH, HI 96706

Landowner of Source
Address: HAWAII PRINCE HOTEL WAIKIKI CORP.
100 HOLOMOANA ST.
HONOLULU, HI 96815

PERMITTED SOURCE INFORMATION

Island: OAHU
Water Management Area: PUULOA
Aquifer Sector: EWA CAPROCK
Aquifer System: PUULOA
System Sustainable Yield: NA mgd
Well Name: EP 22 & WELLS 1 TO 5
State Well No.: 1900-02, 17 TO 20 & 1901-03

PERMITTED USE INFORMATION

Reasonable beneficial use: GOLF COURSE IRRIGATION AND LAKE EVAPORATION
Withdrawal (12 month moving ave.): 0.301 mgd
Chloride Cap: 1,000 mg/l
Location of water use:
TMK #: 9-1-10:6
Address: 91-1200 FORT WEAVER RD.
State land use classification: AGRICULTURE
County zoning classification: AG

Pursuant to Hawaii's State Constitution, Article XI, Section 7, Hawaii Revised Statutes, Chapter 174C; Hawaii Administrative Rules, Chapters 13-167 through 13-171; and Hawaii decisional law and custom, the applicant is hereby authorized to use ground water from the sources and in the amount and from and upon the locations described above; subject however, to the requirements of law including but not limited to the following conditions:
1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. is consistent with the public interest;
   e. is consistent with State and County general plans and land use designations;
   f. is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground water use here must not interfere with surface or other ground water rights or reservations.

5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its January 14, 1998 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. protect the water sources (quantity or quality);
   b. meet other legal obligations including other correlative rights;
   c. insure adequate conservation measures;
   d. require efficiency of water uses;
   e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
   f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
   g. carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

12. This permit shall be subject to the Commission's periodic review of the PUULOA Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the PUULOA Aquifer System, or relevant modified aquifer(s), is reduced.
13. A permit may be transferred, in whole or in part, from the permittee to another, if:
   
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   
   b. The Commission is informed of the transfer within ninety days.

   Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

14. The use(s) authorized by law and by this permit do not constitute ownership rights.

15. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use.

16. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

17. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the PUULOA Ground Water Management Area.

18. The water use permit granted shall be an interim water use permit, pursuant to HAR § 13-167-3(6). The final determination of the water use quantity shall be made within five years of the filing of the application.

19. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

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

21. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.

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, except as provided in the accompanying letter.

Applicant's Signature: 

Date: 1/23/88

Printed Name: Gareck K. Iwamoto

Firm or Title: Hawaii Prince Golf Club.

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

Attachment

c: Mr. Donn Takahashi, Hawaii Prince Hotel Waikiki Corp.
Mr. Garrick K. Iwamuro
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Approval of Water Use Permit for Well Nos. 1900-02, 17 to 20 & 1901-03
Puuloa Ground Water Management Area, Oahu

This letter transmits your water use permit for EP 22 and Wells 1 to 5 (Well Nos. 1900-02, 17 to 20 & 1901-03) for use of 0.301 million gallons per day (mgd) of water on a 12-month moving average basis that was approved by the Commission on Water Resource Management (Commission) on January 14, 1998.

As part of the Commission's approval, the following special conditions were added and are part of your permit under Standard Permit Condition 20:

Special Conditions

a. The duration of the interim permit shall be to October, 1998 or until such time that a significant change in permitted, actual, or projected use of water supply or water quality occurs.

b. Require adherence to the chloride sampling protocol (attached) and the submittal of weekly chloride data, as may be amended by the Commission staff.

c. Require adherence to the Conservation Conditions (attached).

d. Require the permittee to sign a contract by May 14, 1998 with the City Department of Wastewater Management to buy and use 0.400 mgd of R-I water for a corresponding reduction in allocation for Well Nos. 1900-02, 17 to 20, 1901-03.

e. This water use permit, WUP No. 469, supersedes WUP No. 203.

Enclosed with this letter of approval are the following:

1. Your water use permit

2. Your official monthly water use report form
Please be sure to read the conditions of your approved permit. If you accept these terms, please sign and return one copy of this permit to the Commission and retain a copy for your record.

You are required to keep a record of your monthly total pumpage, water level, and water temperature. This information must be submitted to the Commission on a regular monthly basis using the enclosed water use report form. You should make copies of the enclosed report form as needed.

Second, you are required to submit a water shortage plan to the Commission within thirty (30) days of the issuance date of this permit. Your water shortage plan simply identifies what you are willing to do should the Commission declare a water shortage situation in the PUULOA Ground Water Management Area and can be as short as a one page letter. In a water shortage situation, the Commission may require temporary reductions in pumpage from all sources. The Commission is required, by law, to formulate a plan to implement such area-wide reductions, which should accommodate, include, and be consistent with your plans. Therefore, your help, by submitting your water shortage plan, is greatly needed in formulating the Commission’s overall Water Shortage Plan.

If you have any questions, please call the Commission staff at 587-0218.

Aloha,

Edwin T. Sakiole
For: MICHAEL D. WILSON
Chairperson

Attachments
**GROUND WATER USE PERMIT**

**WUP NO. 469**

**PERMITTEE**

<table>
<thead>
<tr>
<th>Applicant/Water User</th>
<th>Address</th>
<th>Landowner of Source</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAWAII PRINCE GOLF CLUB</td>
<td>91-1200 FORT WEAVER RD. EWA BEACH, HI 96706</td>
<td>HAWAII PRINCE HOTEL WAIKIKI CORP.</td>
<td>100 HOLOMOANA ST. HONOLULU, HI 96815</td>
</tr>
</tbody>
</table>

**PERMITTED SOURCE INFORMATION**

<table>
<thead>
<tr>
<th>Island</th>
<th>OAHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Management Area</td>
<td>PUULOA</td>
</tr>
<tr>
<td>Aquifer Sector</td>
<td>EWA CAPROCK</td>
</tr>
<tr>
<td>Aquifer System</td>
<td>PUULOA</td>
</tr>
<tr>
<td>System Sustainable Yield</td>
<td>NA mgd</td>
</tr>
<tr>
<td>Well Name</td>
<td>EP 22 &amp; WELLS 1 TO 5</td>
</tr>
<tr>
<td>State Well No.</td>
<td>1900-02, 17 TO 20 &amp; 1901-03</td>
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</table>

**PERMITTED USE INFORMATION**

<table>
<thead>
<tr>
<th>Reasonable beneficial use</th>
<th>GOLF COURSE IRRIGATION AND LAKE EVAPORATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawal (12 month moving ave.)</td>
<td>0.301 mgd</td>
</tr>
<tr>
<td>Chloride Cap</td>
<td>1,000 mg/l</td>
</tr>
<tr>
<td>Location of water use</td>
<td></td>
</tr>
<tr>
<td>TMK #</td>
<td>9-1-10:6</td>
</tr>
<tr>
<td>Address</td>
<td>91-1200 FORT WEAVER RD.</td>
</tr>
<tr>
<td>State land use classification</td>
<td>AGRICULTURE</td>
</tr>
<tr>
<td>County zoning classification</td>
<td>AG</td>
</tr>
</tbody>
</table>

Pursuant to Hawaii’s State Constitution, Article XI, Section 7, Hawaii Revised Statutes, Chapter 174C; Hawaii Administrative Rules, Chapters 13-167 through 13-171; and Hawaii decisional law and custom, the applicant is hereby authorized to use ground water from the sources and in the amount and from and upon the locations described above; subject however, to the requirements of law including but not limited to the following conditions:
1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground water use here must not interfere with surface or other ground water rights or reservations.

5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its January 14, 1998 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. protect the water sources (quantity or quality);
   b. meet other legal obligations including other correlative rights;
   c. insure adequate conservation measures;
   d. require efficiency of water uses;
   e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
   f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
   g. carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

12. This permit shall be subject to the Commission's periodic review of the PUULOA Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the PUULOA Aquifer System, or relevant modified aquifer(s), is reduced.
13. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS §174C-57, is also invalid and constitutes a ground for revocation.

14. The use(s) authorized by law and by this permit do not constitute ownership rights.

15. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use.

16. The permittee understands that under HRS §174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS §174C-62 shall not apply towards the four-year period of forfeiture.

17. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR §13-171-3(6). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the PUULOA Ground Water Management Area.

18. The water use permit granted shall be an interim water use permit, pursuant to HAR §13-167-3(6). The final determination of the water use quantity shall be made within five years of the filing of the application.

19. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

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

21. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS §174C or HAR §13-171 may result in the suspension or revocation of this permit.

---

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: Mr. Donn Takahashi, Hawaii Prince Hotel Waikiki Corp.
MINUTES
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: January 14, 1998
TIME: 9:00 a.m.
PLACE: DABS Conference Rooms B & C
3rd Floor, Kalanimoku Building

Chairperson Michael Wilson called the meeting of the Commission on Water Resource Management to order at 9:38 a.m.

The following were in attendance:

MEMBERS: Mr. Michael Wilson
Mr. Richard Cox
Dr. Lawrence Miike
Mr. Robert Girald
Mr. David Nobriga
Mr. Herbert Richards, Jr.

STAFF: Ms. Rae Loui
Mr. Edwin Sakoda
Mr. Roy Hardy
Mr. Dean Nakano
Ms. Lenore Nakama
Mr. Glenn Bauer
Mr. Ryan Imata
Mr. David Higa
Ms. Janis Uwaine

COUNSEL: Ms. Linnel Nishioka

OTHERS:
Edward Koreyasu
Russell Kumabe
George Kuo
Karen Piltz
Gina Ichiyama
Albert Miyashiro
Tom Nance

Doug Appleton
Tim Steinberger
David Martin
Scott Matsuura
Tyler Sugihara
Jim Russell
Woletter Nicolai

Dean Minakami
James Kumagai
Jon Nishimura
Ken Ishizaki
George Hiu
Garrick Iwamuro
Felix Limtiaco

All written testimonies submitted at the meeting are filed in the Commission office and are available for review by interested parties. The items were not taken in the order posted on the agenda.

AGENDA 1

The Commissioners were briefed on the Hawaii Plan. The presentation was made by Deputy Director Rae Loui and Consultant, Felix Limtiaco. The staff is recommending retaining consultants to update the Water Resources Protection Plan, Water Quality Plan, and State Water Projects Plan, and to create a state-wide integrated resource planning framework to guide the County Water Use and Development Plans. The handouts are filed in the Commission Office.

The Chairperson called for a short recess at 10:50 a.m.

AGENDA 2

The Chairperson reconvened the meeting at 11:12 a.m.

Item 1
TESTIMONY BY APPLICANT:

Mr. Tom Nance, consultant for the applicant inquired as to whether Pearl Country Club would only need to seek revocations equal to their requested increase (0.20 mgd) or whether 3.5+ mgd would need to be revoked. Deputy Director Rae Loui stated that the CWRM cannot legally allocate above the sustainable yield, and so 3.5+ mgd would need to be revoked.

MOTION: (NOBRIGA/GIRALD)
To approve staff's recommendation.
UNANIMOUSLY APPROVED.

5. Kamehameha Schools Bernice Pauahi Bishop Estate, Honolulu Board of Water Supply. APPLICATION FOR A WATER USE PERMIT. APPLICATION FOR A PUMP INSTALLATION PERMIT, Waialae Fui Ridge Well (Well No. 1746-04), TMK 3-5-62:44, Future Municipal Use for 1.154 mgd, Pump Installation: 1,000 GPM for Municipal Use, Waialae-West Ground Water Management Area, Oahu

PRESENTATION OF SUBMITTAL: Ms. Lenore Nakama

STAFF RECOMMENDATION:

Staff recommendation was amended as follows:

1. Defer action on the water use and pump installation permit applications to the next CWRM meeting on Oahu following receipt of final review comments from the Department of Land Utilization and the Hawaii Community Development Authority.

2. Disallow any further amendments to the current water use permit application.

TESTIMONIES: (None)

MOTION: (RICHARDS/MIIKE)
To approve staff's recommendation as amended.
UNANIMOUSLY APPROVED AS AMENDED.

6. Hawaii Prince Golf Club, Hawaii Prince Hotel Waikiki Corporation. APPLICATION FOR WATER USE PERMIT, EP 22 & Wells 1 to 5 (Well Nos. 1900-02, 17 to 20, 1901-03), TMK 9-1-10:6, Modification of Water Use Permit for Future Golf Course Irrigation Use for 0.301 mgd, Puuloa Ground Water Management Area, Oahu

PRESENTATION OF SUBMITTAL: Ms. Lenore Nakama

STAFF RECOMMENDATION:

Staff recommends that the Commission approve the modification of WUP No. 203 for an additional 0.150 mgd of brackish water from the Puuloa Aquifer System, subject to the standard water use permit conditions listed in Attachment B and the following special conditions:

a. The duration of the interim permit shall be to October, 1998 or until such time that a significant change in
permitted, actual, or projected use of water supply or water quality occurs.

b. Require adherence to the chloride sampling protocol (Exhibit 6) and the submittal of weekly chloride data, as may be amended by the Commission staff.

c. Require adherence to the Conservation Conditions (Exhibit 7).

d. Require the permittee to sign a contract by May 14, 1998 with the City Department of Wastewater Management to buy and use 0.400 mgd of R-1 water for a corresponding reduction in allocation for Well Nos. 1900-02, 17 to 20, 1901-03.

TESTIMONIES: (None)

MOTION: (COX/MORIGA)
To approve staff's recommendation.
UNANIMOUSLY APPROVED.

7. Castle & Cooke Homes Hawaii, Inc., APPLICATION FOR WELL PERMIT, Mililani Mauka C (Well No. 2858-03), Pump Installation: 1750 GPM for Municipal Use, TKK 9-5-03; Por 1 & 11, Mililani, Oahu

PRESENTATION OF SUBMITTAL: Ms. Lenore Nakama

STAFF RECOMMENDATION:

The staff recommends that the Commission approve the issuance a pump installation permit for Mililani Mauka C Well (Well No. 2858-03), subject to the Standard Pump Installation Conditions in Exhibit 3.

TESTIMONIES: (None)

MOTION: (COX/GIRALD)
To approve staff's recommendation.
UNANIMOUSLY APPROVED.

8. Hawaiian Marine Enterprises, APPLICATIONS FOR WATER USE AND PUMP INSTALLATION PERMITS, HME-1 Well (Well No. 4157-12), TKK 5-6-2; 009(c), Future Aquaculture Use for 0.286 mgd, Koolauloa Ground Water Management Area, Oahu

PRESENTATION OF SUBMITTAL: Mr. Ryan Imata

STAFF RECOMMENDATION:

Staff recommends that the Commission defer action on the water use and pump installation permit applications for Hawaiian Marine Enterprises for the reasonable and beneficial use of 286,000 gallons per day of brackish/potable water for Aquaculture (11 acres of tropical fish) from the HME-1 Well (Well No. 4157-12), pending results from the pump tests performed under the well construction permit and NPDES approval from DOH and/or City and County Department of Public Works.
STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT
January 14, 1998
Honolulu, Oahu

Hawaii Prince Golf Club
Hawaii Prince Hotel Waikiki Corporation
APPLICATION FOR WATER USE PERMIT
EP 22 & Wells 1 to 5 (Well Nos. 1900-02, 17 to 20, 1901-03), TMK 9-1-10:6
Modification of Water Use Permit for Future Golf Course Irrigation Use for 0.301 mgd
Puuloa Ground Water Management Area, Oahu

APPLICANT:
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

LANDOWNER:
Hawaii Prince Hotel Waikiki Corporation
100 Holomoana St.
Honolulu, HI 96815

LOCATION MAP: See Exhibit 1

BACKGROUND:

On October 10, 1997, a completed water use permit application was received from Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corporation (Hawaii Prince) to modify the permitted use from EP 22 and Wells 1 to 5 (Well Nos. 1900-02, 17 to 20, 1901-03) for an additional 0.150 million gallons per day (mgd). The additional 0.150 mgd would be used to offset evaporative losses from the 32 acres of open lake surface that serve as water features as well as irrigation water storage reservoirs.

The requested increase would be in addition to: 1) a permanent water use permit for 0.900 mgd (WUP No. 152; Exhibit 2) that was approved in October, 1988; and 2) an interim water use permit for 0.151 mgd that was approved in May, 1997 (WUP No. 203; Exhibit 3). These water use permits are for irrigation of the 27-hole Hawaii Prince Golf Course (224 irrigated acres).

Additional information regarding the source, use, notification, objections, and field investigation(s) is provided in Attachment A.

ANALYSIS/ ISSUES:

Section 174C-49(a) of the State Water Code establishes seven (7) criteria that must be met to obtain a water use permit. An analysis of the proposed permit in relation to these criteria follows:
Staff Submittal

January 14, 1998

(1) Water availability

Through the Hawaii Water Plan, the Commission has adopted 1,000 mg/l of chloride as the sustainable capacity for irrigation wells in the Puuloa Aquifer System. There is no aggregate sustainable yield number for the aquifer system. Individual existing water use permits in this aquifer system are shown in Exhibit 4.

Since 1994, expiration dates have been attached to water use permits in the Puuloa Aquifer System because there are concerns regarding the impacts of land and water use changes on the future viability of the aquifer as a dependable source of brackish irrigation water.

Hawaii Prince wells are marginal, with chlorides near or above 1,000 mg/l. Hawaii Prince is planning to jointly develop a new well, Area 30 Well (Well No. 2001-12), with Gentry Investment Co. to be located in the Ewa by Gentry project. During daytime hours, well water will be delivered to the Hawaii Prince golf course for irrigation use. At night, the well will provide irrigation supply for roadways, multi-family parcels, parks, and other common areas in Ewa by Gentry.

Because there is no other feasible alternative source of nonpotable water for the existing Hawaii Prince golf course at this time, the staff recommends that the Commission approve a variance from the 1,000 mg/l chloride cap until the new Area 30 Well comes on line.

(2) Reasonable-beneficial

Section 174C-3 HRS defines "reasonable-beneficial use" is

"...the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is both reasonable and consistent with the state and county land use plans and the public interest."

In WUP No. 203, the Commission approved a request by Hawaii Prince for a variance from the 4,000 gpd/ac duty that the staff uses as a guideline for reasonable turf irrigation requirement (Domestic Consumption Guideline for Schools, Parks in Hawaii Water System Standards, 1985). Justification for additional allocation was derived from information provided by Hawaii Prince that supports an irrigation requirement for 4,700 gpd/ac for plant evapotranspiration based on rainfall and pan evaporation data, plus an additional 10% due to application inefficiencies because of the windy site, plus an additional 20% for leaching to avoid salt-buildup. It appears that other local factors, such as turf grass type and canopy coverage, may also contribute to the higher than average irrigation water requirement at the site, since adjacent golf courses have a lower irrigation requirement.

This request is for an additional 0.150 mgd to offset evaporative losses from the 32 acres of open lake surface that serve as water features as well as irrigation water storage reservoirs, which was not approved in previous water use permits. In their approval of an interim water use permit for Well No. 0901-01 (March 14, 1995 Staff Submittal; WUP No. 341), the Commission recognized system losses of 10% from the Molokai Irrigation System (MIS) as a reasonable-beneficial use. However, in this case, the provision for system losses from the MIS was recognized in the July 1975 agreement with the Department of Land and Natural Resources (DLNR) that allowed Kukui (Molokai), Inc. the use of the water system. The staff recognizes that the lake evaporation would qualify as system losses.

Although qualifying as system losses, the staff investigated the necessity of and possible remedial measures for the lakes:
The lakes were not specifically required as a condition of the land use approval for the golf course, but the golf course drainage was designed to hold all water that falls on it. The golf course also has to accept stormwater runoff from the north property. The lakes are lined and are used as holding lakes for the irrigation system. They are all interconnected by an 18-inch pipe. In the future, when reclaimed water becomes available, the applicant anticipates using the lakes to store the R-1 water.

The applicant has researched the possibility of using chemicals to reduce system evaporative losses. There are currently two (2) products available: a silicone-type oil and a polymer. However, both will suffocate wildlife. Hawaii Prince’s lakes supports carps and many birds (eg. ducks and Hawaiian stilts).

The graph of monthly pumpage (Exhibit 5) shows historical water usage has been higher than the current allocation. The staff is recommending that the Commission approve a modification of the interim water use permit (WUP No. 203) to provide for this proposed use because: 1) this proposed use is for nonpotable water from a brackish aquifer; 2) there are near-term plans to develop a mauka well, which should develop relatively fresher water, thereby eliminating the current need to overwater by 20% to leach salts; and 3) there are long-term plans to use reclaimed water (the previous interim permit required the permittee to sign a contract to purchase R-1 water). The interim permit will expire in October, 1998 when the rest of the interim permits in Puuloa expire.

(3) Interference with other existing legal uses

The interim permit is conditioned on adherence to the chloride sampling protocol (Exhibit 6) and the submittal of weekly chloride data, as may be amended by the Commission staff. The closest pumping wells to the Hawaii Prince are located at the New Ewa Beach Golf Course. Both the Hawaii Prince wells and the New Ewa Beach Golf wells are sampled on a regular quarterly basis by the Commission staff. Any unacceptable increases in chlorides at other pumping wells resulting from this proposed use will be brought to the attention of the Commission. Standard Condition 3.c. provides for the revocation or reduction in permitted use should this use interfere with other existing legal uses of water. Higher pumpage has been supported in the past with no record of any complaints from nearby users, and no objections were filed against this application.

(4) Public interest

Section 174C-2 states that the Water Code shall be liberally interpreted to obtain maximum beneficial use of the State’s waters for purposes such as irrigation and commercial uses. Reasonable-beneficial water use for public recreation is an objective that is declared to be in the public interest. Again, no objections were filed against this application.

(5) State & county general plans and land use designations

This proposed use is consistent with the state and county general plans and land use designations.

(6) County land use plans and policies

This proposed use is consistent with county land use plans and policies.

(7) Interference with Hawaiian home lands rights

All permits are subject to the prior rights of Hawaiian home lands. The Department of Hawaiian Home Lands (DHHL) and the Office of Hawaiian Affairs have reviewed this application. No objections or concerns were raised.
RECOMMENDATION:

Staff recommends that the Commission approve the modification of WUP No. 203 for an additional 0.150 mgd of brackish water from the Puuloa Aquifer System, subject to the standard water use permit conditions listed in Attachment B and the following special conditions:

a. The duration of the interim permit shall be to October, 1998 or until such time that a significant change in permitted, actual, or projected use of water supply or water quality occurs.

b. Require adherence to the chloride sampling protocol (Exhibit 6) and the submittal of weekly chloride data, as may be amended by the Commission staff.

c. Require adherence to the Conservation Conditions (Exhibit 7).

d. Require the permittee to sign a contract by May 14, 1998 with the City Department of Wastewater Management to buy and use 0.400 mgd of R-1 water for a corresponding reduction in allocation for Well Nos. 1900-02, 17 to 20, 1901-03.

Respectfully submitted,

RAE M. LOUI
Deputy Director

Attachment(s):
A (Water Use Permit Detailed Information)
B (Water Use Permit Standard Conditions)

Exhibit(s):
1 (Location Map)
2 (WUP No. 152)
3 (WUP No. 203)
4 (Existing Water Use Permits and 12-Month Moving Average Withdrawal)
5 (Graph of Monthly Pumpage)
6 (Chloride Sampling Protocol)
7 (Conservation Conditions)
### Source Information

**AQUIFER:**
- **Sustainable Yield:** 1,000 mg/l of Chloride
- **Existing Water Use Permits:** 14.919 mgd
- **Available Allocation:** NA mgd
- **Total of other pending allocations:** 0 mgd

**WELL:**
- **Location:** Puuloa System, Ewa Caprock Sector, Oahu
- **Year Drilled:** 1990

#### EP 22 (Well No. 1900-02)
- **Location:** 91-1200 Fort Weaver Rd., Oahu, TMK:9-1-10:6
- **Year Drilled:** 1930
- **Casing Diameter:** 12 in.
- **Elevations (msl = 0 ft.)**
  - **Water Level:** NA ft.
  - **Ground:** 23 ft.
  - **Bottom of Solid Casing:** NA ft.
  - **Bottom of Perforated:** NA ft.
  - **Bottom of Open Hole:** -6 ft.
- **Total Depth:** 29 ft.
- **Grouted Annulus Depth:** NA ft.

#### Pump Capacity
- **Well 2 (Well No. 1900-17):** 1760 gpm
- **Well 3 (Well No. 1900-18):** 210 gpm

#### WELL:
- **Location:** 91-1200 Fort Weaver Rd., Oahu, TMK:9-1-10:6
- **Year Drilled:** 1990
- **Casing Diameter:** 15 in.

#### Pump Capacity
- **Well 2 (Well No. 1900-17):** 1760 gpm
- **Well 3 (Well No. 1900-18):** 210 gpm
Staff Submittal

January 14, 1998

WELL: Well 4 (Well No. 1900-19)
Location: 91-1200 Fort Weaver Rd., Oahu, TMK:9-1-10:6
Year Drilled: 1990
Casing Diameter: 15 in.

Elevations (msl = 0 ft.)
Water Level:
Ground:
Bottom of Solid Casing:
Bottom of Perforated:
Bottom of Open Hole:

Total Depth: 25 ft.
Grouted Annulus Depth: NA ft.

Pump Capacity

210 gpm

WELL: Well 5 (Well No. 1900-20)
Location: 91-1200 Fort Weaver Rd., Oahu, TMK:9-1-10:6
Year Drilled: 1990
Casing Diameter: 15 in.

Elevations (msl = 0 ft.)
Water Level:
Ground:
Bottom of Solid Casing:
Bottom of Perforated:
Bottom of Open Hole:

Total Depth: 25 ft.
Grouted Annulus Depth: NA ft.

Pump Capacity

210 gpm

WELL: Well 1 (Well No. 1901-03)
Location: 91-1200 Fort Weaver Rd., Oahu, TMK:9-1-10:6
Year Drilled: 1990
Casing Diameter: 15 in.

Elevations (msl = 0 ft.)
Water Level:
Ground:
Bottom of Solid Casing:
Bottom of Perforated:
Bottom of Open Hole:

Total Depth: 26 ft.
Grouted Annulus Depth: NA ft.

Pump Capacity

210 gpm

ATTACHMENT A
Use Information

Quantity Requested: 150,000 gpd Additional (301,000 gpd Total).
Proposed Type of Water Use: Golf Course Irrigation (Lake Evaporation)
Place of Water Use: 91-1200 Fort Weaver Rd. at TMK:9-1-10:6

Reported Water Usage: 1.127 mgd
Puuloa Aquifer System
Current 12-Month Moving Average Withdrawal (See Exhibit 2): 3.028 mgd

Nearby Surrounding Wells and Other Registered Ground Water Use

Exhibit 1 shows there are numerous other wells within a mile of the well battery. However, many of these are drilled through the confining caprock into the underlying basal aquifer. The closest pumping wells are located at the New Ewa Beach Golf Course. EP 21 (Well No. 2000-01), a former Oahu Sugar Co. irrigation well, is also located in the vicinity; however, the agricultural allocation is not currently being used.

Public Notice

In accordance with HAR §13-171-17, a public notice was published in the Honolulu Advertiser on October 29, 1997 and November 5, 1997 and a copy of the notice was sent to the Mayor's office. Copies of the completed application were sent to the Department/Board of Water Supply, Planning Department, Department of Land Utilization (Oahu only), Department of Health, Department of Hawaiian Home Lands, Office of Hawaiian Affairs, the various divisions within the Department of Land and Natural Resources, and other interested parties for comments. Written comments and objections to the proposed permit were to be submitted to the Commission by November 20, 1997.

ATTACHMENT A
Objections

The public notice specifies that an objector meet the following requirements: (1) state property or other interest in the matter; (2) set forth questions of procedure, fact, law, or policy, to which objections are taken; (3) state all grounds for objections to the proposed permits, (4) provide a copy of the objection letter(s) to the applicant, and (5) submit objections meeting the previous requirements to the Commission by November 20, 1997. No objections were filed with the Commission.

Briefs in Support

Responses to objections, or briefs in support, regarding the application are required to be filed with the Commission ten (10) days after an objection is filed and, presumably, copies are served to the applicant. No briefs in support were filed with the Commission.

Field Investigation

The water source and proposed use area are visited on a regular quarterly basis by the Commission staff.
STANDARD WATER USE PERMIT CONDITIONS

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground water use here must not interfere with surface or other ground water rights or reservations.

5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its January 14, 1998 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. protect the water sources (quantity or quality);
   b. meet other legal obligations including other correlative rights;
   c. insure adequate conservation measures;
   d. require efficiency of water uses;
   e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
   f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
   g. carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

ATTACHMENT B
10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

12. This permit shall be subject to the Commission’s periodic review of the Puuloa Aquifer System’s sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the Puuloa Aquifer System, or relevant modified aquifer(s), is reduced.

13. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

14. The use(s) authorized by law and by this permit do not constitute ownership rights.

15. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee’s water use.

16. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

17. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee’s water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the Puuloa Ground Water Management Area.

18. The water use permit granted shall be an interim water use permit, pursuant to HAR § 13-167-3(6). The final determination of the water use quantity shall be made within five years.

19. The water use permit shall be subject to the Commission’s establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

20. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.

ATTACHMENT B
## Monthly Ground Water Delivery Report

**INSTRUCTIONS:** Please TYPE OR PRINT CLEARLY. Complete this form to report total monthly ground water use and other information from each of your well sources. Mail to: Commission on Water Resource Management, P.O. Box 621, Honolulu HI 96809. For assistance, please call (808) 587-0284.

<table>
<thead>
<tr>
<th>State Well No.</th>
<th>Delivery Begin Date (mm/dd/yy)</th>
<th>Delivery End Date (mm/dd/yy)</th>
<th>Quantity Delivered (gallons)</th>
<th>Type of Use*</th>
<th>Field No(s)</th>
<th>Acres Irrigated</th>
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* Use of water code:

- AO: Aquaculture
- C: Commercial
- D: Domestic
- I: Irrigation - Drip
- IF: Irrigation - Furrow
- IS: Irrigation - Sprinkle

** For estimated values use code:

- P: Power consumption
- T: Total time of operation
- D: Comparison with past data
- X: Other means - (indicate method)

Other comments or additional information:

Submitted by (print) _____________________________  Title _____________________________

Signature _____________________________  Date _____________________________
### Monthly Ground Water Use Report

#### Instructions:
- Please type or print clearly.
- Complete this form to report total monthly ground water use, and, if required, other information from each of your well sources.
- Mail to: Commission on Water Resource Management, P.O. Box 621, Honolulu HI 96809. For assistance, please call (808) 587-0264.

#### Table:

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<tr>
<th>State Well No.</th>
<th>Well Name</th>
<th>Period Begin Date (mm/dd/yy)</th>
<th>Period End Date (mm/dd/yy)</th>
<th>Quantity Pumped (gallons)</th>
<th>Method of Measurement</th>
<th>Chloride (mg/L)</th>
<th>Temp. (°F)</th>
<th>Non-Pumping Water Level (ft. above mean)</th>
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</table>

* ** - Flow meter, electrical consumption, weir of flume, not metered (estimated).
  - Measurement should be taken while pump is NOT running just prior to a pumping cycle;
  - if measurement is taken while pump is running, please indicate so.

Other comments or additional information (e.g. - date and method of chloride measurement; how pumpage amounts are estimated; etc...):

---

Submitted by (print) ____________________________  Title ____________________________
Signature ____________________________  Date ____________________________
Hawaii Prince G. Course

(1900-02, 17 to 20, 1901-03)

EXHIBIT 1
WATER USE PERMIT

Applicant: THE MYERS CORPORATION
Address: 745 Fort St., #1500, Honolulu, Hawaii 96813
Ground Water Management Area: Pearl Harbor
Subarea: Caprock
Well(s) Name: Pump 22
Well No.(s): 1900-02
Amount of Withdrawal (Average Annual): 1.5 mgd initial stage; 0.9 mgd after full establishment
Reasonable-Beneficial Use: Golf course irrigation
Area or Projects Served: Ewa Golf Course

The applicant is hereby granted a permit to withdraw and use ground water from the source identified above in accordance with Chapter 174C, HRS, State Water Code; Chapter 13-171, Hawaii Administrative Rules; and the following:

General Conditions. (1) the water use authorized by this permit must be for the reasonable-beneficial use described in this permit; (2) the use must not interfere with any existing legal use of water; and (3) the use is subject to the shortage and emergency powers of the Commission.

Additional Conditions.

(1) This permit shall be valid until the designation of the Pearl Harbor Ground Water Management Area is rescinded, unless revoked or modified as provided by law.

(2) An approved flowmeter(s) must be installed to measure withdrawals; and a record of the withdrawals must be kept and reported to the Department of Land and Natural Resources, Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96809, on a monthly basis.

(3) This permit may be revoked if work is not started within six months of the date of issuance or if work is suspended or abandoned for six months. The development of the ground water source shall be completed within two years of the date of issuance.

The issuance of this permit was approved by the Commission on Water Resource Management at its meeting on October 19, 1988.

Chairperson of the Commission

Date of Issuance: OCT 28 1988
Mr. Garrick Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
Ewa Beach, HI 96706  

Dear Mr. Iwamuro:

Approval of Water Use Permit for Well Nos. 1900-02, 17 TO 20, 1901-03  
Puuloa Ground Water Management Area, Oahu

This letter transmits your water use permit for EP 22 & Wells 1 to 5 (Well Nos. 1900-02, 17 to 20, 1901-03) for use of 0.151 million gallons per day (mgd) of water on a 12-month moving average basis that was approved by the Commission on Water Resource Management (Commission) on May 14, 1997. As part of the Commission's approval, the following special conditions were added and are part of your permit under Standard Permit Condition 20:

**Special Conditions**

- a. The duration of the interim permit shall be to October, 1998 or until such time that a significant change in permitted, actual, or projected use of water supply or water quality occurs.
- b. Require adherence to the chloride sampling protocol (attached) and the submittal of weekly chloride data, as may be amended by the Commission staff.
- c. Require adherence to the Conservation Conditions (attached).
- d. Require the permittee to sign a contract within twelve (12) months with the City Department of Wastewater Management to buy and use 0.400 mgd of R-1 water for a corresponding reduction in allocation for Well Nos. 1900-02, 17 to 20, 1901-03.

Enclosed with this letter of approval are the following:

1. Your water use permit
2. Your official monthly water use report form

Please be sure to read the conditions of your approved permit. If you accept these terms, please sign and return one copy of this permit to the Commission and retain a copy for your record.

You are required to keep a record of your monthly total pumpage, water level, and water temperature. This information must be submitted to the Commission on a regular monthly basis using the enclosed water use report form. You should make copies of the enclosed report form as needed.

If you have any questions, please call the Commission staff at 587-0218.

Aloha,

[Signature]

Michael D. Wilson  
Chairperson

Attachments

EXHIBIT 3
GROUND WATER USE PERMIT
WUP NO. 203

PERMITTEE

Applicant/Water User: HAWAII PRINCE GOLF CLUB
Address: 91-1200 FORT WEAVER ROAD
          EWA BEACH, HI 96706

Landowner of Source
Address: HAWAII PRINCE GOLF CLUB
         91-1200 FORT WEAVER ROAD
         EWA BEACH, HI 96706

PERMITTED SOURCE INFORMATION

Island: OAHU
Water Management Area: PUULOA
Aquifer Sector: EWA CAPROCK
Aquifer System: PUULOA
System Sustainable Yield: NA
Well Name: EP 22, WELLS 1 TO 5
State Well No.: 1900-02, 17 TO 20, 1901-03

PERMITTED USE INFORMATION

Reasonable beneficial use: GOLF COURSE IRRIGATION
Withdrawal (12 month moving ave.): 0.151 mgd
Chloride Cap: 1.000 mg/l
Location of water use
TMK #: 9-1-10-6
Address: HAWAII PRINCE GOLF COURSE
State land use classification: AGRICULTURE
County zoning classification: AG-2

Pursuant to Hawaii’s State Constitution, Article XI, Section 7, Hawaii Revised Statutes, Chapter 174C; Hawaii Administrative Rules, Chapters 13-167 through 13-171; and Hawaii decisional law and custom, the applicant is hereby authorized to use ground water from the sources and in the amount and from and upon the locations described above; subject however, to the requirements of law including but not limited to the following conditions:

EXHIBIT 3
1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial use means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
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   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground water use here must not interfere with surface or other ground water rights or reservations.

5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
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6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its May 14, 1997 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. Protect the water sources (quantity or quality);
   b. Meet other legal obligations including other correlative rights;
   c. Insure adequate conservation measures;
   d. Require efficiency of water uses;
   e. Reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
   f. Meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
   g. Carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

12. This permit shall be subject to the Commission's periodic review of the PUULOA Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the PUULOA Aquifer System, or relevant modified aquifer(s), is reduced.

EXHIBIT 3
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17. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the PUULOA Ground Water Management Area.

18. The water use permit granted shall be an interim water use permit, pursuant to HAR § 13-167-3(8). The final determination of the water use quantity shall be made within five years of the filing of the application.

19. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

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

21. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.


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.
## WMA Aquifer System: PUULOA

### Sustainable Yield = 15 mgd

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<th>Date</th>
<th>Permittee Name</th>
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<td></td>
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</tr>
<tr>
<td>152</td>
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<td>HAWAII PRINCE GOLF CLUB</td>
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<td></td>
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<tr>
<td>203</td>
<td>5/14/97</td>
<td>HAWAII PRINCE GOLF CLUB</td>
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<td></td>
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<tr>
<td>203</td>
<td>5/14/97</td>
<td>HAWAII PRINCE GOLF CLUB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EXHIBIT 4**
Hawaii Prince G.C. Combined Pumpage
(Well Nos. 1900-02,17 to 20;1901-03)
GUIDELINES FOR CHLORIDE CONCENTRATION SAMPLING FOR NWA CAPROCK

1. Sample Collection

   • Sampling Schedule

     The sampling schedule depends upon your pump capacity:

     | Pump Capacity (gpm) | Sampling Schedule |
     |--------------------|-------------------|
     | Less than or equal to 50 | Once a month |
     | Greater than 50      | Once a week      |

   • When to Sample

     Before taking a sample, allow a minimum length of time to elapse after turning on the pump. This minimum time can be read off the attached table for your well casing diameter and your pump capacity. If you sample 20 minutes after the minimum time, you should consistently sample 20 minutes after the minimum time each time you take samples.

   • Sample Bottle

     Use a plastic container and cap that holds a volume of about a pint. Rinse the container three times with the water to be sampled before taking the sample. Also rinse the cap with sample water.

   • Labeling

     On the sample bottle, affix a label that contains the following information:

     Well No.
     Date
     Time Sampled
     Elapsed Time after pump on
     Sampler's Name
     Water Temperature (if available)
     Pumping Rate (prior to sampling)
2. Determination of Chloride Concentration

- Private Laboratories

If the sample is sent to a private laboratory, then prepare the water sample and label the bottle in the manner described above.

Private laboratories will use methods that are more accurate than field methods described below.

- Hach Kit (Drop Count Titrator)

Be aware of the approximate chloride concentration range in your well. Use the appropriate sample bottle for titration. **Be consistent with the end-point color change.**

For low chloride concentrations (5-100 mg/l) each drop will equal 5 mg/l. For higher concentrations (20-400 mg/l) each drop equals 20 mg/l. Other kits for concentrations greater than 400 mg/l (500-10,000 mg/l) each drop is equal to 500 mg/l. Obviously, for water greater than 400 mg/l, a "drop-count" Hach Kit is not appropriate, and a digital titrator, described below, should be used.

- Hach Kit (Digital Titrator)

A digital titrator is the appropriate method for water with greater than 400 mg/l chloride. A digital titrator using silver nitrate is accurate to within 10 mg/l for a chloride range from 10-10,000 mg/l, and for a titrator using mercuric nitrate accuracy varies from 0.1-20 mg/l for a chloride range of 10-8,000 mg/l.

**Note:** Be consistent with the end-point color. Silver nitrate ages and needs to be replenished within the recommended guidelines of the Hach Company.

- Other Methods

An ion-selective probe for chloride is available, and can measure concentration from 1.8-35,500 mg/l.

EXHIBIT - 6
3. Reporting Results

• How to Report

The following information should be entered on the "Monthly Ground Water Use Report" form provided by the Commission on Water Resource Management:

1. Chloride concentration (mg/l) and temperature (°F) in the columns provided.

Under "Notes" Section of the Monthly Water Use Report:

2. Method used for chloride analysis:______________

3. Total elapsed time before sampling:______________

If there are any questions, please call the Commission on Water Resource Management staff at 587-0265 on Oahu or toll free from the neighbor islands 1-800-468-4644 ext. 70265.
### FIVE WELL VOLUMES\(^1\) PLUS 60 MINUTES MINIMUM TIME BEFORE CHLORIDE SAMPLING

<table>
<thead>
<tr>
<th>CASING DIAMETER (in.)</th>
<th>PUMP CAPACITY (gpm)</th>
<th>MINIMUM TIME (min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>10-20</td>
<td>140</td>
</tr>
<tr>
<td></td>
<td>20-50</td>
<td>110</td>
</tr>
<tr>
<td>8</td>
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<td>190</td>
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<td></td>
<td>20-50</td>
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<td></td>
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<td></td>
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<td>&gt;250</td>
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<td>20-50</td>
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<td>250-500</td>
<td>75</td>
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<td></td>
<td>500-700</td>
<td>68</td>
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<td></td>
<td>700-1000</td>
<td>68</td>
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<td>16</td>
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<td>700-1000</td>
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<td></td>
<td>&gt;1000</td>
<td>65</td>
</tr>
<tr>
<td>20</td>
<td>50-100</td>
<td>220</td>
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<td>100-250</td>
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<td></td>
<td>250-500</td>
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<td>700-1000</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>&gt;1000</td>
<td>72</td>
</tr>
</tbody>
</table>

\(^1\) Assumes saturated well depth of 100 feet.

\(^2\) Five well volumes is a standard guideline recommended by EPA.
CONSERVATION CONDITIONS
EWA CAPROCK WATER USE PERMITS

1. The permittee shall adopt self-administered water conservation programs and plans with collective monitoring to protect and maintain the caprock resource. Water conservation programs and plans shall be submitted to the Commission within 60 days from the date of Commission approval.

2. Water conservation programs and plans shall address (as applicable) but not be limited to the following:

   a. Reduce the demand for non-potable water by:
      • Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
      • Mulching planting areas with organic materials, etc., to minimize evaporation;
      • Efficiently maintaining the plants;
      • Improving land management practices to conserve water.
   
   b. Improve efficiency in use and reduce losses and waste of non-potable water by:
      • Using efficiently designed landscaping and irrigation systems;
      • Monitoring irrigation requirements and controlling usage accordingly;
      • Managing irrigation scheduling to minimize water demand;
      • Eliminating opportunities for water wastage;
      • Maintaining and Improving irrigation systems as necessary.
   
   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.

EXHIBIT 7
December 31, 1997

Honorable Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Water Use Permit Application for
Hawaii Prince Golf Club,
Well Nos. 1900-02, 1901-03, 1900-17 to 20

Enclosed are comments from the Board of Water Supply (BWS) on the subject application. They were received after we transmitted Planning Department comments to you on November 14, 1997.

Should you have any questions, please call Eugene Takahashi of our staff at 527-6022.

Yours very truly,

[Signature]
PATRICK T. ONISHI
Chief Planning Officer

PTO:js

Enclosure

c: The Honorable Jeremy Harris, Mayor
(Mayor’s Control No. 32230)
TO: PATRICK T. ONISHI, CHIEF PLANNING OFFICER
   PLANNING DEPARTMENT
FROM: RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
   BOARD OF WATER SUPPLY

SUBJECT: STATE WATER COMMISSION'S LETTER OF OCTOBER 21, 1997 TO
   MAYOR HARRIS ON A REQUEST FOR INCREASED PERMITTED USE
   FROM CAPROCK WELLS FOR HAWAII PRINCE GOLF CLUB/HAWAII
   PRINCE HOTEL WAIKIKI CORP

We have no objections to an increase in permitted use from the Hawaii Prince Golf Club well
that develop brackish water from the caprock.

If you have any questions, please contact Chester Lao at 527-5286.
December 20, 1997

Lenore Nakama  
Commission on Water Resource Management  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809

Re: Golf Course Lakes

Lenore:

Per our discussion on December 19th, I went through our files to see if there were any stipulations to our Conditional Use Permit which states that the lakes are designed specifically for drainage purposes. There were no stipulations on the lakes being designated drainage areas, but the golf course was designed to hold all water that falls on it and should not escape. The golf course also has to accept stormwater runoff from the north property.

The lakes are lined and are used as holding lakes for the irrigation system. They are all interconnected by an 18 inch pipe.

In the future when R-1 becomes available, these lakes will be used to store the R-1 water for irrigation. Also, the lakes have served as a storage area for when there are periods of heavy rainfall that inundate areas of the golf course. Those areas are then de-watered and pumped into the lakes. It is then reused as irrigation water.

I hope this information helps you in Hawaii Prince Golf Club's request for additional water. If you have any questions on the matter, please let me know. Thank you.

Sincerely,

Garrick K. Iwamuro  
Director of Golf Operations
DRAINAGE REPORT

PROPOSED MYERS/SEIBU CHAMPIONSHIP GOLF COURSE

EWA, OAHU, HAWAII
TAX MAP KEY: 9-1-10:6, POR. 7

Prepared By:

SAM C. HIROTA, INC.
Engineers and Surveyors
864 South Beretania Street
Honolulu, Hawaii 96813

November 9, 1989

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21
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PROJECT LOCATION AND DESCRIPTION:

The proposed project is located at the southeast end of the Ewa Plain along Fort Weaver Road, just north of the Leeward Estates Subdivision. The project includes construction of a 27-hole golf course, a clubhouse, a maintenance/storage building, tennis courts, paved parking and three comfort stations. The 270 acre (Ac) site has been withdrawn from sugar cane production but Oahu Sugar Company still cultivates the lands to the North (mauka) and East, and across Fort Weaver Road in sugar cane.

The golf course site is no longer owned by Campbell Estate but by Seibu Railway Co., Ltd. A long term lease and development rights have been issued to Seibu Hawaii, Inc. (SHI), a Hawaii corporation. The Myers Corporation is the developer of the project and acts as SHI's agent. The development of the site is subject to the terms of a development agreement between Campbell Estate and SHI as shown as excerpts in Appendix A.

The golf course is being designed to temporarily store and dispose by infiltration, all runoff from both 255 acres of mauka lands and the golf course itself. A swale will be provided along the northern boundary to intercept runoff from the mauka lands while a berm along the other three boundaries is designed to provide an additional safety factor by preventing runoff on to other makai properties in the remote possibility that a storm event greater than the 100 year storm occurs.

EXISTING CONDITIONS:

Existing Drainage Patterns:

The design drainage basin, as specified in the land Acquisition Agreement, Appendix A, is approximately 525 Ac and is shown in Figure 1. The basin consists of the 270 Ac golf course area and 255 Ac to the north of the golf course. The northern basin boundary is Iroquois Point Road. Runoff flows southeasterly from this divide, at an elevation of approximately 30 feet above mean sea level (MSL), towards Hanakahhi Street. Hanakahhi Street, at an approximate elevation of 20 feet MSL, is the northern boundary of the residential subdivision. The topography of the area, using the site survey data presented in Figure 2, is relatively flat with surface runoff occurring by sheet flow.
NOTES:

TOPOGRAPHIC ELEVATIONS AND PROPERTY LINES ARE COMPARED FROM
AUSTIN BULFINCH AND ASSOCIATES ADVANCED PLANNING DATED MAY 1968.

FIGURE 2.
EXISTING SITE TOPOGRAPHY

SEIEN HAWAI, INC.
THE WEISS CORPORATION
EWA GOLF COURSE
OAHU, HAWAI

EXISTING SITE PLAN
SCALE 1:2,000
COUNTY COMMISSIONERS OFFICE
STATE OF HAWAII
Plate 1 is the work sheet prepared after a topographic survey of the mauka lands was conducted in April 1989, after cane harvesting. As indicated by the contours on Plate 1 the four large depressions below Puuloa Road and the elevation along the golf course boundary will contain all runoff from the mauka lands to an elevation of 23 feet. Furthermore, the eastern portion of the mauka lands in the blast zone, drains to the East towards Pearl Harbor.

Under the terms of the agreement between Campbell Estate and the golf course developer, SHI, the golf course is to accommodate runoff from 255 acres of mauka lands when they are put into residential use. Either Campbell Estate or a future developer will be responsible for filling the recently located depressions in order that the runoff will flow into the designed swales on the northern boundary of the golf course.

Runoff from the 195 acres within the blast zone, which cannot be developed for residential use and which currently drains in the easterly direction towards Pearl Harbor, is not included in in the area draining onto the golf course.

Based on the land Acquisition Agreement and topographic survey data, the drainage analysis was completed using the area as indicated in Figure 3 (Areas 1 and 2). Development in the area north of Iroquois Point Road is covered by another, separate agreement. Under the terms of that agreement, the area runoff flows generated north of Iroquois Point Road will be conveyed in a westerly direction, via a piped system.

As stated in the Ewa Beach area Drainage Master Plan (Reference 6), the residential area storm water collection system is adequate except under extremely heavy storm conditions. Improvements were proposed in the Plan to correct the problems as Increment 3 of the Plan implementation. Runoff analyses for the Plan were based on the area north of the Leeward Estates Subdivision being in agricultural production. In view of this design consideration and in accordance with the land Acquisition Agreement, the golf course storm drainage system was designed to preclude runoff from the 270 Ac course, and for the runoff from existing and proposed land uses for 255 Ac to the north, from flowing onto off-site areas.
FIGURE 3  FUTURE DRAINAGE AREA
STORM WATER RUNOFF

FUTURE
255 ACRE RESIDENTIAL
DEVELOPMENT
(AREA 2)

SEE PLATES 2-5 FOR
DETAILS ALONG BOUNDARY
PROJECT SITE

PROPOSED 270 ACRE
EWA GOLF COURSE
(AREA 1)

SCALE IN FEET

NORTH

SAM O. HIROTA, INC.
864 S. BERETANIA ST.
HONOLULU, HAWAII 96813
Existing Condition Hydrology:

Since the project drainage system is to retain all runoff flow, no comparative analysis between existing agricultural use of the 270 Ac parcel and the proposed golf course use was made. Rather, the existing condition analysis addresses the land use of the 255 Ac to the north of the course site. All of this land is currently in production. The 255 Ac parcel (refer to Figure 3) outside of the explosive safety quantity distance arc, or "blast zone", is proposed for future residential development. Due to the development restrictions in a blast zone, the remaining 195 Ac area will continue in agricultural production.

Storage of runoff from the blast zone area is not included in the terms of the land Acquisition Agreement. Based on the available topography, discussed above, runoff from this area does not flow towards the golf course (see Plate 1). Therefore, the on site storm drainage system was designed not to accommodate runoff from the blast zone.

Since both parcels are greater than 100 Ac, the Rational Method, in accordance with Reference 1, was not applicable. Therefore, a series of analyses was conducted using various methods and recurrence intervals to establish an acceptable level of on-site storage without disrupting play on the course, and to determine ponding levels across the course for major storm events. The analyses conducted were as shown listed below:

<table>
<thead>
<tr>
<th>METHOD</th>
<th>RECURRENCE INTERVAL(S) YEARS</th>
<th>REFERENCE NUMBER</th>
</tr>
</thead>
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<tr>
<td>&quot;Design Curves for Peak Discharge vs. Drainage Area&quot;</td>
<td>100</td>
<td>1.</td>
</tr>
<tr>
<td>SCS - Hawaii</td>
<td>100</td>
<td>2.</td>
</tr>
<tr>
<td>SCS - TR-20</td>
<td>100</td>
<td>3.</td>
</tr>
</tbody>
</table>

The results of the analyses for the entire 525 Ac drainage area are presented in Table 1.

The most of the runoff (139 acre-feet) from the mauka lands does not currently reach the proposed golf course property because of approximately 400 acre-feet of
Existing Condition Hydrology:

Since the project drainage system is to retain all runoff flow, no comparative analysis between existing agricultural use of the 270 Ac parcel and the proposed golf course use was made. Rather, the existing condition analysis addresses the land use of the 255 Ac to the north of the course site. All of this land is currently in sugar production. The 255 Ac parcel (refer to Figure 3) outside of the explosive safety quantity distance arc, or "blast zone", is proposed for future residential development. Due to the development restrictions in a blast zone, the remaining 195 Ac area will continue in agricultural production.

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<th>RECURRENCE INTERVAL(S)</th>
<th>REFERENCE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Design Curves for Peak Discharge vs. Drainage Area&quot;</td>
<td>100</td>
<td>1.</td>
</tr>
<tr>
<td>SCS - Hawaii</td>
<td>100</td>
<td>2.</td>
</tr>
<tr>
<td>SCS - TR-20</td>
<td>100</td>
<td>3.</td>
</tr>
</tbody>
</table>

The results of the analyses for the entire 525 Ac drainage area are presented in Table 1.

The most of the runoff (139 acre-feet) from the mauka lands does not currently reach the proposed golf course property because of approximately 400 acre-feet of
TABLE 1

STORM WATER RUNOFF
VOLUME SUMMARY
(ACRE-feet)

Using SCS Method (Ref. 2)

EXISTING CONDITION: 100 year 24 hour, R=12"

<table>
<thead>
<tr>
<th>MAUKA LANDS (255 Ac - Agriculture)</th>
<th>GOLF COURSE (270 Ac - Agriculture)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN = 60</td>
<td>CN = 60</td>
<td></td>
</tr>
<tr>
<td>Vol = 139.4</td>
<td>Vol = 147.6</td>
<td>Vol = 287</td>
</tr>
</tbody>
</table>

FUTURE CONDITION: 100 year 24 hour, R=12"

<table>
<thead>
<tr>
<th>MAUKA LANDS (255 Ac - Developed)</th>
<th>GOLF COURSE (270 Ac - Agriculture)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN = 90</td>
<td>CN = 60</td>
<td></td>
</tr>
<tr>
<td>Vol = 228.6</td>
<td>Vol = 147.6</td>
<td>Vol = 376.2</td>
</tr>
</tbody>
</table>

TABLE 1A

DEPRESSION STORAGE CAPACITY BY CONTOUR ELEVATION

<table>
<thead>
<tr>
<th>ELEVATION (FEET)</th>
<th>AREA (ACRE)</th>
<th>VOLUME (AC-FT)</th>
<th>CUMULATIVE VOLUME (AC-FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>0.802</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18</td>
<td>7.538</td>
<td>8.340</td>
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<td>22.934</td>
<td>30.472</td>
<td>38.812</td>
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</tr>
<tr>
<td>24</td>
<td>155.0</td>
<td>202.448</td>
<td>381.642                   *</td>
</tr>
<tr>
<td>26</td>
<td>220.0</td>
<td>375.0</td>
<td>756.6                     *</td>
</tr>
</tbody>
</table>

* ASSUMING THAT ALL RUNOFF IS CONTAINED ON THE GOLF COURSE.
depressions located mauka of the golf course (see Plate 1). Until the mauka lands are filled and developed, the depressions and the current mauka topography will limit the amount runoff reaching the golf course. As seen in Table 1A, the 100 year 24 hour storm runoff from the golf course itself will be retained on the golf course filling up to the 22 foot contour level.

All of the runoff reaching the golf course is to be ultimately disposed of by infiltration in waste bunker pits and throughout the golf course, but some may be stored in low areas if necessary. It is highly unlikely that the course would be open for play during severe storm conditions. The golf course designer has set the elevation of the tees and greens above 26.0 MSL (the maximum water storage elevation based on the original design concept of retention with no infiltration). The club house, other buildings and roadways have also been sited at an elevation of at least 26 feet MSL.

Any runoff from the 255 Ac drainage basin north of the golf course is to be intercepted along the northern boundary of the golf course by an interceptor swale which will follow along the northern property line for most of its length. A typical section for this interceptor is shown in Figure 4. This swale will be graded to divide the runoff flows into channels which will convey water to the various waste bunker pits and storage depressions. The swales are proposed to be unlined since design computations found in Appendix E indicate flow velocities less than the required 5 feet per second.

The intercepted runoff will be channeled to waste bunker pits as shown on the accompanying maps, Plates 2 to 5. The waste bunker pits are to be constructed by excavating to coral, backfilling with crushed coral, installing a sheet of filter fabric and a covering layer of sand. The filter fabric will keep sand from washing down into the aggregate. A schematic detail is shown in Figure 4A. Actual field tests from the area have shown that such waste bunker pits can absorb as much as 1,000 feet of water per day. The derivation of the infiltration rate for waste bunker pits is given in Appendix C.

Smaller waste bunker pits are also located within the golf course as shown on Plates 2 to 5 to absorb runoff from the golf course itself. The location and configuration of the waste bunker pits and storage depressions have been coordinated with the course designer to assure achieving the required storage capacity without interfering with the proposed area of play.
The individual runoff volumes were computed based on the unit hydrograph method, as described in Reference 4. The unit hydrograph was represented as an equivalent triangle hydrograph, with the volume of runoff computed as the area beneath the curve. In the case of the SCS-TR20, the runoff volume is provided in the program output.

The preliminary drainage report for the project indicated that storm water runoff calculations should be determined for the 6-hour and 24-hour duration storms. The calculations used in this report are for the worst condition, a 100 year storm of 24 hours duration.

DEVELOPED CONDITIONS:

Developed Area Drainage Patterns:

Under the proposed developed conditions, two separate area land uses will exist, tabulated as follows:

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future residential</td>
<td>255 Ac</td>
</tr>
<tr>
<td>Golf Course</td>
<td>270 Ac</td>
</tr>
</tbody>
</table>

All of these areas will generally drain towards the south or east. Runoff from the future residential areas will continue to be collected in the swale to be constructed along the northern boundary of the golf course and directed into waste bunker pits. Runoff from the golf course itself will continue to flow into other waste bunker pits or storage depressions.

Waste bunker pits and depressions along the course's southern boundary will be located along the interior property line, to cut off storm flows to the existing Leeward Estates Subdivision. A four foot berm will also be located approximately 30 feet inside the property line along Fort Weaver Road, Leeward Estate subdivision and the eastern property boundary at approximately 25 to 26 foot elevation to provide an additional safety factor to prevent potential runoff generated by 100-year storm events is retained within the golf course area.
PROPERTY LINE

GOLF COURSE

1-0" MAX. STORM RUNOFF HT.
2'-0" DEPTH (MAX.)

9'-0" FENCE

1:4 MAX. SLOPE

MAX. WIDTH

GENERAL CONCEPT OF

FIGURE 4.
PROPOSED INTERCEPTOR SHALE BETWEEN
FUTURE RESIDENTIAL AREA AND GOLF COURSE
Developed Area Hydrology:

For the purpose of accessing runoff from the proposed 255 acre residential area, it was assumed that this runoff intercepted at 14 locations along the northern boundary of the golf course. The drainage inlets were divided into many locations to give the mauka development flexibility in the placement of drainage outlets and to reduce the size of a few major outlets. These are located as indicated on Plates 2 to 5.

The golf course area was divided into 112 drainage basins in order to compute the quantity of runoff into waste bunker pits and storage depressions. The basins are shown on Plates 2 to 5.

The runoff for a 100 year, 24 hour storm for the 270 acre golf course was calculated using SCS methodology and the TR-20 computer program for project formulation hydrology. This program generates the peak discharge rate and runoff volume as well as a hydrograph. The peak discharge from the mauka lands was found to be 1,000 cfs based on the City and County of Honolulu Storm Drainage Standards (Ref 1). The peak discharges are shown on Plates 2 and 3.

The runoff from a 100 year, 24 hour storm for the 112 interior basins was estimated on the basis of a storm of equal duration and peak time as that for the entire 270 acres and with a peak runoff rate rate of in proportion to the peak rate for whole course. The areas of the 112 drainage basins, the low contour (storage) area, and peak flow are tabulated in Table 2.

As shown on Plates 2 to 5, the flows from most depressions will be directed into waste bunker pits. The flows into waste bunker pits from multiple basins was determined using the U.S. Environmental Protection Agency (EPA) program Storm Water Management Model (SWMM). This program can analyze the effects of single storm events on multiple catchments with time steps for event simulation and includes evaluation of storage within the system. For this report, idealized three point hydrographs have been assumed and these hydrographs are routed through the system in finite time increments.

The flow of drainage from low areas into storage depressions or waste bunker pits was simulated by assuming each to be connected by a trapezoidal swale with a bottom width of 50 feet and side slope of four horizontal to one vertical. The lengths of these swales was assumed to be the
distance between the approximate centroid of the
depressions. A idealized three point hydrograph developed
for each basin was based on the TR-20 100-year, 24-hour
storm hydrographs for the 255 acres of future residential
development and the 270 acre golf course. The derivation of
these idealized hydrographs are given in Appendix D.

Appendix E contains the routed information of drainage
network and the SWMM program input and output for waste
bunker pits and storage depressions servicing more than one
of the 112 interior drainage basins. The input data for the
SWMM computer program was designed so that the 1000 number
series was used to label the nodes plotted on Plates 2
through 5. The 3000 number series was used to label the
conduits or open channels between the nodes. The hundredths
and tens digits in the node number 1020 represents the basin
2 in which the node is located. The same series of digits
in the conduit number represents the node that is on the
upstream end or beginning of the the open channel conveying
water between the nodes.

The estimated capacity of the waste bunker pits is
estimated to be approximately 3,000 acre-feet per day. This
is based on 3 acres of waste bunker pits and as previously
mentioned the infiltration capacity rate of 1000 feet per
day. This would provide a capacity factor of 8 above that
required to disposed of the storm runoff. This would be an
additional safety factor above that shown in Table 1A which
indicates that the entire runoff from the 525 acres can be
accommodated on the golf course at the 24 foot contour
level.

As was previously mentioned a four foot berm will be
constructed along the inside of the southern, western and
eastern golf course property lines. This assure that all
runoff will be contained on the golf course site. The berm
will be landscaped and maintained to fit the aesthetics of
the course and views from off-site areas. A schematic
section of this berm is presented in Figure 5.
<table>
<thead>
<tr>
<th>TABLE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basin</strong></td>
</tr>
<tr>
<td>Drainage Area</td>
</tr>
<tr>
<td>Lake</td>
</tr>
<tr>
<td>Pond</td>
</tr>
<tr>
<td>Total Lakes</td>
</tr>
</tbody>
</table>

The data provided includes measurements for different basins and their respective peak and total flow values.
REFERENCES:


RECORDATION REQUESTED BY:  

AFTER RECORDATION, RETURN TO:  

RETURN BY: MAIL () PICKUP ()  

SPACE ABOVE THIS LINE FOR REGISTRAR'S USE  

TRUSTEES' LIMITED WARRANTY DEED  

KNOW ALL MEN BY THESE PRESENTS:  

THAT F. E. TROTTER, INC., W. H. MCVAY, INC.,  
F. R. CASSIDAY, INC. AND H. C. CORMUELL, INC., ALL HAWAII  
PROFESSIONAL CORPORATIONS, THE DULY APPOINTED, QUALIFIED AND  
ACTING TRUSTEES UNDER THE WILL AND OF THE ESTATE OF JAMES  
CAMPBELL, DECEASED, ACTING IN THEIR FIDUCIARY AND NOT IN THEIR  
INDIVIDUAL CORPORATE CAPACITIES, WHOSE PRINCIPAL PLACE OF  
BUSINESS AND POST OFFICE ADDRESS IS 828 FORT STREET, HONOLULU,  
HAWAII 96813 ("GRANTORS"), IN CONSIDERATION OF THE CERTAIN REAL  
PROPERTY AND OTHER VALUABLE CONSIDERATION SIMULTANEOUSLY  
HERewith CONVEYED TO THEM BY SEISU HAWAII, INC., A HAWAII  
CORPORATION WHOSE PRINCIPAL PLACE OF BUSINESS AND POST OFFICE  
ADDRESS IS 2237 KUHIO AVENUE, #303, HONOLULU, HAWAII 96815  
("GRANTEES"), RECEIVED WHEREOF IS HEREBY ACKNOWLEDGED, AND UPON  
AND SUBJECT TO THE COVENANTS AND CONDITIONS HEREBIN SET FORTH,  
DO HEREBY GRANT, BARGAIN, SELL, AND CONVEY UNTO GRANTEE, ITS  

X8873896
successors and assigns, forever, that certain parcel of real
estate ("Property") situated in Honolulu, District of Ewa,
City and County of Honolulu, State of Hawaii, more particularly
described in Exhibit A attached hereto and made a part hereof,
subject to the encumbrances herein and in Exhibit B attached
hereto and made a part hereof.

AND the reversions, remainders, rents, issues and
profits thereof, together with all buildings, improvements,
tenements, rights, easements, privileges, and appurtenances to
the same belonging or appertaining or held and enjoyed
therewith, and all of the estate, right, title and interest of
Grantors both at law and in equity therein and thereto.

TO HAVE AND TO HOLD the same unto Grantee, its
successors and assigns, forever.

AND Grantors, for themselves and their successors in
trust and assigns, do hereby covenant and agree with Grantee,
its successors and assigns, that Grantors have done or suffered
no act or thing whereby such premises hereby granted are
encumbered, except as aforesaid and set forth hereinafter; that
such premises are free and clear of liens and encumbrances made
or suffered by Grantors except as aforesaid; and that Grantors
will and their successors in trust and assigns shall WARRANT
AND DEFEND the same unto Grantee, its successors and assigns,
forever, against the loss or claims and demands of all persons
claiming by, through or under Grantors except as aforesaid.

SUBJECT, HOWEVER, to the following:

X8875396 2.
1. The duty of Grantee to develop the Property, by appropriate planning, grading, construction and installation of drainage structures and other means, so as to (a) contain and otherwise hold on the Property, so that it is disposed of by evaporation and/or percolation into the soil and not by runoff onto Grantors' or other adjoining lands, all water which (1) originates on the Property or (2) runs onto the Property from the adjoining land described on Exhibit C hereto and made a part hereof ("Hauka Land"), (b) otherwise avoid any damage or injury to Grantors' or other adjoining lands from water runoff, and (c) comply fully with the Drainage Plan formulated by Grantee pursuant to that certain Acquisition Agreement ("Agreement") entered into May 28, 1987 by and between Grantors and Grantee. To the extent that the Drainage Plan requires Grantors' use of the Buffer Zone as defined in Paragraph 4 herein, Grantors hereby reserve unto themselves perpetual drainage easements in the Buffer Zone as are reasonably necessary to effectuate the Drainage Plan.

2. The duty of Grantee to complete construction upon the Property, within ten (10) years of the date of recordation of this Deed, a golf course project costing, exclusive of land costs, not less than FIFTEEN MILLION AND NO/100 DOLLARS ($15,000,000.00) and consisting of twenty-seven (27) holes together with a clubhouse, parking and related amenities including, at Grantee's option, a swimming pool and tennis facilities ("Course"), to be open to the public and to
be built and maintained at a standard comparable with the first-class golf courses located at Kaanapali, Kapalua and Makaha on the Island of Maui and Maunalani and Kaunaʻa Beach on the Island of Hawaii, provided, however, that Grantee must complete the first eighteen (18) holes together with a clubhouse and parking within five (5) years of the date of recordation of this Deed, and provided further that the first eighteen (18) holes will be located so as to adjoin the boundary of the Property and the Mauka Land. In the event that Grantee is unable to complete construction of the Course within the times set forth in this paragraph because it has been unable, despite its best efforts, to obtain the necessary government approvals or sufficient potable or non-potable water to build and operate the Course, then Grantee’s duty hereunder to complete construction of the Course shall be extended until such time that it is able to complete construction, provided, however, that (a) Grantee shall use its best efforts to complete construction as specified in this paragraph and (b) nothing herein shall be deemed to extend in any way the time period specified herein or excuse Grantee from fulfilling all of its other duties and obligations hereunder and under the Agreement.

3. The duty of Grantee, before commencement of construction of the Course and prior to the erection, placement, or alteration of any other major improvements to the Property, to submit to and obtain the approval in writing of
Grantors of a site plan with specifications showing plot layout and all exterior building elevations, with materials and colors proposed therefor, and structural design, signs and landscaping. Such approval shall not be unreasonably, arbitrarily or capriciously withheld and no fee or charge shall be assessed for said approval. Within thirty (30) calendar days from Grantee's request for such approval and submission of all material required to make an informed decision concerning approval, Grantors will, in writing, approve or disapprove the plans and other materials submitted. Failing such action by Grantors, such plans and materials will be deemed approved.

Approval by Grantors of both the site plan and plans for each proposed improvement shall be based, among other things, on lot coverage, building setbacks and spacing, building elevations, grading and drainage, landscaping, signing, parking and circulation, building materials and massing, handling of refuse collection and storage and loading areas, current government regulations, the aesthetic impact of the site plan and the plan for each proposed improvement upon the Property and upon adjacent and other lands of Grantors, and the general manner in which the site plan and the plan for each proposed improvement comports with the letter and spirit of the Agreement. Approval of any such required plan shall only constitute an acceptance by Grantors and not an endorsement of the adequacy of the plans or any improvements constructed in accordance with them.
4. The restriction that, with regard to the boundary of the Property and the Nauka Land, Grantee will (a) construct no structure or similar improvement of any kind within 100 feet of said boundary (the "Buffer Zone") with the exception of a green chain link fence of no more than three (3) feet in height without Grantors' prior written approval, (b) restrict the growth of any vegetation in the Buffer Zone (with the exception of trees) to no more than three (3) feet in height, (c) plant any tree in the Buffer Zone no closer than fifteen (15) feet from any other tree, and (d) otherwise construct, grade, landscape and maintain the Buffer Zone in accordance with the cross-sectional representation set forth in Exhibit D hereto.

5. The duty of Grantee to cultivate, fertilize, water, prune, trim, replace, replant and otherwise maintain the landscaping on the Course (including, without limitation, all plantings in the Buffer Zone) in a first class condition, consistent with the courses described in Paragraph 1 above.

6. The reservation to Grantors of all subsurface water and water rights with respect to the Property, including without limitation all rights to basal, subterranean and artisan waters, except that Grantee shall be entitled to drill wells upon the Property and withdraw from said wells non-potable water as may be available, but in no event more than 1.5 million gallons per day, for use only upon the Property for irrigation and other purposes related to the Course and not for
export beyond the Property. Grantee shall, at its expense, install water meters on all wells on the Property to record the amount of non-potable water withdrawn from all such wells and shall provide to Grantors monthly written reports showing the amount of non-potable water withdrawn. By granting Grantee this entitlement, Grantors makes no representations as to the availability of non-potable water from any such wells either at present or in the future for Grantee's purposes or any other purpose, and Grantee expressly bears the risk that non-potable water from any such wells may not be sufficient or may become insufficient for its purposes or any other purpose.

7. The reservation to Grantors, their successors in trust and assigns of an easement over the Property consisting of a strip thirty (30) feet wide and running the length of and adjacent to the boundary between the Property and Fort Weaver Road, together with such other easements as may be mutually agreed upon by Grantors and Grantee, for the transmission of water, electricity and other utilities to adjacent or nearby Grantors' properties.

8. The reservation to Grantors, their successors in trust and assigns, of all rights of Lessor in, to and under that certain Indenture of Lease dated January 2, 1929, by and between Grantors, as lessor ("Lessor"), and Eva Plantation Company, as lessee ("Lessee"), recorded in the Bureau of Conveyances of the State of Hawaii ("Bureau") in Liber 1155,
Page 66 and noted on Certificate of Title No. 15,790 issued to
Grantors, as amended and as assigned to Oahu Sugar Company,
Limited by Instrument dated April 9, 1970 and filed in the
Office of Assistant Registrar of the Land Court of the State of
Hawaii ("Office") as Document No. 50009, ("Lease"); provided,
however, that said reservation shall terminate upon the
exercise by Grantors, as Lessor under the Lease, of their right
to withdraw the Property from the applicability of the Lease
and the recording in the Bureau and filing in the Office, as
appropriate, of a document surrendering the Property from the
terms and conditions of the Lease.

9. The restriction that the Property shall be used
solely for the development and operation of the Course.

10. The acknowledgement by Grantee that Grantors
have entered and may further enter into agreements with others
for development and agricultural use of other land of Grantors
located adjacent to or near the Property including without
limitation land in the Campbell Industrial Park, the further
acknowledgement by Grantee that such agricultural and
developmental activities may involve without limitation
periodic dust, noise, odor, use of chemicals, blasting or
explosives, and the agreement of Grantee to take title to the
Property subject to such activities.

11. The acknowledgement by Grantee of its awareness
that the Property is located adjacent to land condemned by the
United States Government for use by the United States Navy in

X8878396 8.
connection with the Explosive Safety Hazard Zone at West Loch Branch, Naval Magazine, Lualualei and for such other uses as may be authorized by Congress or Executive Order, that Grantors makes no representation as to whether the United States Navy acquired sufficient land to assured that no damage or injury to persons or property can occur outside the Explosive Safety Hazard Zone, and that the United States Navy has never informed Grantors what damage, if any, to persons and property might be expected to occur outside of the area condemned in the event of the detonation of high explosives within the West Loch Branch of the Lualualei Naval Magazine.

12. The acknowledgement by Grantee of its awareness of the activities of Cahu Sugar Company, Limited related to the cultivation and harvesting of sugar cane on land within and around the Property, the activities of the Honolulu International Airport and Barbers Point Naval Air Station which cause aircraft to fly over or close to the Property, the munition and explosive storage activities of the West Loch Branch of Lualualei Naval Magazine and the operation of the Honolulu Sewage Treatment Plan in the area of the Property.

13. The acknowledgement of Grantee that the Property is conveyed to Grantee "as is", and that Grantors (a) assume no obligation or responsibility for providing access, drainage, utilities, public and private facilities or any other improvements except as otherwise provided in the Agreement, and (b) make no representations as to the legality or suitability
of the Property for any use including any representations regarding Grantee's ability to obtain or retain the zoning, governmental approvals or permits necessary to construct or operate the Course.

14. The agreement of Grantee to indemnify, defend, and hold Grantors harmless from and against any and all actions, suits, losses, costs, damages, liabilities or claims thereof, including attorneys' fees, arising out of or in connection with any action by Grantee, its agents, representatives, or any others claiming by, through, or under Grantee, and which are related to this Deed or the Agreement.

The foregoing obligations, duties and agreements of Grantee shall be deemed covenants running with the land, binding Grantee, its successors and assigns for a period commencing with the filing of this Deed in the Office and ending twenty-one (21) years after the death of the last heir of Queen Elizabeth II currently living.

The terms "Grantors" and "Grantee" wherever herein used shall be held to mean and include Grantors, their successors in trust and assigns, and Grantee, its successors and assigns, and this instrument shall be binding upon and
shall inure to the benefit of the parties hereto and their said respective successors, successors in trust and assigns.

IN WITNESS WHEREOF, Grantors and Grantee have executed these presents as of this 24th day of December, 1988.

SEIBU-HAWAII, INC.

By ____________________________

"GRANTEE"

THE TRUSTEES UNDER THE WILL AND OF THE ESTATE OF JAMES CAMPBELL, DECEASED, acting in their fiduciary and not in their individual corporate capacities

F. E. TROTTER, INC.

By ____________________________

Its President

W. H. MCVAY, INC.

By ____________________________

Its President

P. R. CASSIDAY, INC.

By ____________________________

Its President

H. C. CORNUELLE, INC.

By ____________________________

Its President

"GRANTORS"
STATE OF HAWAII

CITY AND COUNTY OF HONOLULU

On this 24th day of December, 1988 before me appeared

FRED E. TROTTER, W. H. McVAY, P. R. CASSIDAY and

N. C. CORMUELLE, to me personally known, who, being by me duly

sworn did say that FRED E. TROTTER, W. H. McVAY, P. R. CASSIDAY

and N. C. CORMUELLE are President, sole shareholder and sole

director of F. E. TROTTER, INC., W. H. McVAY, INC.,

P. R. CASSIDAY, INC. and N. C. CORMUELLE, INC., respectively,

Hawaii professional corporations and Trustees under the Will

and of the Estate of James Campbell, Deceased; that the

foregoing instrument was signed by each of the persons listed

as appearing before me in the respective capacity above

indicated (that is, as President of a Hawaii professional

corporation which is a Trustee); that said corporations are

corporations without seals; that the President of each and

every corporation which is a signatory hereto acknowledged that

the aforesaid instrument was signed on behalf of said

corporation with the authority of the sole shareholder and

director and as the free act and deed of said corporation as

such Trustee.

\[Signature\]

Notary Public, State of Hawaii

My Commission expires: 07/20/92
STATE OF HAWAII
CITY AND COUNTY OF HONOLULU

On this 24th day of December, 1988, before me personally appeared Kali Haveshi, to me personally known, who, being by me duly sworn, did say that he is the Vice President of SHIBU HAWAII, INC., a Hawaii corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed on behalf of said corporation by authority of its Board of Directors, and the said officer acknowledged said instrument to be the free act and deed of said corporation.

Notary Public, State of Hawaii
My Commission Expires: 11-7-92
PROPERTY

All that certain parcel of land situate at
Honolulu, District of Ewa, City and County of Honolulu, State
and Hawaii, described as follows:

Lot 4137, area 270.0 acres, as shown on Map 432,
filed in the Office of the Assistant Registrar of Land Court of
the State of Hawaii with Land Court Application No. 1069 of the
Trustees under the Will and of the Estate of James Campbell,
Deceased, being a portion of the land described in and covered
by Transfer Certificate of Title No. 2/2/17 issued to the
Trustees Under the Will and of the Estate of James Campbell,
Deceased.
ENCUMBRANCES

1. Right of way for ingress and egress over, along and across Lot 4187 (besides other land), in favor of Lots 419, 421, 422, 423 and 313, as set forth by Land Court Order No. 15422, filed May 23, 1957, and as set forth in Deeds dated June 15, 1957, filed in the Office as Document No. 203055, recorded in the Bureau in Liber 3277, Page 79, and dated October 30, 1958, filed in the Office as Document No. 226802, and recorded in the Bureau in Liber 3523, at Page 100.

2. Easement for electrical lines and water pipes over and under a strip of land 10 feet wide, being 5 feet on either side of a line running 5 feet westerly and parallel to the eastermost boundary of said parcel (besides other land), in favor of Lots 419, 421, 422, 423 and 313, as set forth in Deed dated June 15, 1957, filed in the Office as Document No. 203055, and recorded in the Bureau in Liber 3277, Page 79, and Deed dated October 30, 1958, filed in the Office as Document No. 226802 and recorded in the Bureau in Liber 3523, Page 100.

3. Restriction of abutter's rights along Fort Weaver Road, as shown on Map 432, filed with Land Court Application No. 1069.

4. Lease dated January 2, 1929, recorded in Liber 1155, at Page 66, by and between the TRUSTEES UNDER THE WILL AND OF THE ESTATE OF JAMES CAMPBELL, DECEASED, "Lesor," and Ewa PLANTATION COMPANY, a Hawaii corporation, "Lessee"; leasing and demising the land described herein, besides other land, for a term of 50 years commencing on January 1, 1929, as amended from time to time by various unrecorded and unregistered agreements and documents.

Land Court Order No. 29825, filed April 8, 1969 sets forth the merger of Ewa Plantation Co. with and into Ewa Sugar Company, Inc.

Said lease was assigned to Cahu Sugar Company, Limited, a Hawaii corporation, by Assignment of Lease dated April 9, 1970, filed as Document No. 500009. Consent thereto given by the Trustees under the Will and of the Estate of James Campbell, Deceased, by instrument filed as Document No. 500010.

By unrecorded Amendment of Lease dated April 16, 1970, effective January 1, 1970, said lease dated January 2, 1929 and unrecorded lease dated April 23, 1963 as amended by various unrecorded documents, are amended into a single form of
lease to be applicable to all of the lands now covered by said leases dated January 2, 1929 and April 13, 1963.


7. Unrecorded Lease Right of Way dated September 7, 1972, for transmission of electricity, over and across Lot 437, in favor of Hawaiian Electric Company, Inc. Lease Right of Way to continue until the termination of Trust, and thereafter from month to month until terminated by either party upon 30 days written notice.


MNAKA LAND

All of that certain parcel of land situate at
Honolulu, District of Ewa, City and County of Honolulu, State
of Hawaii, described as follows:

Lot 4136, area 254.356 acres as shown on Map 432,
filed in the Office of the Assistant Registrar of the Land
Court of the State of Hawaii with Land Court Application
1942-16-9 of the Trustees Under the Will and of the Estate of
James Campbell, Deceased, being a portion of the land described
in and covered by Transfer Certificate of Title No. P-2127
Issued to the Trustees Under the Will and of the Estate of
James Campbell, Deceased.

X8875036  EXHIBIT C
Mr. Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Subject: Your Letter of October 21, 1997 on a Request for Increased Permitted Use from Caprock Wells for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp

We have no objections to an increase in permitted use from the Hawaii Prince Golf Club well that develop brackish water from the caprock.

We return the cover memo form accordingly marked.

If you have any questions, please contact Chester Lao at 527-5286.

Very truly yours,

[Signature]

RAYMOND H. SATO
Manager and Chief Engineer

Attachment
TO: Honorable Kali Watson, Chairperson  
Department of Hawaiian Home Lands  

Honorable Lawrence Miike, Director  
Department of Health  
Attn: Mr. Dennis Tulang  
Attn: Mr. William Wong  

Honorable Clayton H. W. Hee, Chairperson  
Office of Hawaiian Affairs  

Ms. Esther Ueda, Executive Officer  
Land Use Commission  

Mr. Raymond Sato, Manager & Chief Engineer  
Honolulu Board of Water Supply  
Attn: Mr. Chester Lao  
Attn: Mr. Barry Usugawa  

Mr. Patrick Onishi, Chief Planning Officer  
Planning Department  

FROM: Michael D. Wilson, Chairperson  
Commission on Water Resource Management  

SUBJECT: Water Use Permit Application  
Puuloa Ground Water Management Area, Oahu  

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd). Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.  

We would appreciate your review of the proposed use that is described in the attached application for any conflicts or inconsistencies with the land use designations, plans, policies, programs, or objectives specific to your organization or department only. Please respond by returning this cover memo form by November 20, 1997.  

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

Response:

( ) We have no comments  
( ) We have no objections  
( ) Comments attached  

Contact Person: Bert Kuioka  
Phone: 527-6134  

Signed: Bert Kuioka  
Date: DEC 16 1997
November 14, 1997

Honorable Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Water Use Permit Application for
Hawaii Prince Golf Club,
Well Nos. 1900-02, 1901-03, 1900-17 to 20

This is in response to your memorandum dated October 21, 1997. We have reviewed the subject application and provide the comments below on the subject application for your consideration.

- The existing Hawaii Prince Golf Club is identified as part of the open space and greenways network in the Ewa Development Plan. The existing golf course operation is consistent with the plan.

- The Department of Land Utilization (DLU) commented that the current zoning designation is R-5 Residential District and AG-2 General Agricultural District. DLU also commented that the use is permitted under the Conditional Use Permit, Type 1, approval obtained by the applicant and that the use is not within a Special Management Area. See attached comments.
Honorable Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
November 14, 1997
Page 2

Should you have any questions, please call Eugene Takahashi of our staff at 527-6022.

Yours very truly,

[Signature]
PATRICK T. ONISHI
Chief Planning Officer

PTO: lh

Attachment

c: The Honorable Jeremy Harris, Mayor
   (Mayor’s Control No. 32230)
November 5, 1997

MEMORANDUM

TO: PATRICK T. ONISHI, CHIEF PLANNING OFFICER
   PLANNING DEPARTMENT

FROM: JAN NAOE SULLIVAN, DIRECTOR
   DEPARTMENT OF LAND UTILIZATION

SUBJECT: WATER USE PERMIT APPLICATION

Applicant: Hawaii Prince Golf Club
Tax Map Key(s): 9-1-10: 06
Type of Use(s): Landscape irrigation
Well No(s): 1900-02, 1901-03, 1900-17 to 20

The proposed use on the above-referenced tax map key(s) has been reviewed. We find that the:

1. Current zoning designation is R-5 Residential District and AG-2 General Agricultural District.
   [X] Proposed use(s) is/are permitted under the Conditional Use Permit, Type 1, File No. 87/CUP1-071.
   [ ] Proposed use(s) may be permitted if the following permit(s) is/are obtained:

   [ ] Proposed use(s) is/are not permitted under current zoning.

The Department of Land Utilization is currently processing a zone change application for the project, which if approved by the City Council, would result in the use being consistent with the proposed district zoning.

[ ] Yes
[ ] No
PATRICK T. ONISHI, CHIEF PLANNING OFFICER
Page 2
November 5, 1997

2. [ ] Use is within the Special Management Area.
   [X] Use is not within the Special Management Area.

3. Additional Comments: __________________________________________
   __________________________________________
   __________________________________________

The proposed project has been reviewed for the purpose of providing the above information and does not imply a recommendation of approval by this Department. Should you have any questions, please contact the Environmental Review Branch at 523-4077.

JAN NACE-SULLIVAN
Director of Land Utilization

JNS: am
g:ppd\9707832.djt
MEMORANDUM FOR THE RECORD

Garrick Iwamuro called 11/19/97 regarding WUPA request for Hawaii Prince Wells. They have consulted with Brewer Environmental and Pacific Agricultural (2 of the larger distributors in Hawaii) re: the use of chemicals to reduce evaporative losses from the irrigation lakes. There are currently 2 products available: a silicone-type oil and a polymer. However, both will suffocate wildlife and HI Prince has fish (carp) in their lakes, also many birds (ie. ducks, Hawaiian stilts, etc). The 2 products are mainly used for industrial purposes (ie. holding tanks) where no wildlife are present.
Mr. Garrick Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Comments on Water Use Permit Application for Well Nos. 1900-02, 17 to 20 & 1901-03

We are forwarding for your review new comments from the State of Hawaii, Land Use Commission, on your water use permit application.

We have revised your application to reflect that TMK 9-1-10:6 is within the State Land Use Agricultural District.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

[Signature]

RAE M. LOUI
Deputy Director

LN:ss
Attachment
Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd.) Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

Response:

( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: Rae M. Loui, Deputy Director
Phone: 587-0218

Signed: Rae M. Loui, Deputy Director
Date: 11/14/97
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES

November 13, 1997

MEMORANDUM

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

FROM: Bill Devick, Acting Administrator
Division of Aquatic Resources

SUBJECT: Comments on Water Use Permit Application for Puuloa Ground Water Management Area (Well Nos. 1900-02, 1901-03, 1900-17 to 20), Oahu (TMK: 9-1-10:6)

The applicant, Hawaii Prince Golf Club, currently withdraws 0.151 mgd of water from the Puuloa Water Management Area. They are proposing to withdraw an additional 0.150 mgd for a combined total of 0.301 mgd. A well and pump system will be used to withdraw the water for irrigation purposes.

The Division has no objection to this request since the proposed project is not expected to have significant adverse impact on aquatic resource values in this area.
TO: Honorable Kali Watson, Chairperson
Department of Hawaiian Home Lands

Honorable Lawrence Milke, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton H. W. Hee, Chairperson
Office of Hawaiian Affairs
Ms. Esther Ueda, Executive Officer
Land Use Commission
Mr. Raymond Sato, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Patrick Onishi, Chief Planning Officer
Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for
Hawaii Prince Golf Club/Hawaii Prince Hotel Walkiki Corp. for Well Nos. 1900-02, 1901-03,
1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150
mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd).
Public notice of this application will be published in the Honolulu Advertiser issues of October 29,

We would appreciate your review of the proposed use that is described in the attached
application for any conflicts or inconsistencies with the land use designations, plans, policies,
programs, or objectives specific to your organization or department only. Please respond by
returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an
extension of the review period for this application, please contact Lenore Nakama at 587-0218.

Response:

We have no comments
We have no objections
Comments attached

Attachment(s)

Response:

X We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: Luis A. Manrique Phone: 594-1758
Signed: Luis A. Manrique Date: 11/06/97
TO: Honorable Kali Watson, Chairperson  
Department of Hawaiian Home Lands  
Honorable Lawrence Miike, Director  
Department of Health  
Attn: Mr. Dennis Tulang  
Attn: Mr. William Wong  
Honorable Clayton H. W. Hee, Chairperson  
Office of Hawaiian Affairs  
Ms. Esther Ueda, Executive Officer  
Land Use Commission  
Mr. Raymond Sato, Manager & Chief Engineer  
Honolulu Board of Water Supply  
Attn: Mr. Chester Lao  
Attn: Mr. Barry Usugawa  
Mr. Patrick Onishi, Chief Planning Officer  
Planning Department 
FROM: Michael D. Wilson, Chairperson 
Commission on Water Resource Management  
SUBJECT: Water Use Permit Application  
Puuloa Ground Water Management Area, Oahu  

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd). Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.  

We would appreciate your review of the proposed use that is described in the attached application for any conflicts or inconsistencies with the land use designations, plans, policies, programs, or objectives specific to your organization or department only. Please respond by returning this cover memo form by November 20, 1997.  

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218. 

Response: ( ) We have no comments  
( ) We have no objections  
( ) Comments attached 

Contact Person: Lani N. Kajiwara  
Phone: 586-4294  
Signed: Lani N. Kajiwara  
Date: 10-27-97
TO: Aquatic Resources  
Forestry and Wildlife/Natural Area Reserve System  
Historic Preservation  
Land Division  
State Parks  

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

SUBJECT: Request for Comments  
Water Use Permit Application  
Puuloa Ground Water Management Area, Oahu  

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd.) Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

Response:

✓ We have no comments
✓ We have no objections
✓ Comments attached

Contact Person: SALLIE COLLINS  
Phone: 587-0013

Signed:  
Date: 10/29/97
TO: Honorable Kali Watson, Chairperson
Department of Hawaiian Home Lands

Honorable Lawrence Miike, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton H. W. Hee, Chairperson
Office of Hawaiian Affairs

Ms. Esther Ueda, Executive Officer
Land Use Commission

Mr. Raymond Sato, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Patrick Onishi, Chief Planning Officer
Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd). Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the proposed use that is described in the attached application for any conflicts or inconsistencies with the land use designations, plans, policies, programs, or objectives specific to your organization or department only. Please respond by returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:

X We have no comments
() We have no objections
() Comments attached

Contact Person: Bill Wong Phone: 586-6258
Signed: Bill Wong Date: 10/27/97
TO: Aquatic Resources
   Forestry and Wildlife/Natural Area Reserve System
   Historic Preservation
   Land Division
   State Parks

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

SUBJECT: Request for Comments
   Water Use Permit Application
   Puuola Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd.) Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 941-0217.

LN:ss
Attachment(s)

Response:

☑ We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: RALSTON NASOGI

Phone: 5870292

Signed: ____________________________

Date: 10/27/97
Mr. Michael D. Wilson, Chairperson  
Commission on Water Resource Management  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809  

Dear Mr. Wilson:

Subject: Water Use Permit Application  
Puuloa Ground Water Management Area, Oahu  
Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp.  
Well Nos. 1900-02, 1900-03, 1900-17 to 20

We have reviewed the subject water use permit application, as transmitted by your memorandum dated October 21, 1997, and have the following comments to offer:

1) We confirm that the location of Well Nos. 1900-02, 1900-03, 1900-17 to 20, identified as TMK: 9-1-10: 6, is within the State Land Use Agricultural District, and not the Urban District as noted on the application.

2) We confirm that the location of the proposed water use, identified as TMK: 9-1-10: 6, is within the State Land Use Agricultural District.

We have no further comments to offer at this time.

Thank you for the opportunity to provide comments on the subject application.

As requested, please find enclosed the cover memorandum for the subject application.

If you have any questions in regards to this matter, please feel free to contact me or Leo Asuncion of my staff at 587-3822.

Sincerely,

ESTHER UEDA  
Executive Officer

EU:rg  
Enclosure
TO: Honorable Kali Watson, Chairperson
   Department of Hawaiian Home Lands
   Honorable Lawrence Miike, Director
   Department of Health
   Attn: Mr. Dennis Tulang
   Attn: Mr. William Wong

   Honorable Clayton H. W. Hee, Chairperson
   Office of Hawaiian Affairs
   Ms. Esther Ueda, Executive Officer
   Land Use Commission

   Mr. Raymond Sato, Manager & Chief Engineer
   Honolulu Board of Water Supply
   Attn: Mr. Chester Lao
   Attn: Mr. Barry Usugawa

   Mr. Patrick Onishi, Chief Planning Officer
   Planning Department

FROM: [Signature]
   Michael D. Wilson, Chairperson
   Commission on Water Resource Management

SUBJECT: Water Use Permit Application
   Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for
Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03,
1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150
mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd).
Public notice of this application will be published in the Honolulu Advertiser issues of October

We would appreciate your review of the proposed use that is described in the attached
application for any conflicts or inconsistencies with the land use designations, plans, policies,
programs, or objectives specific to your organization or department only. Please respond by
returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an
extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:

( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: Esther Ueda
Phone: 587-3822

Signed: [Signature]
Date: 10/24/97
TO: Aquatic Resources
Forestry and Wildlife/Natural Area Reserve System
Historic Preservation
Land Division
State Parks

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

SUBJECT: Request for Comments
Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd.) Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 581-0218.

LN:ss
Attachment(s)

Response: OCT 27 1997

( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: Phone:

Signed: Date:
TO: Honorable Kali Watson, Chairperson
Department of Hawaiian Home Lands

Honorable Lawrence Miike, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton H. W. Hee, Chairperson
Office of Hawaiian Affairs

Ms. Esther Ueda, Executive Officer
Land Use Commission

Mr. Raymond Sato, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Patrick Onishi, Chief Planning Officer
Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd). Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the proposed use that is described in the attached application for any conflicts or inconsistencies with the land use designations, plans, policies, programs, or objectives specific to your organization or department only. Please respond by returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

Response:

We have no comments
We have no objections
Comments attached

Rebecca Alakai, Planner, Planning Office
Contact Person: Darrell Yagodich, Administrator
Phone: 808/975-8638
Signed: 
Date: 10/24/97
PUBLIC NOTICE

Applications for Water Use Permits
Ground Water Management Areas, Molokai and Oahu

The following applications for water use permits have been received and are hereby made public in accordance with Department of Land and Natural Resources Administrative Rules 13-171, "Designation and Regulation of Water Management Areas."

EP 22, Wells 1 to 5 (Well Nos. 1900-02, 1901-03, 1900-17 to 20)
Applicant: Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

Hawaii Prince Hotel Waikiki Corp.
100 Holomoana Street
Honolulu, HI 96815

Date Completed Application Received: October 10, 1997
Aquifer: Puuloa System, Ewa Caprock Sector, Oahu
Water Source: EP 22, Wells 1 to 5 (Well Nos. 1900-02, 1901-03, 1900-17 to 20) at 91-1200 Fort Weaver Rd., Oahu, Tax Map Key 9-1-10:6
Quantity Requested: 301,000 gallons per day. (Request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. Applicant also has a permanent water use permit for 0.900 mgd.)
New Water Use: Golf Course Irrigation
Place of Water Use: 91-1200 Fort Weaver Rd. at Tax Map Key: 9-1-10:6

DHHL 1 & 2 (Well Nos. 0801-01 & 02)
Applicant: State of Hawaii
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, HI 96805

Date Completed Application Received: September 19, 1997
Aquifer: Kualapuu System, Central Sector, Molokai
Water Source: DHHL 1 & 2 Wells (Well Nos. 0801-01 & 02) at Kauluwai, Molokai, Tax Map Key 5-2-10:7
Quantity Requested: 1,246,500 gallons per day. (Request is to modify WUP No. 267 to increase the interim allocation by 879,500 gpd to a new total of 1,246,500 gpd.)
New Water Use: Domestic, Irrigation, Industrial
Place of Water Use: Hoolehua and Kalamaula (224 residences and 549 acres agricultural lots) at Tax Map Key: 5-2-various

Written objections or comments on the above applications may be filed by any person who has property interest in any land within the hydrologic unit of the sources of water supply, any person who will be directly and immediately affected by the proposed water uses, or any other interested person. Written objections shall: (1) state property or other interest in the matter (provide TMK information); (2) set forth questions of procedure, fact, law, or policy, to which objections are taken; and (3) state all grounds for objections to the proposed permits. Written objections must be received by November 20, 1997. Objections must be sent to 1) the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809 and 2) the applicants at the above addresses.

COMMISSION ON WATER RESOURCE MANAGEMENT

[Signature]
RAE M. LOUI, Deputy Director for
MICHAEL D. WILSON, Chairperson

Dated: OCT 21 1997

Mr. Garrick K. Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
Ewa Beach, HI 96706  

Dear Mr. Iwamuro:  

We acknowledge receipt, on October 10, 1997, of the $25.00 filing fee to complete your water use permit application for EP 22 and Wells 1 to 5 (Well Nos. 1900-02, 1901-03, 1900-17 to 20). You can expect your application to be processed within ninety (90) days from the date of receipt unless there are objections to your application.

Enclosed is a copy of the public notice for your water use permit application which will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

Please be aware that there may be objections to your application. If objections are made, the objector is required to file such objections with the Commission and is also required to send you a copy of the objections.

You, or any other party, may respond to objections by filing a brief in support of your application with the Commission within ten (10) days of the filing of an objection. You, or the other party, must also send a copy of the response to the objector.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director  

LN:ss  
Enclosure  

c: Donn Takahashi, Hawaii Prince Hotel Waikiki Corp.
TO: Aquatic Resources  
Forestry and Wildlife/Natural Area Reserve System  
Historic Preservation  
Land Division  
State Parks

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

SUBJECT: Request for Comments  
Water Use Permit Application  
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd.) Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN: ss  
Attachment(s)

Response:  

( ) We have no comments  
( ) We have no objections  
( ) Comments attached

Contact Person: ___________________________ Phone: ___________________________

Signed: ___________________________ Date: ___________________________
TO: Other Interested Parties
FROM: Rae M. Loui, Deputy Director
SUBJECT: Request for Comments
Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd.) Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the attached application for any conflicts or interferences with the programs, plans, and objectives of the organization or agency that you represent. Written objections should be made in accordance with Section 13-171-18 of our Administrative Rules and must be filed by the November 20, 1997 deadline.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:

( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person:_________________________ Phone:____________________

Signed:_____________________________ Date:____________________
TO: Honorable Kali Watson, Chairperson  
Department of Hawaiian Home Lands

Honorable Lawrence Miike, Director  
Department of Health  
Attn: Mr. Dennis Tulang  
Attn: Mr. William Wong

Honorable Clayton H. W. Hee, Chairperson  
Office of Hawaiian Affairs

Ms. Esther Ueda, Executive Officer  
Land Use Commission

Mr. Raymond Sato, Manager & Chief Engineer  
Honolulu Board of Water Supply  
Attn: Mr. Chester Lao  
Attn: Mr. Barry Usugawa

Mr. Patrick Onishi, Chief Planning Officer  
Planning Department

FROM: Michael D. Wilson, Chairperson  
Commission on Water Resource Management

SUBJECT: Water Use Permit Application  
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd. (Applicant also has a permanent water use permit for 0.900 mgd). Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the proposed use that is described in the attached application for any conflicts or inconsistencies with the land use designations, plans, policies, programs, or objectives specific to your organization or department only. Please respond by returning this cover memo form by November 20, 1997.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:

( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: ___________________________ Phone: ___________________________

Signed: ___________________________ Date: ___________________________
TO: Ms. Jan Sullivan, Director  
Department of Land Utilization  

FROM: Michael D. Wilson, Chairperson  
Commission on Water Resource Management  

SUBJECT: WATER USE PERMIT APPLICATION  
Puuloa Ground Water Management Area, Oahu  

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20. The request is to modify WUP No. 203 to increase the interim allocation by 0.150 mgd to a new total of 0.301 mgd.) Public notice of this application will be published in the Honolulu Advertiser issues of October 29, 1997 and November 5, 1997.

We would appreciate your review of the proposed use that is described in the attached application (i.e. line item 6 or Table 1). Specifically, we request that you inform us of the current zoning designation for the TMK parcel, or portion thereof, for the proposed use area(s) and, secondly, whether the current zoning designation is appropriate for the proposed water use.

We have attached a TMK map(s) that covers the proposed use area(s). Where water is proposed for use on only a portion of a TMK parcel, or on parcels with multiple zoning, the proposed use area(s) has been clearly delineated on the attached map. Please respond by returning this cover memo along with your review comments by November 20, 1997.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss  
Attachment(s)  

Response:  

( ) The proposed water use(s) is consistent with the current zoning designation(s).  
( ) Comments attached  

Contact Person: ___________________________ Phone: ___________________________  
Signed: ___________________________ Date: ___________________________
Honorable Jeremy Harris, Mayor  
City & County of Honolulu  
City Hall  
Honolulu, HI 96813  

Dear Mayor Harris:

Notice of an Application for Water Use Permit  
Puuloa Ground Water Management Area, Oahu  

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-171-17(a), we are sending you a copy of the public notice and water use permit application for Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp. for Well Nos. 1900-02, 1901-03, 1900-17 to 20, which will be published in the Honolulu Advertiser.

In addition, Section 13-171-13(b), of our Administrative Rules, states:

"Within sixty days after receipt of notice of a permit application, the county shall inform the commission if the proposed use is inconsistent with the county land use plans and policies."

We understand that the Planning Department is responsible for coordinating the review comments for City agencies. In accordance with the procedure that has been established by the Planning Department, we have also sent copies of the application and individual requests for comments to the Planning Department, the Department of Land Utilization, and the Board of Water Supply to facilitate and expedite City agencies review. We will look forward to receiving the review comments from the Planning Department within the next sixty (60) days, on whether this water use is consistent with county plans, policies, and land use designations.

Very truly yours,

MICHAEL D. WILSON  
Chairperson  

Enclosures
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

**DATE:** 10/14/97

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**TOTAL:** 25.00

**REMARKS:**

- LINE (1) Well No. 1900-02, 03, 1900-17 to 20 (WPA)
- LINE (2)
- LINE (3)
- LINE (4)

**PAY TO THE ORDER OF:**

DEPT. OF LAND & NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MGMT
P.O. BOX 621
HONOLULU, HAWAII
96809
STATE OF HAWAII

**AMOUNT:** 25.00

**WAIKIKI BRANCH**
FIRST HAWAIIAN BANK
HONOLULU, HAWAII 96815

**DATE:** 10/07/97

**CHECK Nº:** 57167

**VOID AFTER 90 DAYS**
October 8, 1997

Rae Loui  
State of Hawaii  
Department of Land & Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809

RE: Water Use Permit Application for EP22 and Wells 1 to 5  
(Wells #1900-22, 1901-03 and 1900-17 to 20)  

Ms. Loui:

Thank you for your patience with regard to our recent application. Enclosed, please find the $25.00 filing fee for this application.

Please feel free to call if you have any questions or concerns. Thank you again.

Sincerely,

Garrick K. Iwamuro  
Director of Golf Operations

GKI/sy  
Enclosure
Mr. Garrick K. Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
Ewa Beach, HI 96706  

Dear Mr. Iwamuro:

Application for a Water Use Permit  
Puuloa Ground Water Management Area, Oahu

We acknowledge receipt, on September 26, 1997, of your water use permit application for EP 22 and Wells 1 to 5 (Well Nos. 1900-22, 1901-03, & 1900-17 to 20).

However, your application is incomplete. Please submit the $25.00 filing fee to complete your application. As was also discussed during a September 30, 1997 telephone conversation with Stacy Yonamine of your staff, the following amendments have been made to your application:

1. We have attached the USGS and property tax maps that were submitted with your previous water use permit application for the purposes of agency and public review. (You did not submit any mapped information with this application.)

2. Line item 6(b) has been revised to reflect that this application is for a new, rather than existing, use. (Existing uses are defined as usage (ie. pumpage) in existence at the time of water management area designation.)

3. Line item 6(f) has been filled in to specify the current county zoning district at the proposed use location is "AG" (this information was given in your previous water use permit application).

4. Line item 7 has been revised to specify that you are applying to modify WUP No. 203 for an additional 0.150 mgd. Thus, the total quantity requested is 0.301 mgd (0.151 mgd permitted under WUP No. 203 plus your requested increase of 0.150 mgd).

Upon receipt of the $25.00 filing fee, your application will be processed, and you will receive a copy of the public notice and any further information regarding your application status.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI  
Deputy Director

LN:ss

c: Donn Takahashi, Hawaii Prince Hotel Waikiki Corp.
September 26, 1997

Ms. Rae Loui  
Deputy Director  
State of Hawaii  
Department of Land & Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809

RE: Interim Water Use Permit

Ms. Loui:

Thank you for your letter of July 10, 1997 regarding our water use permit.

We have enclosed a new application for a requested increase of 0.150 mgd in water use to offset the evaporation loss from the lakes at our golf course. Also, enclosed is a copy of our testimony submitted on August 14, 1996 to the CWRM at the public hearing on the amendment to the Hawaii Water Resources Protection Plan. The information regarding the evaporative loss is detailed in that testimony.

Please feel free to call me if you require additional information. I can be reached directly at 689-2260 or 2211. Thank you.

Sincerely,

Garrick K. Iwamuro  
Director of Golf Operations

GKI/sy  
Enclosures
APPLICATION FOR WATER USE PERMIT

Ground Water or Surface Water

PERMITTEE INFORMATION

1. (a) APPLICANT
Firm/Name: Hawaii Prince Golf Club
Contact Person: Garrick K. Iwamuro
Address: 91-1200 Fort Weaver Rd, Ewa Beach, Hawaii 96706
Phone: 689-2260 Fax: 689-4445

(b) LANDOWNER OF SOURCE
Firm/Name: Hawaii Prince Hotel Waikiki Corp.
Contact Person: Donn Takahashi
Address: 100 Holomai St, Honolulu, Hawaii 96815
Phone: 844-1111 Fax: 944-4443

SOURCE INFORMATION

2. WATER MANAGEMENT AREA: Ewa District, ISLAND: Oahu
3. (a) EXISTING WELL/DIVERSION NAME AND STATE NUMBER: 1900-02, 17:09:20 and 1901-03
(b) PROPOSED (NEW) WELL/DIVERSION NAME: N/A
(c) LOCATION: Address 91-1200 Ft Weaver Rd, Ewa Beach, HI (Attach USGS map, scale 1"=2000', and a property tax map showing source location referenced to established property boundaries.)

4. SOURCE TYPE (check one): □ Stream □ Dike-Confined □ Artesian □ Diverged Surface
(d) Method of Taking Water (check one): □ Artesian □ Well & Pump □ Diverged Surface
(e) Current State Land Use District(s): □ Backed □ Agriculture □ Rural □ Non-Rural
(f) Current County Zoning District(s): □ Backed □ Agriculture □ Rural □ Non-Rural

USE INFORMATION

6. LOCATION OF PROPOSED WATER USE: (If possible, show on same maps as source location. Otherwise, attach similar maps)
(a) □ PUC-Regulated System □ Intended Dedication to Dept./Board of Water Supply □ Non-PUC-Regulated Private System
(b) Proposed use of water is: □ Existing □ New □ Both existing & new uses
(c) Tax Map Key: 91-1200 Ft Weaver Rd, Ewa Beach, HI (If location of use is over multiple TMKs, please complete Table 1 on back of application)
(d) Address: 91-1200 Fort Weaver Road, Ewa Beach, Hawaii 96706
(e) Current State Land Use District(s): □ Backed □ Agriculture □ Rural □ Non-Rural
(f) Current County Zoning District(s): □ Backed □ Agriculture □ Rural □ Non-Rural

7. QUANTITY OF WATER REQUESTED: 0150,000 GALLONS PER DAY (AVERAGED OVER 1 YEAR)

8. METHOD OF MEASUREMENT: □ Flowmeter □ Open-pipe □ Other (explain)

9. QUALITY OF WATER REQUESTED: □ Fresh □ Brackish □ Salt □ Potable □ Non-Potable

10. PROPOSED USE: □ Municipal (including hotels, stores, etc.) □ Industrial □ Military □ Other (explain)
                 □ Individual Domestic □ Irrigation □ Non-Potable

For questions 11 & 12: If multiple TMKs are involved where water is to be used, please complete Table 1 on back of application.

11. TOTAL NUMBER OF RESIDENCES TO BE SERVED: N/A
12. TOTAL ACRES TO BE IRRIGATED AND TYPE OF CROP: 224 □ Hybrid Bermuda
13. PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION: 24 HOURS (DAY/HOURS OF OPERATION, EX. 7 A.M. TO 2 P.M.)

14. APPLICANT MUST ESTABLISH THAT THE PROPOSED USE OF WATER:
(a) Can be accommodated with the available water source.
(b) Is a reasonable-beneficial use as defined in section 13-171-2, HAR. (see backside of this application)
(c) Will not interfere with any existing legal use.
(d) Is consistent with the public interest.
(e) Is consistent with state and county general plans and land use designations.
(f) Is consistent with county land use plans and general policies.

15. REMARKS, EXPLANATIONS: (See backside of this application)

NOTE: Signing below indicates that the signatories understand and swear that: 1) the information provided on this application is accurate and true to the best of their knowledge; 2) item 14 is the responsibility of the applicant prior to Commission approval; 3) if necessary, further information may be required before the application is considered complete; 4) if a water use permit is granted by the Commission, this permit is subject to prior existing permitted uses, changes in sustainable yields and instream flow standards, reserved uses as defined by the Commission, and Hawaiian Home Lands future uses; and 5) Upon permit approval, a water shortage plan must be submitted by the applicant to the Commission.

Applicant (Name): Garrick K. Iwamuro
Signature: 12/1/99
Date: 12/1/99

Landowner (Name): Donn J. Takahashi
Signature: 12/1/99
Date: 12/1/99

WUPAFORM(12/99)
Section 13-171-2, Hawaii Revised Statutes -

"Reasonable-beneficial use" means the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is not wasteful and is both reasonable and consistent with the state and county land use plans and the public interest.

15. REMARKS, EXPLANATIONS (cont’d):

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>EXISTING or NEW USE</th>
<th>POTABLE or NONPOTABLE</th>
<th>TMK</th>
<th>CURRENT COUNTY ZONING CODE</th>
<th>UNITS or NET ACRES</th>
<th>GPD/UNIT or GPD/ACRE</th>
<th>4-YEAR PROJECTED DEMAND</th>
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TABLE 1. MULTIPLE TMKs TO USE REQUESTED WATER
STATE OF HAWAII
COMMISSION ON WATER RESOURCE MANAGEMENT

PUBLIC HEARING ON AMENDMENT TO
HAWAII WATER RESOURCES PROTECTION PLAN
AUGUST 14, 1996

HAWAII PRINCE GOLF CLUB
TESTIMONY
BACKGROUND

The Commission on Water Resource Management ("CWRM") proposes to amend the 1990 Hawaii Water Plan. Specifically, the CWRM seeks to revise the 1990 Water Resource Protection Plan ("Water Resource Plan") which provides general statewide geologic and hydrologic information. The specific information to be updated is to include the Puuloa, Kapolei, and Malakole Aquifer Systems as hydrologic units in the Ewa Caprock Sector and to establish sustainable yields for the aquifer systems (Puuloa, Kapolei, Malakole). The CWRM published an amended notice of public hearing on May 14, 1996.

The State Water Code, HRS Chapter 174C, created the Hawaii Water Plan ("HWP"), which consists of four parts: (1) a water resource protection plan, prepared by the CWRM; (2) water use and development plans for each county, prepared by each separate county and adopted by ordinance, setting forth the allocation of water to land use in that county; (3) a state water project plan; and (4) a water quality plan, prepared by the State Department of Health.¹

The HWP must be directed toward the achievement of the following objectives:

(1) Attainment of maximum reasonable-beneficial use of water for such purposes as those referred to in § 174C-31(a);
(2) Proper conservation and development of the waters of the State;
(3) Control of the waters of the State for such public purposes as navigation, drainage, sanitation, and flood control;
(4) The attainment of adequate water quality as expressed in the state water protection and quality plan; and
(5) The implementation of the water resources policies expressed in section 174C-2.²

The HWP must divide each county into sections which must each conform as nearly as practicable to a hydrologic unit. The Board of Land and Natural Resources must describe and inventory: (1) all water resources and systems in each hydrologic

unit; (2) all presently exercised uses; (3) quantity of water not presently used within that hydrologic unit; and (4) potential threats to water resources. 3

The Water Resource Plan must include, but not be limited to:

1. Nature and occurrence of water resources in the State;

2. Hydrologic units and their characteristics, including the quantity and quality of available resource[s], requirements for beneficial instream uses and environmental protection, desirable uses worthy of preservation by permit, and undesirable uses for which permits may be denied;

3. Existing and contemplated uses of water, as identified in the water use and development plans of the State and the counties, their impact on the resource, and their consistency with objectives and policies established in the water resource protection quality plan;

4. Water quality data as provided by the Department of Health in the water quality plan; 4

5. Programs to conserve, augment, and protect the water resource; and

6. Other elements necessary or desirable for inclusion in the plan. 5

Generally, the Water Code requires the CWRM to consult with and carefully evaluate the recommendations of concerned federal, state and county agencies while revising the HWP. The CWRM may not modify any portion of the HWP without first holding a public hearing on the matter on the island on which the water resources are located. 6

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Sustainable Yield

The CWRM must establish sustainable yields within each hydrologic unit. Sustainable yield means the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by the commission.

The Water Resource Plan, as adopted by the CWRM, discusses sustainable yield estimates. According to the Water Resource Plan,

The sustainable yield estimated for each Aquifer System in the State is based on a simple pre-development water balance equation. The output components of runoff, evapotranspiration and infiltration are equated to rainfall as follows:

\[ P = ET + RO + I \]

in which \( P \) is average rainfall, \( ET \) is average evapotranspiration, \( RO \) is average runoff and \( I \) is average infiltration (recharge). The balance was computed for each Aquifer System using averages based on the data record. The averages incorporate high level and basal aquifer regions but exclude caprock areas.

Ewa Caprock

The Ewa Caprock Aquifer has not been separately identified nor segregated as a designated water management area in the Water Resource Plan. At the time of its adoption, the Puuloa area was a part of the Pearl Harbor Water Management Area, Waipahu System. Sustainable yield estimates, according to the adopted Water Resource Plan, did not include caprock areas. Subsequently, the Commission noted the boundary of the Ewa Caprock without formally segregating its three aquifer systems.

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11 Id.
Puuloa, Kapolei, and Malakole. No sustainable yield estimates were adopted for these aquifer systems by the CWRM. Nevertheless, caprock water has been tightly regulated since the Commission’s inception.

An estimate for caprock sustainable yield, post sugar cane cultivation, appears in the CWRM’s Report R-79:

- Honouliuli - Puuloa <10 MGD
- Kapolei - BPNAS <5
- Malakole <1

This particular estimate has been frequently quoted and utilized by the staff in various submissions to the CWRM.

Estimates of sustainable yield are not meant to be an exact number which could be used in final planning documents. The estimates are constrained by (1) limited data and (2) the fact that they do not consider the feasibility of developing the groundwater. The Water Resource Plan also contains additional qualifications to the sustainable yield estimates. Therefore, these estimates, according to the Water Resource Plan, should be used as a guide rather than as an inflexible constraint.

EWA CAPROCK AQUIFER
AMENDMENTS TO THE WATER RESOURCE PROTECTION PLAN

On March 13, 1996 the Commission directed its staff to circulate a preliminary draft report on the Ewa Caprock Aquifer (the "Draft Report"). The report was disseminated for peer review and comments were requested. In May 1996, the Commission’s staff issued its "Prefinal Draft Report, Reevaluation of the Ground-Water Resources and Sustainable Yield of the Ewa Caprock Aquifer" (the "Prefinal Report"). Although the staff submittal for the March 13, 1996 meeting recommended the report include recommendations for the possible adoption of sustainable yield estimates, both the accompanying Draft Report and the Prefinal Report already recommended a sustainable yield.

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13 Id.
14 Id.
of 5 MGD for Puuloa. While present utilization of Puuloa Sector caprock water averages 2.8 MGD,\(^{15}\) the current "allocated" water use for the sector is 15.177 MGD.\(^{16}\) These include both permanent and interim permits.

The issue is not necessarily one of impending water shortage; rather it is an over allocation on paper, stemming largely from former sugar cane irrigation pumpage by Oahu Sugar Company which ended in October 1994. While the Prefinal Report recommends a sustainable yield of 5 MGD for Puuloa, it does not explain, in any manner, the derivation of that number.

Indeed, contrary to any hydrologic foundation for a 5 MGD sustainable yield, the Prefinal Report concludes that:

* The caprock aquifer is undergoing its most profound changes since the beginning of sugar cultivation.
* Any estimate of sustainable yield is restricted by limited data.
* More data from the post-OSCO changes and additional modeling efforts would be beneficial. In conjunction with modeling, a more thorough water balance investigation should be initiated.\(^{17}\)

Based upon the information included in the Prefinal Report, several additional and significant conclusions could be reached:

1. Since its establishment, the Commission has successfully managed the caprock without establishing a sustainable yield.

2. The Prefinal Report acknowledges that since 1970, caprock pumpage gradually, then dramatically declined:\(^{18}\)

\(^{15}\) Utilization is measured on a 12 month moving average basis. See Prefinal Report, at 18.

\(^{16}\) "Ewa Caprock Permittees - Puuloa Area" table prepared and made available by the Commission staff in July 1996.

\(^{17}\) Prefinal Report at 23-25.

\(^{18}\) Prefinal Report at 13.
<table>
<thead>
<tr>
<th>Period</th>
<th>Pumpage</th>
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<tr>
<td>1970 - 1980</td>
<td>22 MGD</td>
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<tr>
<td>1980 - 1989</td>
<td>21 MGD</td>
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<td>1989 - 1994</td>
<td>14 MGD</td>
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<tr>
<td>1994 - present</td>
<td>4 MGD</td>
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The only caprock wells used for irrigation in Ewa which show excessive chlorides are EP-22 (1900-02), HPGC 3 (1900-18), HPGC 4 (1900-19), and HPGC 5 (1900-20).\(^{20}\)

Once dependence on these wells has been reduced or eliminated, as proposed by HPGC,\(^{21}\) caprock chlorides as reported in the Prefinal Report would fall within a range of 400-900 mg/l,\(^{22}\) a dramatic reduction from that reported for the 1989-1994 time period, 1000-1400 mg/l.\(^{23}\) The Prefinal Report notes that during the period of 1952-1970 caprock chlorides ranged between 500-850 mg/l, a period of "Apparent Cl stability".\(^{24}\)

Clearly the focal point of the Prefinal Report’s concern for rising and/or unstable chlorides is pumpage at HPGC. This is a problem inherited by HPGC and for which additional background and information would be helpful in understanding the current circumstances and future implications.

HAWAII PRINCE GOLF CLUB

The Hawaii Prince Golf Club (HPGC) is a 27 hole golfing facility located along Fort Weaver road in Ewa Beach, Hawaii. It is owned and operated by Hawaii Prince Hotel Waikiki Corp., a Hawaii Corporation, which also owns in fee, the 270 acre parcel (TMK 9-1-10:6) on which the HPGC is built.

\(^{19}\) Does not include highly brackish water for industrial purposes in the Malakole sector. This distinction is also noted in the Prefinal Report.

\(^{20}\) Prefinal Report, Appendix A.

\(^{21}\) HPGC is seeking approval to utilize EP-23 as a substitute for EP-22, and HPGC 3, 4, and 5. See discussion infra at 13.

\(^{22}\) Prefinal Report, Appendix A.

\(^{23}\) Prefinal Report at 13.

\(^{24}\) Id at 12.
HPGC opened in July 1992. Approximately 220 acres of the site are in turfgrass and other landscaping for which irrigation supply is provided by six on-site wells. One of these wells, commonly known as EP 22 (State No. 1900-02), is a former Oahu Sugar Company (OSCO) facility. It consists of a vertical shaft and a 95-foot long, horizontal skimming tunnel. The five other wells were drilled along the makai (south) boundary of the property. EP 22 has a 700 GPM pump. The other five wells have 210 GPM (nominal) capacity pumps. All six wells draw water from the Puuloa sector of the Ewa limestone aquifer.

HYDROLOGIC OVERVIEW

OSCO and its predecessor, the Ewa Plantation Company (EPCO), cultivated sugarcane within and around the HPGC site since the early 1900s. In the first several decades, all irrigation was provided by basalt aquifer wells. These sources included the relatively saline battery of wells at the Ewa Mill known as EP 9 (State Nos. 2002-01 to -08 & -10).

In the early 1930s, EPCO developed the first caprock wells for irrigation. Three of these were within the area which subsequently became the HPGC (EP 20, 22, and 24), two were on the periphery of this site (EP 21 and 30), and another was upgradient (EP 23). Locations of these wells relative to the HPGC site are shown on Figure 1.

Early Caprock Salinity

Initially, chloride levels in the caprock wells were quite high (800 to 1000 MG/L). This was the result of prior decades of use of EP 9 to irrigate fields makai of the Ewa Mill. Most of the wells in this basalt aquifer battery were producing water in excess of 1000 MG/L chlorides and some were as high as 2000 MG/L. Over the first 10 to 15 years of use of the caprock wells, chlorides rose from the initial 800 to 1000 MG/L levels to as high as 1250 MG/L. This rise was caused by the increasing salinity of the EP 9 wells, some of which produced chlorides in excess of 2500 MG/L in the mid-1940s. When the use of EP 9 ended in December 1946, caprock chlorides rapidly dropped over the next several years to levels of 500 to 800 MG/L and then stayed relatively constant from the mid-1950s to 1970. Figure 7 of Bauer (1996), reproduced here as Figure 2, clearly illustrates these pre- and post-EP 9 trends of caprock chlorides.

Rising Chlorides Resulting from Changes in Irrigation Practices

Beginning in the early 1970s, two significant changes in irrigation practices set in motion a trend of rising chlorides in the caprock aquifer. One change was the conversion from furrow to drip irrigation. For the fields in and around the HPGC site, this conversion took place from 1972 through 1977. The
other change was to substantially increase caprock pumpage and to correspondingly reduce the quantity of fresher basalt aquifer water that was used to irrigate some of the makai cane fields.

The magnitude of the impact of these changes was not recognized until the mid-1980s and steps to counter the adverse trend in water quality were not fully implemented until 1988. Beginning in that year, OSCO substantially reduced its caprock pumpage and reinstituted the importation of basalt aquifer water to the makai fields. A new 24-inch line was constructed to irrigate fields around EP 23 with basalt aquifer water directly. Also, the Kaloi Gulch channel was used to convey basalt aquifer water to the sump of EP 27.

Pumpage of EP 20 to 24 and EP 30 Within and Around the HPGC

Figure 3 shows the differences in caprock pumpage before and after OSCO implemented its remedial efforts in 1988. In the years prior to 1970, total caprock pumpage averaged 16.0 MGD with just 3.0 MGD or 18.6 percent of the total being drawn from the five wells within and around the HPGC. From 1970 through 1987, total average pumpage was increased to 22.2 MGD. During this 18-year period, pumpage of the five wells in and around the HPGC averaged 6.6 MGD, more than double their usage prior to 1970. After 1987, with OSCO's resumption of the importation basalt aquifer water, total caprock pumpage was lowered to an average of 12.91 MGD, a reduction of 9.28 MGD. However, all but a portion of the reduction was at EP 23 and 27, not in the vicinity of the HPGC. The average for the five OSCO wells in and around the HPGC was only reduced from 6.6 to 5.1 MGD, a rate which was still 70 percent higher than average use of these wells prior to 1970. Prior to 1970, these wells produced less than 20 percent of OSCO's total caprock pumpage. After 1987, they produced almost 40 percent of the total.

Average Pumpage of OSCO's Caprock Wells, 1964 to 1993

<table>
<thead>
<tr>
<th>Period</th>
<th>No. of Years</th>
<th>Total For All Seven Wells (MGD)</th>
<th>Total For the Five Wells Within and Around the HPGC (MGD)</th>
<th>% of Total Within and Around the HPGC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964 thru 1969</td>
<td>6</td>
<td>15.97</td>
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<td>18.6</td>
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<td>1970 thru 1987</td>
<td>18</td>
<td>22.18</td>
<td>6.56</td>
<td>29.6</td>
</tr>
</tbody>
</table>
Figure 4 depicts the chloride levels of OSCO's caprock wells for the last 24 years of the plantation's operation. All six of the wells shown on the graph had continuously rising chloride levels from 1970 through 1987. When OSCO resumed the import of basalt aquifer water to fields around EP 23, its beneficial impact on water pumped from this well was rapid and dramatic. Its chlorides dropped from a high 1160 MG/L to less than 600 MG/L in just a couple of years. However, the chloride levels of the five OSCO wells in and around the HPGC (EP 20, 21, 22, 24, and 30) continued to rise, reaching levels substantially higher than 1200 MG/L by the time OSCO ceased its caprock pumpage in October 1994. For these five wells, the trend of rising chlorides, which was set in motion by changes in OSCO's irrigation practices in the 1970s, had obviously not stabilized by the time the plantation ceased its operations.

Impact of OSCO Pumpage on Wells at or Near HPGC

The purpose of the foregoing discussion was to clearly depict and establish the groundwater conditions that were inherited by the HPGC when it started using caprock water in the early 1990s. Chloride levels were already high and they were continuing to increase to even higher levels. Dames & Moore (1988) documents a relatively extensive investigation of groundwater quality and sampling of OSCO's on-site wells.

HPGC Irrigation Use

Based on its field investigation, Dames & Moore recommended the construction of five new wells arrayed along the makai boundary of the site. These were to be the primary sources of supply. EP 22 was to be used to provide backup capacity for the five new wells. The new wells were sited to take advantage of local recharge from the adjacent Leeward Estates Subdivision. Salinity measurements by Dames & Moore had identified a fresher zone in the upper five feet of the basal lens which was attributed to landscape irrigation return and seepage from cesspools. A subsequent report, Dames & Moore (1990), documents the construction and testing of the five new wells which was completed in the latter half of 1989. By that time, OSCO's use of EP 22 had ended. However, it continued to use the other wells within the HPGC site (EP 20 & 24) and on its periphery (EP 21 & 30).

Significant use of caprock water by the HPGC began in May 1991 with the start of grassing of the first nine holes. The course was opened in July 1992, although the turf was not fully developed and mature. Play was expected to be limited during the first year. Pumpage of the HPGC's six wells, starting in 1991, is shown on the lower right-hand corner of Figure 3 to demonstrate its magnitude in comparison to the ongoing pumpage by
OSCO. On Figure 5, HPGC's monthly pumpage is shown in greater
detail. HPGC's chloride levels from 1993 through June 1996 are
depicted on Figures 6 and 7.

Standardization of Salinity Testing

It should be noted that chloride values of the HPGC wells vary
substantially until April 1995 and are reasonably consistent after that time. Variability of the early data is the result of inconsistent sampling. For the five makai wells particularly, samples taken shortly after the pump is turned on can be as much as 500 MG/L lower than a sample from the same well taken 24 hours later. Beginning in April 1995, with only a few unavoidable exceptions, all samples have been taken after a minimum of 24 hours of continuous pumping. As a result, the concentrations since then are somewhat higher but the inconsistency of the results has been eliminated (compare the values before and after April 1995 on Figures 5 and 6).

Current HPGC Pump Management Program

With the improved sampling protocol, it has become evident that the quality of water from Wells 1 and 2, which are located closest to Fort Weaver Road, is significantly better than the other four wells. Starting in April 1996, water quality sampling has been done on a weekly basis and the resulting chloride levels have been used to prioritize use of the wells. Wells 1 and 2 are used to the fullest extent practical. Use of EP-22, the saltiest of the sources, is generally limited to one day each week in order to get a representative sample after 24 hours of continuous pumping. Figures 8 to 13 illustrate daily pumpage and weekly chloride levels for each of the wells. By prioritizing use of wells based on respective water quality, HPGC has significantly lowered the weighted average chloride concentration of all the water it draws from the aquifer. As shown on Figure 14, the weighted average through March 1996 was 1275 MG/L; since then until August 2nd, it has been reduced by 156 MG/L to an average of 1119 MG/L.

GOLF COURSE DEVELOPMENT IN A HIGH SALINITY ENVIRONMENT

The planting and grassing of the Hawaii Prince Golf Club started in May 1991 and was phased to follow the final grading and placement of topsoil on each fairway so as to minimize dust and erosion. Initial grassing was completed in January of 1992. During this planting period, EP-22 was the sole source of irrigation water. Chloride levels were already in excess of 1,200 ppm. Problems were almost immediately noticed.
Planting, Grassing, and Grow-in

Seeded grass had minimal germination due to the high salinity of the water. With rain, however, the seeds germinated well. The high salinity of EP-22 water was detrimental not just to the grass, but to trees as well. Initially, trees were irrigated by drip irrigation only. As the turf irrigation system was installed, the drip system for the trees was phased-out and a sprinkler system phased-in. In a matter of weeks, trees such as Monkey Pod, Silver Trumpet, Ficus Benjimina and Bottle Brush had defoliated. The root system tolerated the high salinity water but the foliage didn't. Attempts were made to resolve this by washing the foliage with fresh water using a sprayer. Also, protective barriers were constructed using posts and shade cloth to protect foliage from irrigation spray. The washing of the foliage was labor intensive. Erected barriers only protected a portion of the trees. It was also not cost effective because windy conditions ripped the shade cloth, necessitating its periodic replacement.

Where the Bermuda grass did not cover quickly, a white crusty material began to collect. This material turned out to be salt. It was learned that once the soil compacted, percolation was limited and irrigation water basically evaporated on the ground surface, leaving a salt residue.

Approximately 30% of the HPGC trees perished due to the high salinity of the irrigation water. Trees have a limited tolerance to salt water spray. At HPGC, this is a daily occurrence and salt accumulates on the leaf surface. The leaves appear to have a "burned" look at the edges. Actually the moisture is being pulled out by the process of osmosis. Eventually, a majority of the trees were replaced with hardy, salt tolerant species such as Silver Buttonwood, Ironwood, Beach Heliotrope, Autograph and Beach Vitex, to name a few.

By 1993, the course was still not to the point where the turfgrasses (greens, tees, fairway and roughs) were healthy. The only time a healthy turfgrass condition appeared was following rains. For short periods in winter and spring, the course would appear to improve followed by a wash out (yellowing) of color. However, during moderate to high wind conditions, the turf growth deteriorated. This is a sign of desiccation due to high evapotranspiration and salt conditions. The common solution to the problem is increased water application, which leaches accumulated salts past the root zone of the turfgrass.

Reduction of Acreage in Turf

In conjunction with increasing the application of water to turfgrasses, a plan was formulated to reduce the irrigated acreage. These areas were regraded to improve drainage on the course by moving water off the fairways and cart paths into
drainage sumps. Drainage sumps were enlarged and more sumps were added. As the drainage project was completed, the affected areas were planted with xeriphytic plant species that would require less water. Approximately 50 acres of turfgrass were taken out-of-play, including perimeter areas and easements. While the water requirement was reduced, the remaining acreage in turfgrass still needed adequate water to leach salts.

Removal of Salts

After the drainage/out-of-play project was completed, salt accumulation and turf development still needed to be addressed. Environmental Turf Systems (ETS) and other experts were contracted to assist in improving the turfgrass condition and to address the salinity problem.

ETS undertook a series of field trials to reduce accumulated salt from the soils using a variety of mechanical methods in conjunction with application of water.

A 7,500 square foot area was selected on "9A" fairway. This area was divided into three rows, using the following different cultural practices (mechanical) to improve percolation:

1. Aeration, using 0.5" tines to remove cores 3" deep;
2. Verti-drain, using 1" solid tines 12" deep in the soil without removing the soil; and
3. No treatment, leaving the area as is.

Initially, a percolation test was conducted and water was found to infiltrate 0.5" per hour, a result which was affected by the dense and poorly permeable coral below the soil line. Fifteen types of products, used at various rates, were applied to each of the rows. These products are used in the industry to deal with salinity accumulation in soil.

The test area was irrigated for nine consecutive days to leach the salts. A total of 81 inches of water was applied (375,000 gallons over the 7,500 square foot area). After the test period was completed, soil samples showed a 50% reduction of salts. However, the soil amendments did not make material difference. Leaching was clearly the most effective method of salt reduction.

Based on its testing and the quality of HPGC’s water, ETS recommended an irrigation application rate of 1.5 times the plant evapotranspiration (ET) rate. Over the course’s 224 irrigated acres, this would amount to 2.25 MGD. In contrast, HPGC’s current water use allocation of 1.029 MGD is just 69 percent of the grass’ ET rate.
The second part of the field trials concerned fertilizer selection. Over 40 types of nitrogen were tested. (Nitrogen is the major source of nutrient for growth). The end results showed that for color and cost, Urea, 46-0-0 showed the best results.

The fertilizer practice that has been adopted by Hawaii Prince is to foliar apply Urea with an iron source, Sprint 330, a ferrous sulphate material on the fairways for immediate reaction. This is done 6 times a year, or every other month.

With the change in the fertilizer practices, the overall health of the turfgrass has improved; but problems stemming from high salinity water persist.

**EP-23 Alternative**

Discussions with the Navy have resulted in the testing of EP-23 for the chloride levels. A pump test was done for five consecutive days at approximately 1200 gpm. Chlorides stabilized at 520 MG/L, substantially lower than HPGC's on site wells. Discussions with the Navy on the use of EP-23 are on-going.

**Seashore Paspalum**

One particular turfgrass species which has a high salinity tolerance, Seashore Paspalum, has been suggested as an alternative for golf courses in Ia. Only one Hawaii course has been planted with it, Ia Beach International Golf Club, but other courses have been contaminated by this aggressive species. Unfortunately, there are considerable problems with this grass. It is not a suitable putting surface. However, it will encroach into the greens, which are mainly Tifdwarf Hybrid Bermuda grass. Due to the aggressive nature of the species, greens become inconsistent and bumpy, creating an undesirable putting surface. Furthermore, its tolerance to traffic of golf carts and golfers is poor. When soil compaction is severe, the grass dies back. Ia Beach International Golf Club has had portions of its fairways re-done due to severe compaction problems.

**COMPARATIVE WATER USAGE OF GOLF COURSES IN EWA**

The table following provides a detailed comparison of the seven golf courses in Ewa including: irrigated areas; types of grasses; rainfall and pan evaporation rates; sources and quality of irrigation supply; and permitted and actual water use rates. Each of these aspects is briefly discussed below.

**Irrigated Areas.** The HPGC is the only 27-hole facility; the other six courses have 18 holes. Quite expectedly, the HPGC has the largest area under irrigation, a total of 224 acres. The other courses vary from a low of 120 acres at Ewa
## COMPARATIVE WATER USAGE OF EWA GOLF COURSES

### August 1996

<table>
<thead>
<tr>
<th></th>
<th>Wai'anae Golf Club</th>
<th>Ewa Beach Int'l Golf Club</th>
<th>Kapolei Golf Course</th>
<th>Ko Olina Golf Club</th>
<th>Barber's Pl. Naval Air Station</th>
<th>Ewa Villages Golf Course</th>
<th>West Loch Golf Course</th>
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<td><strong>Number of Holes</strong></td>
<td>27 holes</td>
<td>18 holes</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- Greens</td>
<td>5.7</td>
<td>3</td>
<td>4</td>
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<td>- Tee</td>
<td>11.5</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td>3.5</td>
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<td>- Fairways</td>
<td>50</td>
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<td>128</td>
<td>40</td>
<td>144</td>
<td>160</td>
<td>1</td>
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<td>- Roughs</td>
<td>190.5</td>
<td>72</td>
<td>(combined</td>
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<td>60</td>
<td>5</td>
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<td>32</td>
<td>12</td>
<td>15</td>
<td>5</td>
<td>5</td>
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<td>168</td>
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<tr>
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<td>256</td>
<td>132</td>
<td>212</td>
<td>164.5</td>
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<td>210</td>
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<td></td>
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<td></td>
<td></td>
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<td>- Greens</td>
<td>Hybrid Bermuda TifDwarf</td>
<td>Hybrid Bermuda TifDwarf</td>
<td>Hybrid Bermuda 328**</td>
<td>Hybrid Bermuda TifDwarf</td>
<td>Hybrid Bermuda 328**</td>
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<td>Seashore Paspalum</td>
<td>Seashore Paspalum</td>
<td>Hybrid Bermuda 328**</td>
<td>Hybrid Bermuda 328**</td>
<td>Hybrid Bermuda 328**</td>
<td>Hybrid Bermuda 328**</td>
<td>Hybrid Bermuda 328**</td>
</tr>
<tr>
<td>- Roughs</td>
<td>Hybrid Bermuda Navem Scriba</td>
<td>Hybrid Bermuda Navem Scriba</td>
<td>Hybrid Bermuda 328**</td>
<td>Hybrid Bermuda Navem Scriba</td>
<td>Hybrid Bermuda 328**</td>
<td>Hybrid Bermuda 328**</td>
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<td>EWA CAPROCK</td>
<td>EWA CAPROCK</td>
<td>EWA CAPROCK</td>
<td>EWA CAPROCK</td>
<td>BASALT AQUIFER</td>
<td>BASALT AQUIFER</td>
<td>BASALT AQUIFER</td>
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<tr>
<td>- Lakes</td>
<td>BASALT AQUIFER</td>
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<td><strong>Average Annual Rainfall:</strong></td>
<td>15 inches</td>
<td>15 inches</td>
<td>20 inches</td>
<td>20 inches</td>
<td>15 inches</td>
<td>20 inches</td>
<td>24 inches</td>
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<tr>
<td><strong>Pan Evaporation:</strong></td>
<td>100 inches</td>
<td>100 inches</td>
<td>90 inches</td>
<td>90 inches</td>
<td>95 inches</td>
<td>90 inches</td>
<td>90 inches</td>
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<td><strong>Irrigation Water Source:</strong></td>
<td>EWA CAPROCK</td>
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<td>EWA CAPROCK</td>
<td>BASALT AQUIFER</td>
<td>BASALT AQUIFER</td>
<td>BASALT AQUIFER</td>
<td>BASALT AQUIFER</td>
</tr>
<tr>
<td>- Six wells in Pualoke Sector of the Ewa Caprock</td>
<td>One well and one skimming lake in the Ewa Caprock</td>
<td>Three drilled wells in the Kapolei Sector of the Ewa Caprock</td>
<td>One drilled well in Ewa Kunia Sector of the Basalt Aquifer</td>
<td>Barber’s Point Shalt in the Ewa Kunia Sector of the Basalt Aquifer</td>
<td>EP2 &amp; 8, a battery of wells in the Waipahu Water Sector of the Basalt Aquifer</td>
<td>EP2, a battery of wells in the Waipahu Water Sector of the Basalt Aquifer</td>
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<td><strong>Chloride Levels:</strong></td>
<td>1,120</td>
<td>1,450</td>
<td>450</td>
<td>415</td>
<td>230</td>
<td>215</td>
<td>130</td>
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<tr>
<td><strong>Permitted Water Usage:</strong></td>
<td>1,020,000</td>
<td>700,000</td>
<td>1,000,000</td>
<td>700,000</td>
<td>Part of 2,537 mgd allocation for all of BPNAS</td>
<td>Using EP8</td>
<td>1,124,000</td>
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<tr>
<td>- gpd/irrigated acre</td>
<td>4,594</td>
<td>5,883</td>
<td>5,000</td>
<td>4,882</td>
<td>No specific allocation</td>
<td>6,600</td>
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<td><strong>Actual Water Usage:</strong></td>
<td>1,049,000</td>
<td>600,000</td>
<td>724,000</td>
<td>764,000</td>
<td>Not metered</td>
<td>1,900,000****</td>
<td>1,048,000</td>
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<tr>
<td>- gpd/irrigated acre***</td>
<td>4,683</td>
<td>5,000</td>
<td>5,620</td>
<td>5,110</td>
<td>N/A</td>
<td>4,554</td>
<td>6,238</td>
</tr>
</tbody>
</table>

A - Information not available

**Based on 12 month moving average obtained from the Commission on Water Resource Management.

** As reported by Ewa Villages Golf Course personnel.

**Due to contamination, the tees and greens at Kapolei Golf Course are being converted to Seashore Paspalum.
International to a high of 206 acres at the Ewa Villages golf course. (All these figures exclude lakes).

Rainfall and Pan Evaporation Dates. All of Ewa is hot, dry, and windy. However, the most severe conditions, by a small but measurable margin, occur at the HPGC and Ewa International. Rainfall since the HPGC opened in July 1992 has been less than 15 inches per year. Pan evaporation, based on stations no longer being operated, is about 100 inches. For the other four courses, rainfall is 15 to 24 inches per year and pan evaporation is 90 to 95 inches.

Sources and Quality of Irrigation Supply. Three of the Ewa golf courses, HPGC, Ewa International, and Kapolei, draw water from the Ewa caprock aquifer. The other four courses are supplied by basalt aquifer wells. Not surprisingly, the caprock sources have substantially higher salinity. By optimizing pumpage according to chloride levels among its six wells, the HPGC has reduced its weighted average chlorides to 1120 MG/L. This is still 2-1/2 times higher than Kapolei, 2.7 times higher than Ko Olina, 4.9 times higher than BPNAS, 5.2 times higher than Ewa Villages, and 8.6 times higher than West Loch. Only the caprock wells of Ewa International, which has salt-tolerant Seashore Paspalum grass, have higher chlorides. Chlorides of three of the courses irrigated with basalt aquifer wells are actually less than the recommended 250 MG/L limit for drinking water. Use of high salinity water requires greater irrigation rates in order to leach salts, a necessity to maintain soil permeability and the health of the turfgrass.

Allocated and Actual Water Use Rates. Because the irrigated acreages among the courses vary, comparisons of allocated and actual use should be made on a per irrigated acre basis. On this basis, the HPGC, despite having very saline water and tough environmental conditions, has the lowest allocation at 4594 GPD per irrigated acre. Perhaps surprisingly, the courses irrigated with less saline basalt aquifer wells have higher per acre allocations, even though they do not have the salt leaching requirement of the HPGC. The HPGC's allocated use is substantially less than the turfgrass' evapotranspiration (ET) rate, despite the fact that turf experts recommend that the HPGC irrigate at 1.2 to 1.5 times the evapotranspiration rate to leach salts.

Golf Courses Lakes. The HPGC has 32 acres of lakes, substantially more than any of the other six courses. At the HPGC, the lakes are an integral part of the drainage scheme. Their size is dictated by HPGC's requirement to accept and retain stormwater runoff from 270 acres of adjacent lands, as well as to dispose of its own runoff. Evaporation loss from lake surfaces is about the same as the turfgrass' ET rate, and both are approximately equivalent to the rate of pan evaporation. None of the allocated or actual water use rates in the table consider
this evaporative loss from lakes. If it were considered, the HPGC’s allocated and actual use rates would be about 13 percent less than shown in the table.

Under the circumstances, we believe that HPGC’s use and pumpage of water has been reasonable, and its request for additional pumpage justified.

Summary

In summary, HPGC is asking the CWRM to defer action on any amendment to the Water Resource Plan that would establish a specific sustainable yield for the Puuloa caprock system between 5.0 to 10.0 MGD for the following reasons.

1. Pumpage from the Puuloa Sector of the Ewa Caprock has decreased dramatically from 21 MGD during the 1980 to 1989 period to less than 4 MGD today.

2. The CWRM has successfully managed the caprock without establishing a specific sustainable yield estimate.

3. There is no hydrologic foundation for the selection of any sustainable yield estimate between 5.0 MGD and 10.0 MGD. Such an estimate would further be restricted by very limited data in the Prefinal Report.

4. The only wells in the Puuloa Sector with excessive chloride levels are HPGC wells. HPGC is moving rapidly to reduce and/or eliminate its reliance on these wells by:
   a. improving HPGC Wells No. 1, 2, and 3.
   b. seeking approval to use EP-23 as a prime source of irrigation water and placing EP-22 on standby only.

5. No other Puuloa caprock wells are experiencing rising chlorides.

6. The Puuloa Sector caprock users would like to jointly develop and propose to the CWRM a management plan which would incorporate reuse in the long run.

The establishment of a sustainable yield for Puuloa will have a direct impact on HPGC’s property interests. This proceeding, mandated by the Water Code, will determine legal rights and privileges of those users currently pumping caprock
water in the Puuoloa sector. Therefore, HPGC requests that a contested case proceeding be held on the proposed amendment to the Water Resource Plan as officially noticed.

We thank you for the opportunity to testify and to present our views.
Figure 1
Locations of Caprock Aquifer Wells Within and Around the Hawaii Prince Golf Course
Scale: 1" = 2000'
Chloride and Pumpage of Ewa Plantation
Shallow Wells, Ewa Caprock, Oahu

FIGURE 2

Chlorides in the Ewa Limestone Aquifer,
1930 to 1995

Source: Adapted from Figure 7 of Bauer (1996).
Figure 3

Pumpage By Oahu Sugar Company's Caprock Wells, 1970 to 1994

Sources:
1. Files of the CWRW.
2. Monthly Reports by the HPCC.
Figure 4
Chloride Concentration of Oahu Sugar Company’s Caprock Wells, 1970 to 1995

Sources: 1. Files of the CWRM
2. Dames & Moore (1988)
3. Sampling & Analyses by Tom Hancock
Figure 5

Pumpage by HPGC's Six Wells, July 1992 Through May 1996
Figure 6

Chlorides of the Hawaii Prince Golf Club Wells, 1993 to 1994
Figure 7

Chlorides of the Hawaii Prince Golf Club Wells, 1995 to 1996
Figure 8
Daily Pumpage and Weekly Chloride Levels For Well 1 (State No. 1901-03), April to August 1996
Figure 9
Daily Pumpage and Weekly Chloride Levels For Well 2 (State No. 1900-17), April to August 1996
Figure 10
Daily Pumpage and Weekly Chloride Levels For Well 3 (State No. 1900-18),
April to August 1996.
Figure 11
Daily Pumpage and Weekly Chloride Levels For Well 4 (State No. 1900-19),
April to August 1996
Figure 12
Daily Pumpage and Weekly Chloride Levels For Well 5 (State No. 1900-20),
April to August 1996
Figure 13
Daily Pumpage and Weekly Chloride Levels For EP 22 (State No. 1900-02), April to August 1996
Figure 14
Weighted Average Chloride Concentration of Water Pumped By the HPGC Wells
Mr. J. Douglas Ing  
Watanabe, Ing & Kawashima  
Hawaii Tower, 5th & 6th Floors  
745 Fort Street  
Honolulu, HI 96813

Dear Mr. Ing:

Hawaii Prince Golf Club  
Sustainable Capacity for Well Nos. 1900-02, 17 to 20 & 1901-03 and  
Interim Water Use Permit (WUP No. 203)

We are responding to your request for clarification of two matters relating to the Commission on Water Resource Management’s (Commission) May 14, 1997 meeting on the Hawaii Prince Golf Club’s (HPGC) water use permit.

First, the staff’s original recommendation 3., regarding the sustainable well capacities, was amended and unanimously approved by the Commission as follows:

"Adopt a sustainable capacity for individual irrigation wells at 1,000 mg/l of chloride as an interim management plan, subject to review within two (2) years and subject to variances on a case-by-case basis."

Item 5 on the May 14, 1997 agenda discussed HPGC’s request for a variance from the 1,000 mg/l chloride cap for HPGC’s existing irrigation wells. The allocation plan (Exhibit 5 of the Staff Submittal) approved by the Commission provides for interim use of an additional 0.151 mgd of irrigation water for HPGC’s six (6) existing wells. The discussion in the Staff Submittal (page 4) supports HPGC’s request for a variance from the 1,000 mg/l chloride cap. Standard Condition 7 of the water use permit incorporates the submittal into the water use permit by reference. Therefore, a new Commission action on the variance is not required.

The interim water use permit (WUP No. 203) term ends October 30, 1998. However, if the Area 30 Well (Well No. 2001-12) is completed before October 30, 1998, HPGC will submit a water use permit modification application to include the Area 30 Well as part of the HPGC "battery" of wells so that the Area 30 well water could actually be used for HPGC’s irrigation needs. Consequently, the variance from the 1,000 mg/l of chloride for HPGC’s existing wells will be valid until HPGC’s submittal of, and subsequent Commission action on, the water use permit modification application. In the event that HPGC decides not to utilize the Area 30 Well, then the variance expires October 30, 1998, when the interim permit expires.
Second, you requested an increase of 0.150 mgd in water use to offset the evaporation loss from the lakes at the golf course site. Neither Haw. Rev. Stat. chapter 91 (Hawaii Administrative Procedures Act) nor chapter 174C (State Water Code) have any provision expressly authorizing the Commission to reconsider at a later Commission meeting a water use permit that does not by its own terms provide for amendment or discretionary review of the permit itself. While the Commission’s Administrative Rules provide for a motion to reconsider after a decision is rendered in a contested case, no contested case hearing was held here. Consequently, reconsideration is not an appropriate method to amend a water use permit.

Because any approval for an allocation increase may interfere with other existing legal uses, a new application should be made and processed pursuant to sections 13-171-12 to 22 HAR. We have enclosed the appropriate application form for your use. Because much of this information is already on file, you may incorporate this by reference to your previous filings.

We regret any confusion that may have surrounded the May 14, 1997 action and hope that this addresses your questions and concerns. If you have any questions, please call me at 587-0214.

Sincerely,

[Signature]

RAE M. LOUI
Deputy Director

LN:ss
Attachment
May 22, 1997

Ms. Rae Loui
Deputy Director
Commission on Water Resource Management
P.O. Box 621
Honolulu, Hawaii 96809

Re: Hawaii Prince Golf Club: Sustainable Capacity for Puuloa Aquifer and Interim Water Use Permit

Dear Ms. Loui:

On May 14, 1997, the Commission on Water Resource Management held a public meeting to consider the staff’s recommendation to establish sustainable capacities by well for non-potable water from the Puuloa aquifer in Ewa. The Commission voted to accept the staff’s amended recommendation which provided that the Commission adopt a sustainable capacity for individual irrigation wells at 1,000 mg/l of chloride as an interim management plan, subject to review within two (2) years and subject to variances on a case by case basis.

Commissioner Richards’ motion, which was approved unanimously, included a "waiver" for existing wells with chlorides in excess of the new 1,000 mg/l cap. We request clarification or confirmation of this as it relates to Hawaii Prince’s wells.

In addition, it is unclear from the action taken by the Commission whether the variance proposed by the staff for Hawaii Prince, or the alternative variance proposed by Hawaii Prince in its testimony, was acted upon by the Commission at the May 14, 1997, meeting. The staff’s variance would end when the Keanui (Area 30) well comes on line, leaving Hawaii Prince with only its share of the Keanui well water (which could be 0.4 mgd), far less than needed. We request, therefore, that the Commission take specific
action on Hawaii Prince’s request for a variance at the Commission’s next Oahu meeting. A copy of the variance sought by Hawaii Prince is attached as Exhibit A to this letter.

As a part of Item 5 on the May 14, 1997 agenda, Hawaii Prince sought an amendment to the staff’s recommended 0.151 mgd interim water use permit. In order to include an amount of water for evaporation loss from the irrigation lakes at the golf course site, Hawaii Prince requested that its interim water use permit allocation be increased from 0.151 mgd to 0.301 mgd. The justification for this request was included in the Hawaii Prince testimony and is also attached as Exhibit B to this letter.

Hawaii Prince requests that this increase in water use be considered, as well, at the Commission’s Oahu meeting in June 1997.

We thank you for your consideration.

Very truly yours,

J. DOUGLAS ING
for
WATANABE, ING & KAWASHIMA

cc: Hawaii Prince Golf Club
    Tom Nance
STATE OF HAWAII
COMMISSION ON WATER RESOURCE MANAGEMENT

MAY 14, 1997 MEETING
HAWAII PRINCE GOLF CLUB TESTIMONY
REGARDING AGENDA ITEM NO. 4

EXHIBIT "A"
Alternative Variance Proposed

To deal with this situation, HPGC proposes the following alternative to the 1,000 mg/l chloride limit on its wells:

(1) Between the present time and until water from the Keaunui (Area 30) well water can be delivered to the HPGC, HPGC will utilize its on-site wells subject to the condition that pumping shall be prioritized based on chloride level to achieve allowed usage (the "prioritized pumping" protocol). It is understood that these chloride levels may exceed 1,000 mg/l.
May 14, 1997

(2) Once the Keaunui (Area 30) well water is available and until reclaimed water is available at the HPGC, HPGC will make maximum use of its allocation from the Area 30 well. All available water in excess of Gentry's use shall be used. HPGC's own wells will be used to supplement the irrigation supply, subject to prioritized pumping. It is understood that the Keaunui (Area 30) well cannot provide all of HPGC's requirements and that its on-site well chloride levels may exceed 1,000 mg/l.

(3) When reclaimed water becomes available at the HPGC site, HPGC will make maximum use of the available reclaimed water and the Area 30 well. It will only utilize its own on-site wells if, and only if, these other two sources are inadequate to achieve the necessary irrigation supply. The use of these on-site wells shall be subject to prioritized pumping. It is understood that their chloride concentrations may exceed 1000 MG/L.
APPLICATIONS FOR WATER USE PERMITS (ITEM NO. 5)

As part of Item 5 on the agenda, the CWRM will consider various issues relating to the issuance of interim water use permits for the Puuloa aquifer and an application for well construction and pump installation. Hawaii Prince commends the efforts of the Commission and the staff in working toward a solution to resolve several longstanding issues regarding regulation of water in Ewa. Hawaii Prince generally supports the staff's recommendations. There are, however, four areas which we must comment specifically upon:

1) denial of a part of HPGC's request for additional water, in the amount of 0.150 mgd;
2) requiring HPGC to sign a contract within twelve months with the City Department of Wastewater Management ("DWM") to purchase 0.4 mgd of reclaimed water by July 1999;
3) establishing the duration of the interim water use permits until October 1998; and
4) requiring weekly chloride sampling of all wells.

Each of these issues is separately discussed below.

HPGC's Request for a Variance from the Domestic Consumption Guideline

HPGC requested a variance from the 4,000 gpd/acre level that staff uses as a guideline for a reasonable irrigation. HPGC agrees with staff's recommendation to increase the utilization to 6200 gpd/acre for those areas in turf (4,700 gpd/acre x 1.1 x 1.2). However the staff recommends denial of an additional 0.150 mgd requested to offset evaporative losses from the 32 acres of open lake surfaces at the golf course. Hawaii Prince asks that the staff submittal, Exhibit 5, be amended to increase Hawaii Prince's interim water use allocation from 0.151 to 0.301 MGD for the following reasons:

---

1 See Staff Submittal Item No. 5, at page 5 and Exhibit 5 to the Staff Submittal.
May 14, 1997

* Golf course lakes are a reasonable and beneficial use of water. Golf courses are a commercial enterprise. Most championship golf courses contain water features, which play an important role in the operation of the course. Lakes are features that are integral to the layout and playability of the course.

* At the HPGC, the lakes are also an integral part of the drainage scheme. Their size is dictated in part by HPGC's requirement to accept and retain stormwater runoff from 270 acres of adjacent lands, as well as to dispose of its own runoff.

* These lakes serve as reservoirs for storing water. The state, in its own irrigation systems, utilizes such reservoirs for storage of water. For example, the Molokai Irrigation Systems has, as an integral component, the Kualapuu Reservoir, about 100 acres in size. It experiences similar evaporative losses, amounting to 0.5 MGD. We do not believe the Commission has in the past held that such evaporative losses are non-beneficial, nor that reservoirs are unreasonable use of land.

* This is particularly true since the evaporative loss rate for lake surfaces is less than if the 32 acres were used for landscaping or turf grass.\(^2\) If these areas were landscaped they would have to be irrigated and water use would be greater.

* At the time HPGC built its golf course in 1992, there was no indication that the CWRM's allocation of irrigation water for golf courses would not include acreage for open lake surfaces. HPGC has invested substantial resources in building this golf course, designed by Arnold Palmer.

The Commission needs to take the broader perspective. For reasons identified above, we believe the incorporation of the lakes as reservoirs and water features is reasonable. We therefore ask that the Commission amend Exhibit 5 to increase Hawaii Prince's interim water use to 0.301 MGD.

\(^2\) The irrigation requirement for lakes is 4700 gpd/acre vs. the 6200 gpd/acre needed by turf grass.
Mr. Garrick Iwamuro
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Approval of Water Use Permit for Well Nos. 1900-02, 17 TO 20, 1901-03
Puuloa Ground Water Management Area, Oahu

This letter transmits your water use permit for EP 22 & Wells 1 to 5 (Well Nos. 1900-02, 17 to 20, 1901-03) for use of 0.151 million gallons per day (mgd) of water on a 12-month moving average basis that was approved by the Commission on Water Resource Management (Commission) on May 14, 1997. As part of the Commission’s approval, the following special conditions were added and are part of your permit under Standard Permit Condition 20:

Special Conditions

a. The duration of the interim permit shall be to October, 1998 or until such time that a significant change in permitted, actual, or projected use of water supply or water quality occurs.

b. Require adherence to the chloride sampling protocol (attached) and the submittal of weekly chloride data, as may be amended by the Commission staff.

c. Require adherence to the Conservation Conditions (attached).

d. Require the permittee to sign a contract within twelve (12) months with the City Department of Wastewater Management to buy and use 0.400 mgd of R-1 water for a corresponding reduction in allocation for Well Nos. 1900-02, 17 to 20, 1901-03.

Enclosed with this letter of approval are the following:

1. Your water use permit
2. Your official monthly water use report form

Please be sure to read the conditions of your approved permit. If you accept these terms, please sign and return one copy of this permit to the Commission and retain a copy for your record.

You are required to keep a record of your monthly total pumpage, water level, and water temperature. This information must be submitted to the Commission on a regular monthly basis using the enclosed water use report form. You should make copies of the enclosed report form as needed.

If you have any questions, please call the Commission staff at 587-0218.

Aloha,

Michael D. Wilson
Chairperson

Attachments
# GROUND WATER USE PERMIT

**WUP NO. 203**

## PERMITTEE

<table>
<thead>
<tr>
<th>Applicant/Water User</th>
<th>Landowner of Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Address</td>
</tr>
<tr>
<td>HAWAII PRINCE GOLF CLUB</td>
<td>HAWAII PRINCE GOLF CLUB</td>
</tr>
<tr>
<td>91-1200 FORT WEAVER ROAD</td>
<td>91-1200 FORT WEAVER ROAD</td>
</tr>
<tr>
<td>EWA BEACH, HI 96706</td>
<td>EWA BEACH, HI 96706</td>
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## PERMITTED SOURCE INFORMATION

<table>
<thead>
<tr>
<th>Island</th>
<th>OAHU</th>
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</thead>
<tbody>
<tr>
<td>Water Management Area</td>
<td>PUULOA</td>
</tr>
<tr>
<td>Aquifer Sector</td>
<td>EWA CAPROCK</td>
</tr>
<tr>
<td>Aquifer System</td>
<td>PUULOA</td>
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<tr>
<td>System Sustainable Yield</td>
<td>NA</td>
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<tr>
<td>Well Name</td>
<td>EP 22, WELLS 1 TO 5</td>
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<tr>
<td>State Well No.</td>
<td>1900-02, 17 TO 20, 1901-03</td>
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</tbody>
</table>

## PERMITTED USE INFORMATION

<table>
<thead>
<tr>
<th>Reasonable beneficial use</th>
<th>GOLF COURSE IRRIGATION</th>
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</thead>
<tbody>
<tr>
<td>Withdrawal (12 month moving ave.)</td>
<td>0.151 mgd</td>
</tr>
<tr>
<td>Chloride Cap</td>
<td>1,000 mg/l</td>
</tr>
<tr>
<td>Location of water use</td>
<td></td>
</tr>
<tr>
<td>TMK #</td>
<td>9-1-10:6</td>
</tr>
<tr>
<td>Address</td>
<td>HAWAII PRINCE GOLF COURSE</td>
</tr>
<tr>
<td>State land use classification</td>
<td>AGRICULTURE</td>
</tr>
<tr>
<td>County zoning classification</td>
<td>AG-2</td>
</tr>
</tbody>
</table>

Pursuant to Hawaii's State Constitution, Article XI, Section 7, Hawaii Revised Statutes, Chapter 174C; Hawaii Administrative Rules, Chapters 13-167 through 13-171; and Hawaii decisional law and custom, the applicant is hereby authorized to use ground water from the sources and in the amount and from and upon the locations described above; subject however, to the requirements of law including but not limited to the following conditions:
1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground water use here must not interfere with surface or other ground water rights or reservations.

5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its May 14, 1997 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. Protect the water sources (quantity or quality);
   b. Meet other legal obligations including other correlative rights;
   c. Insure adequate conservation measures;
   d. Require efficiency of water uses;
   e. Reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
   f. Meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
   g. Carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

12. This permit shall be subject to the Commission's periodic review of the PUULOA Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the PUULOA Aquifer System, or relevant modified aquifer(s), is reduced.
13. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

14. The use(s) authorized by law and by this permit do not constitute ownership rights.

15. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use.

16. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

17. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the PUULOA Ground Water Management Area.

18. The water use permit granted shall be an interim water use permit, pursuant to HAR § 13-167-3(6). The final determination of the water use quantity shall be made within five years of the filing of the application.

19. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

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

21. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.

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
March 7, 1997

Ms. Rae M. Loui, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

RE: WATER SHORTAGE PLAN FOR THE HAWAII PRINCE GOLF CLUB

Dear Ms. Loui:

This water shortage plan responds to your February 21, 1997 request to delineate how water use would be reduced if a cutback was mandated by the CWRM. I will begin with a brief review of our current irrigated areas and supply requirements.

In contrast to all the other golf courses in Ewa and Central Oahu, the Hawaii Prince Golf Club has 27 golf holes rather than the usual 18. That means we generally have 1.5 times the typical turfgrass area to irrigate and maintain. During the years of 1994 and 1995, the Hawaii Prince Golf Club converted about 50 acres of turfgrass to out of play and drainage areas which do not require irrigation. This has reduced our irrigated area to about 170 acres. We also have another 32 acres of lakes, from which the evaporative loss rate is essentially identical to the evapotranspiration rate of turfgrass. Land use areas within our 270 acre site are listed below.

<table>
<thead>
<tr>
<th>Land Use Areas at the Hawaii Prince Golf Club</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greens</td>
<td>5.7</td>
</tr>
<tr>
<td>Tees</td>
<td>9.5</td>
</tr>
<tr>
<td>Fairways</td>
<td>50.0</td>
</tr>
<tr>
<td>Driving Range</td>
<td>2.0</td>
</tr>
<tr>
<td>Roughs</td>
<td>102.3</td>
</tr>
<tr>
<td>Sub Total for Turfgrass</td>
<td>169.5</td>
</tr>
<tr>
<td>Lakes</td>
<td>32.0</td>
</tr>
<tr>
<td>Out of Play/Drainage</td>
<td>50.0</td>
</tr>
<tr>
<td>Roads, Parking, Buildings</td>
<td>18.5</td>
</tr>
<tr>
<td>TOTAL FOR TMK 9-1-10:6</td>
<td>270.0</td>
</tr>
</tbody>
</table>

The enclosed table delineates plant evapotranspiration and irrigation supply requirements based on pan evaporation and rainfall records of Station 751.2 (known as "Rockpile"). The station was located just east of the golf course and was operated and maintained by Oahu Sugar Company. If it is assumed that all rainfall can be fully utilized by the turfgrass (an obvious over-estimate), then the difference between evaporation and rainfall defines the turfgrass evapotranspiration requirements and the net loss from our lakes. Based on the data on the enclosed table, this rate averages 4,700 GPD per acre.
However, at our windy site, 10 percent or more water is needed due to application inefficiencies. The salinity of our water, which is significantly above 1,000 MG/L chlorides, also requires leaching to avoid salt build-up. Turf experts have recommended that our application rate be 1.2 to 1.5 times plant evapotranspiration. If we use the low end of that range, then our required application rate is about 6,200 GPD per acre:

\[
\frac{\text{Plant Evapotranspiration}}{\text{Irrigation Inefficiency}} \times \text{Leaching Allowance} = \text{Required Application Rate}
\]

\[
\left( \frac{4,700 \text{ GPD/Acre}}{1.10} \right) \times 1.20 = 6,204 \text{ GPD/Acre}
\]

Based on our 169.5 acres of turf and 32 acres of lakes, our average supply requirement is 1.20 MGD (32 Ac. x 4,700 GPD/Ac + 169.5 Ac x 6,200 GPD/Ac). This amount is about 0.17 MGD more than our current supply allocation of 1,029 MGD. It is also important to note the year-to-year variability of our irrigation requirement. In a number of years, the irrigation requirement exceeds 7,000 GPD/Ac.

In the event that a cutback in water use is required by the CWRM, we would reduce the irrigation of the 102 acres of rough. Due to the poor quality of our water, we have found that cutting back the irrigation rate of tees, greens and fairways produces an unacceptable salt build-up. For these areas to recover after a cutback, we would need to leach the salt build-up and perform other intensive maintenance that is simply impractical to undertake. However, if we reduce our irrigation of the roughs, it would not have as adverse an impact on play and revenue for the course. When the mandated reduction of water use is lifted, the maintenance required to recover the roughs would be less and it could be done over a longer period of time. Based on this approach, our reductions of water use for cutbacks of 10, 30 and 50 percent would be achieved as follows on the enclosed page.

The cutbacks would impose varying levels of economic hardship on golf course operations. However, by limiting cutbacks to the roughs, we have the best chance of maintaining the level of play and revenue to the golf course.

Answers to questions #1 and #3 are still being addressed. They will be forthcoming in another letter. If you have any questions, please feel free to call me. Thank you.

Sincerely,

Garrick K. Iwamuro
Director of Golf Operations

GKI/sy
Enclosures
Hawaii Prince Golf Club
Distribution of Water Use as a Percent of the Total Supply Requirement With and Without Mandated Reductions

<table>
<thead>
<tr>
<th>Area</th>
<th>Percent of Total Use Without Reductions</th>
<th>Mandated Reduction of Total Water Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>10%</td>
</tr>
<tr>
<td>Evaporative Loss From Lakes</td>
<td>12.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Tees, Greens, Fairways, and Driving Range</td>
<td>34.7</td>
<td>34.7</td>
</tr>
<tr>
<td>Roughs</td>
<td>52.8</td>
<td>42.8</td>
</tr>
<tr>
<td>Totals</td>
<td>100.0</td>
<td>90.0</td>
</tr>
</tbody>
</table>
Required Irrigation Rates for the Hawaii Prince Golf Course
Based on Pan Evaporation and Rainfall For Complete Record Years
at Station 751.2, 1964–80

<table>
<thead>
<tr>
<th>Year</th>
<th>Pan Evaporation (Inches)</th>
<th>Rainfall (Inches)</th>
<th>Plant Evapotranspiration Evap–Rain (Inches)</th>
<th>Equivalent GPD/Acre</th>
<th>Required Turfgrass Application Rate* (GPD/Acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>86.60</td>
<td>19.13</td>
<td>67.47</td>
<td>5,019</td>
<td>6,625</td>
</tr>
<tr>
<td>65</td>
<td>85.96</td>
<td>43.10</td>
<td>42.86</td>
<td>3,188</td>
<td>4,208</td>
</tr>
<tr>
<td>66</td>
<td>84.63</td>
<td>20.74</td>
<td>63.89</td>
<td>4,753</td>
<td>6,274</td>
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<tr>
<td>67</td>
<td>81.79</td>
<td>22.85</td>
<td>58.94</td>
<td>4,385</td>
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<tr>
<td>68</td>
<td>77.04</td>
<td>39.03</td>
<td>38.01</td>
<td>2,828</td>
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<td>70</td>
<td>89.31</td>
<td>14.45</td>
<td>74.86</td>
<td>5,569</td>
<td>7,351</td>
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<td>71</td>
<td>81.64</td>
<td>29.91</td>
<td>51.73</td>
<td>3,848</td>
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<td>72</td>
<td>80.12</td>
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<td>54.22</td>
<td>4,033</td>
<td>5,324</td>
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<td>73</td>
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<td>81.96</td>
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<td>75</td>
<td>86.59</td>
<td>22.65</td>
<td>63.94</td>
<td>4,756</td>
<td>6,278</td>
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<tr>
<td>76</td>
<td>89.62</td>
<td>13.67</td>
<td>75.95</td>
<td>5,650</td>
<td>7,458</td>
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<tr>
<td>77</td>
<td>94.97</td>
<td>16.88</td>
<td>78.29</td>
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<td>78</td>
<td>89.87</td>
<td>24.72</td>
<td>65.15</td>
<td>4,847</td>
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<td>79</td>
<td>86.78</td>
<td>17.08</td>
<td>69.70</td>
<td>5,185</td>
<td>6,844</td>
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<td>80</td>
<td>89.08</td>
<td>35.76</td>
<td>53.32</td>
<td>3,966</td>
<td>5,235</td>
</tr>
</tbody>
</table>

| Median Rate | 4,758 | 6,278 |
| Mean Rate  | 4,669 | 6,163 |

*Includes at 1.1 factor for irrigation inefficiency and 1.2 for salt leaching applied to the plant evapotranspiration rate.
SEE EWA CAPROCK WMA
FOLDER #2
TESTIMONIES:

Mr. Jim Anthony, a party in the Hawaii Reserves, Inc. contested case hearing, testified against the staff's recommendation to delete Well No. 3554-02 and to reinstate Well No. 3654-03.

MOTION: (COX/MIIKE)

To approve staff's recommendation.

UNANIMOUSLY APPROVED.

ITEM 2.

APPLICATIONS FOR WATER USE PERMITS, REQUESTS FOR NEW AND CONTINUED NONPOTABLE URBAN USES, ALLOCATION PLAN FOR WATER USE PERMITS IN RESPONSE TO LOWER SUSTAINABLE YIELD ESTIMATE FOR THE PUULOA AREA, EWA CAPROCK GROUND WATER MANAGEMENT AREA, OAHU

The Estate of James Campbell, (Well Nos. 1905-08,10)
State of Hawaii, Housing Finance & Development Corp. (Well Nos. 2003-04,07)
Kapolei People's Inc., (Well Nos. 2003-01,02,05)
Hawaii Prince Golf Club, (Well Nos. 1900-02,17 to 20 & 1901-03)
Gentry Development Co., (Well Nos. 2001-03,04,05,09,10,11 & 2002-15)
The Arbors Association, (Well No. 2001-07)
Palm Villas II Association, (Well No. 2001-08)
Palm Court Association, (Well No. 2002-12)
Haseko (Ewa), Inc., (Well No. 1902-01)

PRESENTATION OF SUBMITTAL: Deputy Director Rae Loui

Correction on Page 4, Section B:

The current schedule for the demonstration recharge trench (5 mgd) and full application (10 mgd) is:

- Testing Complete: 12/1999
- Complete Trench Operational (10 mgd): 12/2001

STAFF RECOMMENDATION:

The staff requested that the recommendation be amended as follows:

1. Defer action on the sustainable yield for the Ewa Caprock Aquifer to the December 18, 1996 Commission meeting in order to consider the Puuloa Caprock Users Group's draft nonpotable master plan for the Puuloa area.

2. Require that the draft nonpotable master plan include each of the elements outlined in the Group's proposal, be as specific as possible (e.g. annual
projections of all nonpotable supply requirements detailed by project and TMK area), encompass the entire Puuloa area and all users in Puuloa, and include a scenario complying with the proposed 5 mgd sustainable yield. The Plan shall also address the current overpumpage at Well Nos. 1902-03 & 04 and Well Nos. 2001-05 & 2001-08.

3. Extend the deadline to September 30, 1996 for the submittal of any additional data or evidence (related to ground water modelling, hydrologic data, or other) which a party wishes to have considered in setting the sustainable yield of the Ewa Caprock Aquifer.

TESTIMONY BY APPLICANT:

Mr. Jeff Dinsmore, Vice President of Gentry Homes, Ltd., submitted a written and oral testimony on behalf of the Puuloa Caprock Users Group. He stated that they were in agreement with the staff submittal, however, requested that the deadline for the submittal of any additional data for consideration of the sustainable yield be extended from September 30, 1996 until December 18, 1996.

Mr. Douglas Ing, attorney for Hawaii Prince Golf Club, stated his objections to the staff's recommendation of a 5 mgd ceiling. (Note: Subsequent to Mr. Ing's testimony, the staff's submittal was amended to specify that the draft plan shall include a scenario complying with the 5 mgd sustainable yield estimate.)

TESTIMONIES:

Mr. Tim Steinberger, of the City and County Department of Wastewater Management was available for questions from the Commission.

MOTION: (MIIKE/NOBRIGA)

To approve staff's recommendation as amended.

UNANIMOUSLY APPROVED AS AMENDED.

The Chairperson adjourned the meeting at 3:32 p.m.

Respectfully submitted,

JANIS F. UWAIN
Secretary

APPROVED AS SUBMITTED:

RAE M. LOUI
Deputy Director
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P. O. BOX 821
HONOLULU, HAWAII 96808

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

September 11, 1996
Honolulu, Oahu

APPLICATIONS FOR WATER USE PERMITS
Requests for New and Continued Nonpotable Urban Uses

ALLOCATION PLAN FOR WATER USE PERMITS
In Response to Lower Sustainable Yield Estimate for the Puuloa Area
Ewa Caprock Ground Water Management Area, Oahu

APPLICANT(S):

(Well Nos. 1905-08,10)
The Estate of James Campbell
1001 Kamokila Blvd.
Kapolei, HI 96707

(Well Nos. 2003-04,07)
State of Hawaii,
Housing Finance & Development Corp.
7 Waterfront Plaza, Suite 300
500 Ala Moana Blvd.
Honolulu, HI 96813

(Well Nos. 2003-01,02,05)
Kapolei People's Inc.
91-701 Farrington Hwy.
Kapolei, HI 96707

(Well Nos. 1900-02,17 to 20 & 1901-03)
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

(Well Nos. 2001-03,04,05,09,10,11 & 2002-15)
Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809

LANDOWNER(S):

Same

Same

Same

Same

Same

AGENDA 2
Item 2
BACKGROUND:

On September 28, 1979, the Board of Land and Natural Resources (BLNR) designated the Pearl Harbor Ground Water Control Area (Pearl Harbor GWCA; Judicial Boundaries of Ewa and Wahiawa Districts) pursuant to Chapter 177, HRS, Ground Water Use Act.

On March 22, 1985, the BLNR established subareas for the Pearl Harbor GWCA, including the Coastal Caprock Subarea.

In 1990, the Commission on Water Resource Management (Commission) adopted the Water Resources and Protection Plan (Plan). The Plan included, as required by HRS 174C-31(c), "hydrologic units and their characteristics, including the quantity and quality of available resource...". The Plan did not include the brackish Ewa Caprock Aquifer as a hydrologic unit.

In the 1988-1992 timeframe, water use permits totalling 19.524 million gallons per day (mgd) were awarded in the Ewa Caprock Aquifer mainly to existing irrigation uses (eg. Oahu Sugar Co.). Other existing water use permits totaled 39.608 mgd for various salt water and brackish to saline water uses (chlorides > 1,000 MG/L).

On March 3, 1993, the Commission officially adopted the boundary of the entire brackish Ewa Caprock Aquifer as a separate aquifer within the existing designated ground water management area. Due to uncertainties regarding the aquifer’s sustainable yield, the Commission did not adopt a sustainable yield estimate for the aquifer.

Since March 1993, the Commission has been awarding one-year interim permits for new uses for the Ewa Caprock Aquifer.

In May 1996, the staff completed a re-evaluation of the Ewa Caprock Aquifer sustainable yield. Based on the staff’s analysis of historic data, the staff proposed the establishment of three (3) aquifer systems within the Ewa Caprock Aquifer: Puuloa, Kapolei, and Malakole (see Exhibit
1), with sustainable yields of 5 mgd, 3 mgd, and 1 mgd, respectively, for chloride concentrations less than 1,000 MG/L.

On August 14, 1996, a public hearing was held on the proposed establishment of aquifer systems and sustainable yields for the caprock aquifer. Before the close of the public hearing, Hawaii Prince Golf Club (HPGC) submitted a written request for a contested case hearing on the proposed establishment of a 5 mgd sustainable yield for the Puuloa area. The written petition was received on August 23, 1996.

**ANALYSIS/ISSUES:**

Normally, the staff lists and analyzes the criteria set forth in §13-171-13 HAR which must be established by the applicant. However, there are larger issues which must be addressed before this analysis can occur. These are discussed as follows:

A. **Nonpotable Water Demand Expected to Increase**

The Planning Department, City and County of Honolulu, is in the process of revising the Development Plans for Ewa and Central Oahu. The draft plan shows a projected population increase from 130,526 in 1990 to 185,091 in 2020. This corresponds to a 42% increase in population for the area. A 60% increase in housing units over the same time period is projected: from 36,262 units in 1990 to 58,118 units in 2020 (for Ewa Employment and Dispersed Residential; Exhibit 2). This growth will result in an increase in water needs, both potable and nonpotable.

Although the water demand for Ewa was not available, City and County planners have testified that the 2020 demand for water for the projected growth of the Ewa, Central, Waianae, and Honolulu districts will be about another 90 mgd. This increased demand consists of 56.5 mgd for potable water needs and 33.5 mgd for nonpotable water needs. This is exclusive of agricultural water demand, which is specified in the City’s plans to provide an open space buffer for the proposed urban growth in Central Oahu. Thus, the 90 mgd water demand exceeds the remaining water resources on the island (75 mgd). It is critical that alternative nonpotable sources of water be a part of Oahu’s water planning in order to reduce the competition for potable water as an irrigation source. Further, these figures underscore the important role of the brackish Ewa Caprock Aquifer and of the reclaimed sewage effluent in future growth plans.

To address the expected increase in nonpotable water demand for urban uses, the Commission and the City Department of Wastewater Management retained a consultant to develop a nonpotable water master plan for Central Oahu, including the Ewa plain. The February, 1996 plan recommends construction of a demonstration recharge trench in the Ewa Caprock using reclaimed water. The staff has participated in a group consisting of representatives from the Department of Health, City Department of Wastewater Management, City Planning Department, and the Board of Water Supply to champion the use of reclaimed water and a water reclamation project for the Ewa Plain. The major issues include identification of a purveyor for the reclaimed water resource and rates/cost of the resource.

In further support of the plan for reuse on the Ewa Plain, the Commission adopted the following reclaimed water policy on March 13, 1996:

> It is the policy of the Commission on Water Resource Management (Commission)
Staff Submittal

September 11, 1996

to promote the viable and appropriate reuse of reclaimed water in so far as it does not compromise beneficial uses of existing water resources.

I. Ewa Caprock

Recognizing that reclaimed water is a valuable resource in the Ewa Plain, direct or indirect reuse will be championed by the Commission. It is the policy of the Commission that the water resources of the Ewa Caprock Aquifer will be allocated only for nonpotable uses.

B. Current Allocations Exceed Sustainable Yield in Puuloa

The staff’s recommendation of a sustainable yield for the Ewa Caprock Aquifer is based on historical data reflecting the aquifer’s response to natural sugarcane irrigation and current urban conditions. The lack of imported basal water by Oahu Sugar Company (OSCo) augmenting the natural sustainable yield of the caprock will affect water availability.

If the Commission were to approve the staff’s recommendation to establish three aquifer systems within the Ewa Caprock Aquifer with sustainable yields of 5 mgd for Puuloa, 3 mgd for Kapolei, and 1 mgd for Malakole, only the Puuloa area would be over-allocated. Exhibit 3 (column 5) shows the current allocations in the Puuloa area of the caprock, totalling 15.177 mgd.

However, the over-allocation problem may be only temporary because the City Department of Wastewater Management is moving forward with their plans for a demonstration recharge trench that will recharge the Puuloa area of the Ewa Caprock Aquifer with 5 mgd of R-2 effluent from the Honolulu Wastewater Treatment Plant. This would replace some of the lost imported basal irrigation recharge from OSCo. It is expected that the demonstration recharge trench will be online by 1999. If the pilot project is successful, additional trenches will be installed to recharge the Kapolei as well as Puuloa area.

The current schedule for the demonstration recharge trench (5 mgd) and full application (13 mgd) is:

<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honolulu Secondary Treatment Operational</td>
<td>12/1996</td>
</tr>
<tr>
<td>Demonstration Recharge Trench Operational (5 mgd)</td>
<td>12/1998</td>
</tr>
<tr>
<td>Testing Complete</td>
<td>12/1999</td>
</tr>
<tr>
<td>Complete Trench Operational (13 mgd)</td>
<td>12/2000</td>
</tr>
</tbody>
</table>

The current design also allows for direct use of the R-2 effluent in addition to recharging the aquifer. The City is evaluating the feasibility of constructing an R-1 treatment facility to enable less restricted uses.

C. New Water Use Permit Applications

Pending applications for the Puuloa area, shown in Exhibit 4, total 3.174 mgd. For the Kapolei area, requests total 1.796 mgd (Exhibit 5). All pending requests are for various nonpotable non-agricultural uses. On March 13, 1996, the Commission deferred action on all pending requests in the Ewa Caprock until a decision is made on the proposed establishment of a sustainable yield estimate in the Water Resource Protection Plan.
Also shown as a pending request shown in Exhibit 4 is an application for Haseko (Ewa), Inc.'s (Haseko) proposed Ewa Marina project in the Puuloa area, which is the subject of a contested case hearing. The "quantity of the use" for the marina excavation has not been established. The State Department of Transportation also has a pending water use permit application for the Barbers Point Harbor expansion in the Malakole area; action on this application has been deferred pending written notification of the reclassification of the lands from the Agricultural to Urban designation. There are no other pending requests in Malakole.

One condition that new water use permit applications must meet is that the use: "[c]an be accommodated with the available water source..." §174C-49(a) HRS. There has been a request for a contested case hearing on the proposed sustainable yield for Puuloa. The staff does not believe that there is a right to a contested case hearing on this matter and is planning to submit the proposed Hawaii Water Plan update to the Commission for action at the Commission meeting of December 18, 1996.

D. Step-Down of Allocations to Match Sustainable Yield

The staff will submit for Commission action a proposal to step-down current allocations to match sustainable yield as well as a recommendation regarding pending new water use permit requests. We have discussed several alternatives with a self-elected Steering Committee of the users and with the Reclaimed Water Champions (Department of Health, City Department of Wastewater Management, City Planning Department, Honolulu Board of Water Supply, Commission on Water Resource Management). In response, on August 29, 1996, a written proposal (Exhibit 6) was received from the Puuloa Caprock Users Group (Group), which includes HPGC, Sogo Hawaii, Inc., Haseko, Gentry Homes, Ltd., and the Navy. The Group does not include Honolulu Board of Water Supply, City Department of Wastewater Management (DWWM), Campbell Estate, and the U.S. Fish and Wildlife Service, the latter three of which are permitted water users in the Puuloa area and are necessary partners in any usable plan.

The Group has requested 90 days to prepare and submit a draft nonpotable master plan (Plan) to the Commission, which will include a recommended plan to manage water use over a proposed two-year interim period. The proposal is very general and does not address issues important to this effort such as the current overpumpage by DWWM (Well Nos. 1902-03 & 04) and Gentry (Well No. 2001-(5). Further, the Group implies that it is in possession of data not previously submitted that would be helpful to the Commission in setting the sustainable yield. Although the deadline for testimonies has passed, staff recommends allowing additional time for submittal of the information.

RECOMMENDATIONS:

The staff recommends that the Commission:

1. Defer action on the sustainable yield for the Ewa Caprock Aquifer to the December 18, 1996 Commission meeting in order to consider the Puuloa Caprock Users Group's draft nonpotable master plan for the Puuloa area.

2. Require that the draft nonpotable master plan include each of the elements outlined in the Group's proposal, be as specific as possible (eg. annual projections of all nonpotable supply requirements detailed by project and TMK area), and encompass the entire Puuloa area and all users in Puuloa. The Plan shall also address the current overpumpage at

* include a scenario complying with the proposed sustainable yield estimate.
Well Nos. 1902-03 & 04 and Well Nos 2001-05.

3. Extend the deadline to September 30, 1996 for the submittal of any additional data or evidence (related to ground water modelling, hydrologic data, or other) which a party wishes to have considered in setting the sustainable yield of the Ewa Caprock Aquifer.

Respectfully submitted,

W. Roy Faith
Deputy Director

Attachments
Exhibit 1 - Location Map
Exhibit 2 - Scenario Comparisons
Exhibit 3 - Ewa Caprock Permittees - Puuloa Area
Exhibit 4 - Puuloa Aquifer System
Exhibit 5 - Kapolei Aquifer System
Exhibit 6 - Puuloa Caprock Users Group Proposal

APPROVED FOR SUBMITTAL:

MICHAEL D. WILSON, Chairperson

Pinsmore: have raw data that has not been submitted. Request additional time to present and analyze data, may have affect on SY estimate. Campbell was called, and won't be in again.

My: 1. Prince: request that amendment to Decision 2 be reconsidered (5 mgd compliance). Word in effect, be extended, SY = 5 mgd. Was hoping to manage aquifer with ceiling in performance standard.

Mike: do scenarios, 1 w/5 mgd, 1 w/another SY.

Mr. Steinberger: Brown, 2' approximate.

Nashdown, polymer...enhancement, injection

Long range project = 2 mgd. (to come out of ve ve elct.)

mgd for Babits Pt. was '13 decrease to 10 mgd.'
EXHIBIT 1
### Central Oahu Projected Increase in Population

<table>
<thead>
<tr>
<th></th>
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</tr>
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<tbody>
<tr>
<td>Intensive Ewa</td>
<td>130,528</td>
<td>168,950</td>
<td>36,424</td>
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<tr>
<td>Dispersed Development</td>
<td>130,528</td>
<td>164,444</td>
<td>33,918</td>
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<tr>
<td>Ewa Employment</td>
<td>130,528</td>
<td>155,091</td>
<td>24,563</td>
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<td>Ewa &amp; Central Oahu Urban Centers</td>
<td>130,528</td>
<td>215,606</td>
<td>85,078</td>
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</table>

Current Trend 130,528 to 177,738 (47,212, 36%)

**NOTE:** Baseline forecast for 1990-2020 islandwide increase is 26%.

### Central Oahu Projected Increase in Housing Units

<table>
<thead>
<tr>
<th>Development Scenario</th>
<th>1990 Housing Units</th>
<th>2020 Housing Units</th>
<th>1990-2020 Increase</th>
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<tr>
<td>Intensive Ewa</td>
<td>36,262</td>
<td>53,340</td>
<td>16,978</td>
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<tr>
<td>Dispersed Development</td>
<td>36,262</td>
<td>57,907</td>
<td>21,645</td>
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<td>Ewa Employment</td>
<td>36,262</td>
<td>58,110</td>
<td>21,856</td>
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<td>Ewa &amp; Central Oahu Urban Centers</td>
<td>36,262</td>
<td>60,066</td>
<td>23,804</td>
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</table>

Current Trend 36,262 to 55,726 (19,464, 54%)

**NOTE:** Baseline forecast for 1990-2020 islandwide increase is 42%.

### Central Oahu Projected Increase in Civilian Non-Construction Jobs

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<td>Intensive Ewa</td>
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<td>29,341</td>
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<tr>
<td>Dispersed Development</td>
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<td>Ewa Employment</td>
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<td>35,087</td>
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<td>Ewa &amp; Central Oahu Urban Centers</td>
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<td>68,285</td>
<td>46,262</td>
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</table>

Current Trend 22,023 to 64,751 (42,728, 190%)

**NOTE:** Baseline forecast for 1990-2020 islandwide increase is 49%.

### Change in Resident Population

**Change in Non-Construction Jobs**

**Central Oahu Development Plan Sub-Areas (1990-2020)**

*Change in Resident Population*

*Change in Non-Construction Jobs*

*City and County of Honolulu Planning Department, August 1994*
<table>
<thead>
<tr>
<th>(1) PERMITTEE</th>
<th>(2) WELL NAME (WELL NO.)</th>
<th>(3) DATE OF APPROVAL</th>
<th>(4) TYPE OF USE</th>
<th>(5) ALLOCATION</th>
<th>(6) LATEST 12-MONTH AVERAGE</th>
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<td>Haseko</td>
<td>EP 27A, 27B, 28, 29 (1902-01)</td>
<td>12/16/92</td>
<td>Irrigation (Agric.)</td>
<td>2.660</td>
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<td>Campbell Estate</td>
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<td>U.S. Navy</td>
<td>EP 23 (2001-01)</td>
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<td>Hawaii Prince</td>
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<td>10/19/88</td>
<td>Irrigation (G. Course)</td>
<td>0.900</td>
<td>1.049</td>
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<td>EP 22 &amp; Wells 1 to 5 (1900-02, 1900-17 to 20, 1901-03)</td>
<td>7/13/94</td>
<td>Irrigation (G. Course)</td>
<td>0.129</td>
<td>1.204</td>
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<td>Sogo Hawaii</td>
<td>Paulos G.C. Irr (1900-31)</td>
<td>2/13/91</td>
<td>Irrigation (G. Course)</td>
<td>0.100</td>
<td>0.000</td>
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<td>Paulos Homes</td>
<td>Paulos Wells A &amp; B (1900-22 &amp; 1959-09)</td>
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<td>Haseko</td>
<td>Haseko No. 1 (1902-01)</td>
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<td>Irrigation (G. Course, Landscape, Dust Control)</td>
<td>1.500</td>
<td>0.000</td>
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<td>C&amp;C D/WWM</td>
<td>Hoouleili STP 1 &amp; 2 (1902-03 &amp; 04)</td>
<td>3/15/90</td>
<td>Industrial</td>
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<tr>
<td>Gentry</td>
<td>Ewa Gentry (2001-03)</td>
<td>9/27/83</td>
<td>Irrigation (Park, Landscape)</td>
<td>0.080</td>
<td>0.000</td>
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<tr>
<td>Gentry</td>
<td>Geiger Park (2001-03)</td>
<td>7/13/94</td>
<td>Irrigation (Park)</td>
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<td>Gentry</td>
<td>Sunrise Apt (2001-04)</td>
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<td>Gentry</td>
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<td>Palm Villa I</td>
<td>Palm Villa I (2001-06)</td>
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<td>Homeowners</td>
<td>Arbors (2001-07)</td>
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<td>Palm Villa II</td>
<td>Palm Villa II (2001-08)</td>
<td>7/13/94</td>
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<td>Gentry</td>
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<td>Palm Court</td>
<td>Palm Court 3 (2002-12)</td>
<td>7/13/94</td>
<td>Irrigation (Landscape)</td>
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<td>0.026</td>
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<td>7/13/94</td>
<td>Irrigation (Landscape)</td>
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<td>UNUSED</td>
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<td>U.S. Fish &amp; Wildlife</td>
<td>Honolulu Unit (2101-14)</td>
<td>10/27/93</td>
<td>Habitat Maintenance</td>
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<td>7</td>
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PUULOA AQUIFER SYSTEM

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<th>PUULOA AQUIFER SYSTEM (mgd)</th>
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<tr>
<td>Sustainable Yield Estimate</td>
<td>15.000</td>
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<tr>
<td>Less: Other Existing Permits (shown in Exhibit 3)</td>
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<tr>
<td>Current Available Allocation</td>
<td>-2.170</td>
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</tbody>
</table>

Less: Requests for New Interim Permits

- Hawaii Prince Golf Club
  (1900-02, 17 to 20, 1901-03) 0.129
- Gentry Co. (2001-03) 0.030
  (2001-04) 0.040
  (2001-05) 0.020
  (2001-09) 0.023
  (2001-10) 0.022
  (2002-15) 0.130
- Haseko (Ewa), Inc. (1902-01) 1.500
- Arbors Assoc. (2001-07) 0.063
- Palm Villa II Assoc. (2001-08) 0.048
- Palm Court Assoc. (2002-12) 0.066 -2.071

Less: New Applications

- Hawaii Prince Golf Club
  (1900-02, 17 to 20, 1901-03) 0.371
- Gentry Development Co. (2001-11) 0.172
- Gentry Development Co. (2002-15) 0.560
- Haseko (Ewa), Inc. (Ewa Marina) * -1.103

Available Allocation -5.344

* Proposed marina project will result in a permanent reduction in caprock storage capacity.
## KAPOLEI AQUIFER SYSTEM

<table>
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<th>ITEM</th>
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<td>Less: Other Existing Permits</td>
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<tr>
<td>Pu’u Makakilo (1904-02)</td>
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<td>Current Available Allocation</td>
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<td>Less: Requests for New Interim Permits</td>
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<tr>
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<tr>
<td>State HFDC (2003-04,07)</td>
<td>0.494</td>
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<tr>
<td>Kapolei People’s Inc. (2003-01,02,05)</td>
<td>1.000</td>
</tr>
<tr>
<td>Less: New Applications</td>
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</tr>
<tr>
<td>(none)</td>
<td>-0.000</td>
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<tr>
<td>Available Allocation</td>
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</table>
1. The PCUG will prepare a non-potable master plan for the Puuloa Aquifer System which will include: a projection of all non-potable supply requirements; a management plan to optimize use of non-potable resources including treated wastewater effluent and the available supply of brackish groundwater; and a compilation of hydrologic data which will provide the basis for the proposed use of non-potable resources.

2. A draft of the non-potable master plan, as a work in progress, will be submitted in 90 days. In addition to a discussion of each of the master plan topics indicated above, this draft report will also include a recommended plan to manage water use over a proposed two-year interim period. The management plan at a minimum shall include the following:

   (a) An agreement among PCUG members to keep actual water use of the Puuloa Aquifer System below an amount jointly agreed to by the PCUG members and the CWRM. Actual water use shall be evaluated on a 12-month moving average basis.

   (b) An agreement among the PCUG members for the pro-rata participation in wastewater reuse by all PCUG members.

   (c) An agreement to allow new interim water uses by PCUG members as long as they are consistent with conditions (a) and (b) above.

3. The PCUG requests that the CWRM enter into agreements confirming that the interim 2-year period shall not be counted as part of a 4-year “use it or lose it” assessment by the CWRM.

4. The PCUG will form a steering committee to work directly with the City’s Department of Wastewater Management on wastewater effluent reuse. Based on a preliminary assessment of the quantity and location of required non-potable supply, an evaluation of pipeline delivery of effluent treated to R-1 quality will be given the highest priority.

5. The PCUG believes that a more complete set of data is necessary in order to make a confident assessment of the Puuloa aquifer system’s sustainable yield. PCUG members will collect and provide to the CWRM hydrologic data over and above that which is being submitted to the CWRM on a monthly basis as a requirement of its water use permits.
Hawaii Prince Golf Course

HASEKO (Ewa), Inc.

Sogo Hawaii Inc. dba
Ewa Beach International Golf Club

J. M. Killian
Department of Navy
(The Department of the Navy's Participation
is in connection with and in support of its
agricultural outlease program.)

EXHIBIT 6
# OAHU DRINKING WATER PICTURE

## Groundwater Sources:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developable Yield</td>
<td>415 mgd</td>
</tr>
<tr>
<td>Utilized</td>
<td>340 mgd</td>
</tr>
<tr>
<td>Available</td>
<td>75 mgd</td>
</tr>
</tbody>
</table>
OAHU DEMAND VS. SUPPLY

2020 Projected Demand  90 mgd

(Ewa, Central Oahu, Waianae, Honolulu)

Available Supply  75 mgd

DEFICIT  -15 mgd
OAHU 2020 DEMAND

Forecasted Demand:

<table>
<thead>
<tr>
<th>Source</th>
<th>Demand (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potable</td>
<td>56.5</td>
</tr>
<tr>
<td>Nonpotable</td>
<td>33.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>90</td>
</tr>
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</table>

Alternative Sources:

<table>
<thead>
<tr>
<th>Source</th>
<th>Demand (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater</td>
<td>75</td>
</tr>
<tr>
<td>Wastewater Effluent</td>
<td>110</td>
</tr>
<tr>
<td>Conservation</td>
<td>?</td>
</tr>
</tbody>
</table>
Commission on Water Resource Management
Department of Land and Natural resources
State of Hawaii

September 11, 1996

Re: In the matter of the Allocation Plan For Water Use Permits
In Response to Lower Sustainable Yield Estimate for the Puuloa Area
Ewa Caprock Ground Water Management Area, Oahu

Chairman Wilson and members of the State Water Commission:

My name is Jeff Dinsmore. I am a Vice President of Gentry Homes, Ltd., and I am here to testify on behalf of the Puuloa Caprock Users Group on the Commission On Water Resource Management's Staff submittal on the above mentioned subject. I previously testified at the August 14 hearing for the PCUG and requested a 90 day extension to prepare and submit a draft nonpotable water master plan for the Puuloa Caprock area.

The Puuloa Caprock Users Group is in agreement with the Staff recommendations and would like to thank them for their effort. We are confident that a mutually beneficial plan can be prepared and implemented.

We do have one change to request of the staff recommendation. We would like to request that the deadline for the submittal of any additional data for consideration of the sustainable yield be extended from September 30, 1996 until December 18, 1996.

Thank you for your time and due consideration of our request. If you have any questions, I will do my best to answer them for you.

Sincerely,

Jeffrey C. Dinsmore
Puuloa Caprock Users Group

Jeffrey C. Dinsmore
MEMORANDUM

TO:       CHERYL D. SOON, CHIEF PLANNING OFFICER
          PLANNING DEPARTMENT

FROM:     PATRICK T. ONISHI, DIRECTOR
          DEPARTMENT OF LAND UTILIZATION

SUBJECT:  WATER USE PERMIT APPLICATION

Applicant: Hawaii Prince Golf Club
Tax Map Key(s):  9-1-10: 6
Type of Use(s):  Irrigation for golf course

The proposed use on the above-referenced tax map key(s) has been reviewed. We find that the:

1. Current zoning designation is AG-2 General Agricultural District.
   
   [ ] Proposed use(s) is/are permitted under current zoning.
   
   [X] Proposed use(s) may be permitted if the following permit(s) is/are obtained: See additional comments section.

   [ ] Proposed use(s) is/are not permitted under current zoning.

The Department of Land Utilization is currently processing a zone change application for the project, which if approved by the City Council, would result in the use being consistent with the proposed district zoning.

[ ] Yes
[ ] No
2. [ ] Use is within the Special Management Area.

[X] Use is not within the Special Management Area.

3. Additional Comments: Hawaii Prince Golf course is a non-conforming use in the AG-2 General Agricultural District. The golf course development received a Conditional Use Permit approval from the Department of Land Utilization (File No.: 87/CUP1-71). Golf course use is permitted on this parcel as long as the use continues to exist.

The proposed project has been reviewed for the purpose of providing the above information and does not imply a recommendation of approval by this Department. Should you have any questions, please contact the Environmental Review Branch at 523-4077.

(Handwritten signature)

P.T. ONISHI
Director of Land Utilization

PTO: am

cc: Commission on Water Resource Management
g: hi prince. ado
Mr. Michael Wilson, Chairperson  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Subject: Your Letter of June 25, 1996 on the Water Use Permit for Hawaii Prince Golf Club  
Well Nos. (1900-02, 17 to 20 and 1901-03)

We have no objections for the use of caprock water to irrigate the golf course as long the amount is within the sustainable yield. The cover memo is returned accordingly marked.

Very truly yours,

FOR RAYMOND H. SATO  
Manager and Chief Engineer

Attachment

Pure Water...our greatest need – use it wisely
TO:
Honorable Kali Watson, Chairperson
Department of Hawaiian Home Lands

Honorable Lawrence Miike, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton H. W. Hee, Chairperson
Office of Hawaiian Affairs

Ms. Esther Ueda, Executive Officer
Land Use Commission

Mr. Raymond Sato, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Patrick Onishi, Director
Department of Land Utilization

Mrs. Cheryl D. Soon, Chief Planning Officer
Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for
Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application
will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify
the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the proposed use that is described in the attached
application (i.e. line item 6 or Table 1) for any conflicts or inconsistencies with the land use
designations, programs, plans, or objectives specific to your organization or department only. Please
respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension
of the review period for this application, please contact Lenore Nakama at 587-0218.

Response:
(1) We have no comments
(2) We have no objections
(3) Comments attached

Contact Person: Bert Kuioka
Phone: 527-6134

Signed: RAYMOND H. SATO
Manager and Chief Engineer

Date: 8/19/96
TO: Aquatic Resources  
Forestry and Wildlife/Natural Area Reserve System  
Historic Preservation  
Land Management  
State Parks  

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

SUBJECT: Request for Comments  
Water Use Permit Application  
Puuloa Ground Water Management Area, Oahu  

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

Response: ( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: Glenn Higashi  
Phone: 587-0112  

Signed: Date: 7-31-96
MEMORANDUM

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

FROM: William Devick, Acting Director
Division of Aquatic Resources

SUBJECT: Comments on Application for a Water Use Permit, Puuloa Ground Water Management Area, Oahu (TMK 9-1-10:6)

The applicant, Hawaii Prince Golf Club is requesting a modification to the existing water use permit (WUP No. 152) which allows the withdrawal of 900,000 gallons of brackish water per day from only Well No. 1900-02 in the Ewa Caprock Management Area, to include all six Hawaii Prince Club wells (Well Nos. 1900-17, -18, -19, -20, and 1901-03, along with 1900-02). This will allow pumpage to be more widely distributed across the property, enabling better water quality to be produced for the golf course's irrigation.

The Division of Aquatic Resources has no objections to this request since the proposed project is not expected to have any significant impact on aquatic resource values in this area.
July 29, 1996

Honorable Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Water Use Permit Applications for Kapolei People’s Inc., Well Nos. 2003-01, 02, 05 and Hawaii Prince Golf Club, Well Nos. 1900-02, 17 to 20 and 1901-03

This is in response to your memorandums dated June 25, 1996. We have reviewed the subject applications and provide the comments below for your consideration.

Kapolei People’s Inc.

1. The parcel identified as Tax Map Key 9-1-16: 35 is designated public facilities on the Ewa Development Plan Land Use Map (DPLUM).

2. The Ewa Development Plan Public Facilities Map identifies a site undetermined, within six years police station symbol in the area for the Ewa Plains Regional Police Station. If the applicant proposes any new uses in the area, we recommend that the applicant contact the City’s Building Department prior to any approvals.

3. Our records indicate that the Kapolei Golf Course is approximately 192 acres in size and not 220 acres. We recommend that the applicant clarify this discrepancy prior to approval of this request.

4. It is our understanding that the Kapolei Golf Course is located at Tax Map Key 9-1-16: 110. Parcel identified as Tax Map Key 9-1-16: 110 is designated agriculture on the Ewa DPLUM.
Although the existing golf course operation is not consistent with the agriculture designation, the Villages of Kapolei project (including the Kapolei Golf Course) has Act 15 exemption from the City's Development Plans.

- Section 24-1.15.(b)(3)(E) of the City's Development Plans Common Provisions states that non-potable water sources should be used for the irrigation of golf courses. The use of non-potable caprock water for irrigation purposes is consistent with this policy.

Hawai‘i Prince Golf Club

- The parcel identified as Tax Map Key 9-1-10: 6 is designated agriculture on the Ewa Development Plan Land Use Map.

Although the existing golf course operation is not consistent with the agriculture designation, the City's Land Use Ordinance (LUO) does permit golf courses in AG-2 zoning.

- Section 24-1.15.(b)(3)(E) of the City's Development Plans Common Provisions states that non-potable water sources should be used for the irrigation of golf courses. The use of non-potable caprock water for irrigation purposes is consistent with this policy.

- The Board of Water Supply (BWS) have no objections to the subject water use permit applications (see attached memorandum from the BWS).

Should you have any questions, please call Eugene Takahashi of our staff at 527-6022.

Sincerely,

CHERYL D. SOON
Chief Planning Officer

CDS:lh
Attachment

cc: Honorable Jeremy Harris, Mayor
(Mayor's Control No. 26929 and 26931)
TO:      CHERYL D. SOON, CHIEF PLANNING OFFICER
         PLANNING DEPARTMENT
FROM:   RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
         BOARD OF WATER SUPPLY
SUBJECT: YOUR LETTERS DATED JUNE 25, 1996 TO MAYOR JEREMY HARRIS
       ON THE WATER USE PERMIT APPLICATIONS FOR CAMPBELL ESTATE
       KAHUKE WELL 4100-02; HAWAII PRINCE GOLF CLUB WELLS 1900-02,
       17 TO 20 AND 1901-03; AND KAPOLEI PEOPLE'S, INC. WELL
       NOS. 2003-01, 02, 05

We have no objection to the following:

1. Permitted use of 0.360 million gallons per day (mgd) for the Campbell
   Kahuku Well 4100-02 which will be used for agriculture.

2. Permitted use of 0.900 mgd for these caprock wells in Ewa to be used for
   golf course irrigation at the Hawaii Prince Golf Club.

3. Permitted use of 1.000 mgd for these caprock wells in Kapolei to be used for
   golf course irrigation by Kapolei People's, Inc.

If you have any questions, please call Bert Kuioka at 527-6134.

Pure Water . . . our greatest need – use it wisely
MEMORANDUM

TO: Lenore Nakama
   Commission on Water Resource Management

FROM: Darrell Yagodich, Planning Officer

SUBJECT: Water Use Permit Applications, Puuloa Ground Water Management Area, Oahu

July 31, 1996

By way of this memorandum, we are requesting an extension of time to August 15, 1996, to review the following applications:

(1) Hawaii Prince Golf Club, Well Nos. 1900-02, 17 to 20 & 1901-03; and

(2) Kapolei People's Inc., Well Nos. 2003-01, 02, 05.

If you have any questions, please call Keoni Agard at 586-3848. Thank you in advance for your cooperation in this matter.

4114L
TO: Aquatic Resources
Forestry and Wildlife/Natural Area Reserve System
Historic Preservation
Land Management
State Parks

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

SUBJECT: Request for Comments
Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

Response:

( ) We have no comments
(✓) We have no objections
( ) Comments attached

Contact Person: Andrew Monden
Phone: 587-0227

Signed: Andrew M. Monden
Date: 7/24/96
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P. O. BOX 621
HONOLULU, HAWAII 96809
JUN 2 5 1996

TO: Honorable Kali Watson, Chairperson
    Department of Hawaiian Home Lands

Honorable Lawrence Miike, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton H. W. Hee, Chairperson
Office of Hawaiian Affairs

Ms. Esther Ueda, Executive Officer
Land Use Commission

Mr. Raymond Sato, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Patrick Onishi, Director
Department of Land Utilization

Mrs. Cheryl D. Soon, Chief Planning Officer
Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the proposed use that is described in the attached application (i.e. line item 6 or Table 1) for any conflicts or inconsistencies with the land use designations, programs, plans, or objectives specific to your organization or department only. Please respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-5218.

Signed:
Date: 07/17/96
MEMORANDUM

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

FROM: Don Hibbard, Administrator
Historic Preservation Division

TMK: 9-1-10:6

Thank you for the opportunity to review this project. The applicant proposes to use water from an existing source. Since an approved permit will not authorize any ground disturbing activities and the use of the water is for an existing golf course, we believe that there will be "no effect" on historic sites.

EJ:jk
Mr. J. Douglas Ing
Watanabe, Ing, & Kawashima
Hawaii Tower, 5th & 6th Floors
745 Fort Street
Honolulu, Hawaii 96813

Dear Mr. Ing:

Hawaii Prince Golf Club Water Use Permit

Thank you for your letter of June 17, 1996, concerning the Hawaii Prince Golf Club water use permit.

Upon review of the record, we find that the applicant (Selbu Hawaii, Inc.) requested permission to construct and test the five wells (Well Nos. 1900-17 to 20 and 1901-03) which would cumulatively replace the permitted pumpage from Pump 22 (see Action Requested section on attached submittal of August 16, 1989). The applicant further requested that Pump 22 be left in place to allow for pumping flexibility. On August 16, 1989, the Commission approved the applicant's request. Therefore, Hawaii Prince Wells 1-5 are considered to replace (and include) the Pump 22 source.

Please note that at the time of the actions on the applicant's well construction and pump installation permit applications, the Commission did not require the water use permit to be modified according to section 174C-57, Modification of permit terms, because the applicant did not seek to change the use, change the place of use, use a greater quantity, or make any change in respect to the water which may have had a material effect upon any person or upon the water resource. The Commission will require a person to apply for a permit to modify a water use permit if a proposed action changes a water use permit as described in section 174C-57.

We are returning your applications since they are not required.

Please contact Lenore Nakama at 587-0218 if you have any questions.

Sincerely,

RAE M. LOUI
Deputy Director

ES:ss
Enclosure
TO: Honorable Kali Watson, Chairperson
   Department of Hawaiian Home Lands

   Honorable Lawrence Miike, Director
   Department of Health
   Attn: Mr. Dennis Tulang
   Attn: Mr. William Wong

   Honorable Clayton H. W. Hee, Chairperson
   Office of Hawaiian Affairs

   Ms. Esther Ueda, Executive Officer
   Land Use Commission

   Mr. Raymond Sato, Manager & Chief Engineer
   Honolulu Board of Water Supply
   Attn: Mr. Chester Lao
   Attn: Mr. Barry Usugawa

   Mr. Patrick Onishi, Director
   Department of Land Utilization

   Mrs. Cheryl D. Soon, Chief Planning Officer
   Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the proposed use that is described in the attached application (i.e. line item 6 or Table 1) for any conflicts or inconsistencies with the land use designations, programs, plans, or objectives specific to your organization or department only. Please respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:
( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: Lori N. Kajiwara  Phone: 508.4294
Signed: Lori N. Kajiwara  Date: 7-10-96
TO: Honorable Kali Watson, Chairperson
Department of Hawaiian Home Lands

Honorable Lawrence Miike, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton H. W. Hee, Chairperson
Office of Hawaiian Affairs
Ms. Esther Ueda, Executive Officer
Land Use Commission

Mr. Raymond Sato, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Patrick Onishi, Director
Department of Land Utilization

Mrs. Cheryl D. Soon, Chief Planning Officer
Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the proposed use that is described in the attached application (i.e. line item 6 or Table 1) for any conflicts or inconsistencies with the land use designations, programs, plans, or objectives specific to your organization or department only. Please respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:
( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: Esther Ueda Phone: 587-3822
Signed: ___________________________ Date: July 2, 1996
July 2, 1996

Mr. Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawai‘i 96809

Dear Mr. Wilson:

Subject: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu
Hawaii Prince Golf Club

We have reviewed the subject water use permit application as transmitted by your letter dated June 25, 1996 and confirm that the location of the existing well and location of proposed water use, further identified as TMK: 9-1-10: 06, is within the State Land Use Agricultural District.

We have no further comments to offer at this time.

As requested, we have enclosed the cover memo to the subject application.

Thank you for the opportunity to provide comments on this application.

If you have any questions in regards to this matter, please feel free to contact me or Leo Asuncion of my staff at 587-3822.

Sincerely,

ESTHER UEDA
Executive Officer

Enclosure
TO: Honorable Kali Watson, Chairperson
Department of Hawaiian Home Lands

Honorable Lawrence Miike, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton H. W. Hee, Chairperson
Office of Hawaiian Affairs

Ms. Esther Ueda, Executive Officer
Land Use Commission

Mr. Raymond Sato, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Patrick Onishi, Director
Department of Land Utilization

Mrs. Cheryl D. Soon, Chief Planning Officer
Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the proposed use that is described in the attached application (i.e. line item 6 or Table 1) for any conflicts or inconsistencies with the land use designations, programs, plans, or objectives specific to your organization or department only. Please respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

Response:

☐ We have no comments
☐ We have no objections
☐ Comments attached

Contact Person: Bill Wong
Signed: Bill Wong
Phone: 586-4258
Date: 6/27/96
Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:

☐ We have no comments
☐ We have no objections
☐ Comments attached

Contact Person: RALSTON NIGHT
Phone: 587 0292
Signed: 6/28/96
Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response: June 26, 1996

(✓) We have no comments
( ) We have no objections
( ) Comments attached

DOFAW HAS NO COMMENTS OR OBJECTIONS TO THE PROPOSED REQUEST.

Contact Person: Wayne Ching, Rgs. Mgmt. Forester  Phone: X70166

Signed: MICHAEL C. BUCK, Administrator
PUBLIC NOTICE

Applications for Water Use Permits
Ground Water Management Areas, Oahu and Molokai

The following applications for water use permits have been received and are hereby made public in accordance with Department of Land and Natural Resources Administrative Rules 13-171, "Designation and Regulation of Water Management Areas."

Opana (Well No. 4100-02)
Applicant: The Estate of James Campbell
1001 Kamokila Blvd.
Kapolei, HI 96707
Date Completed Application Received: May 24, 1996
Aquifer: Koolauloa System, Windward Sector, Oahu
Water Source: Opana Well (Well No. 4100-02) at Kawela, Oahu, Tax Map Key 5-7-1:21
Quantity Requested: 360,000 gallons per day.
New Water Use: Irrigation supply for 160 acres diversified agriculture
Place of Water Use: Kawela at Tax Map Key: 5-7-1:21

Kapolei Irr A, B, & E (Well Nos. 2003-01,02,05)
Applicant: Kapolei People's, Inc.
91-701 Farrington Hwy.
Kapolei, HI 96707
Date Completed Application Received: June 10, 1996
Aquifer: Puuloa System, Ewa Caprock Sector, Oahu
Water Source: Kapolei Irr A,B,&E (Well Nos. 2003-01,02,05) at Kapolei Golf Course, Oahu, Tax Map Key 9-1-16:25
Quantity Requested: 1,000,000 gallons per day.
New Water Use: Irrigation supply for Kapolei Golf Course
Place of Water Use: 91-701 Farrington Hwy., Kapolei, HI at Tax Map Key: 9-1-16:25

EP 22, Wells 1 to 5 (Well Nos. 1900-02, 17 to 20 & 1901-03)
Applicant: Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706
Date Completed Application Received: June 12, 1996
Aquifer: Puuloa System, Ewa Caprock Sector, Oahu
Water Source: EP 22, Wells 1 to 5 (Well Nos. 1900-02, 17 to 20, & 1901-03) at 91-1200 Fort Weaver Rd., Oahu, Tax Map Key 9-1-10:6
Quantity Requested: 900,000 gallons per day.
Existing Water Use: Irrigation supply for 190-ac Hawaii Prince Golf Course
Place of Water Use: 91-1200 Fort Weaver Rd., Ewa Beach, HI at Tax Map Key: 9-1-10:6
Request is to modify existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince wells.

Kamehameha Schools/Bishop Estate
P.O. Box 3466
Honolulu, HI 96801
a. Keawanui Dug Well (Well No. 0350-01)
b. Kamalo-Bishop Dug Wells #1-3 (Well Nos. 0353-06 to 08)
   Naehu Dug Well (Well No. 0353-01)
   Kamalo-Bishop Aquaculture Well (Well No. 0353-05)
Date Completed Application Received: May 8, 1996
a. **Aquifer**: Ualapu'e System, Southeast Sector, Moloka'i  
**Water Source**: Keawanui Well (Well No. 0350-01) at Keawanui, Mana'e, Tax Map Key 5-6-6:24  
**Quantity Requested**: 240,000 gallons per day.  
**New Water Use**: Aquaculture  
**Place of Water Use**: Keawanui at Tax Map Key: 5-6-6:24

b. **Aquifer**: Kawela System, Southeast Sector, Moloka'i  
**Water Source**: Kamalo-Bishop Dug Wells #1-3 (Well Nos. 0353-06 to 08) at Tax Map Key 5-5-2:30,32,36, Kamalo-Bishop Aquaculture Well (Well No. 0353-05) at Tax Map Key 5-5-2:30, Naehu Dug Well (Well No. 0353-01) at Tax Map Key 5-5-2:16, Kamalo, Mana'e.  
**Quantity Requested**: 0353-06 to 08: 144,000 gallons per day, each; 0353-05 and 0353-01: 72,000 gallons per day, each.

**Applicant**: Charles Bostwick  
P.O. Box 1829  
Kaunakakai, HI 96748  
Keoneku'ino-Bostwick Well (Well No. 0354-07)  
**Date Completed Application Received**: June 17, 1996  
**Aquifer**: Kawela System, Southeast Sector, Moloka'i  
**Water Source**: Keoneku'ino-Bostwick Well (Well No. 0354-07) at Keoneku'ino, Mana'e, Tax Map Key 5-5-1:7  
**Quantity Requested**: 25,000 gallons per day.  
**New Water Use**: Domestic and Irrigation  
**Place of Water Use**: Keoneku'ino at Tax Map Key: 5-5-1:7

Written objections or comments on the above applications may be filed by any person who has property interest in any land within the hydrologic unit of the source of water supply, any person who will be directly and immediately affected by the proposed water use, or any other interested person. Written objections shall: (1) state property or other interest in the matter (provide TMK information); (2) set forth questions of procedure, fact, law, or policy, to which objections are taken; and (3) state all grounds for objections to the proposed permit. Written objections must be received by July 31, 1996. Objections must be sent to 1) the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809 and 2) the applicants at the above addresses.

COMMISSION ON WATER RESOURCE MANAGEMENT

[Signature]

RAE M. LOUI, Deputy Director for  
MICHAEL D. WILSON, Chairperson

Dated: 6/24/96

Publish in: Honolulu Advertiser issues of July 10 and 17, 1996
Mr. Garrick Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

We acknowledge receipt, on June 12, 1996, of your completed application for a water use permit to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince wells. As was discussed with Lenore Nakama of my staff on June 24, 1996, the filing fee is only $25.00. As such, we are returning your check for $50.00; we understand that a check for the correct amount ($25.00) is in the mail.

Enclosed is a copy of the public notice for your water use permit application that will be published in the Honolulu Advertiser issues of July 10 and 17, 1996.

Please be aware that there may be objections to your application. If objections are made, the objector is required to file such objections with the Commission and is also required to send you a copy of the objections. You, or any other party, may respond to objections by filing a brief in support of your application with the Commission within ten (10) days of the filing of an objection. You, or the other party, must also send a copy of the response to the objector.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI
Deputy Director

LN:ss
Enclosures
TO: Aquatic Resources
    Forestry and Wildlife/Natural Area Reserve System
    Historic Preservation
    Land Management
    State Parks

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

SUBJECT: Request for Comments
         Water Use Permit Application
         Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:

( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: ____________________________ Phone: ___________

Signed: ____________________________ Date: ___________
TO: Other Interested Parties

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

SUBJECT: Request for Comments
Water Use Permit Application
Puualoa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the attached application for any conflicts or interferences with the programs, plans, and objectives of the organization or agency that you represent. Written objections should be made in accordance with Section 13-171-18 of our Administrative Rules and must be filed by the July 31, 1996 deadline.

If you have any questions, require additional information, or would like to request an extension of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:

( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: ___________________ Phone: ________________
Signed: ___________________ Date: ________________
TO: Honorable Kali Watson, Chairperson
Department of Hawaiian Home Lands

Honorable Lawrence Miike, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton H. W. Hee, Chairperson
Office of Hawaiian Affairs

Ms. Esther Ueda, Executive Officer
Land Use Commission

Mr. Raymond Sato, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Patrick Onishi, Director
Department of Land Utilization

Mrs. Cheryl Soon, Chief Planning Officer
Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for
Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03. Public notice of this application
will be published in the Honolulu Advertiser issues of July 10 and 17, 1996. The request is to modify
the existing water use permit (WUP No. 152) to include all six (6) Hawaii Prince Golf Club wells.

We would appreciate your review of the proposed use that is described in the attached
application (i.e. line item 6 or Table 1) for any conflicts or inconsistencies with the land use
designations, programs, plans, or objectives specific to your organization or department only. Please
respond by returning this cover memo form by July 31, 1996.

If you have any questions, require additional information, or would like to request an extension
of the review period for this application, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:

( ) We have no comments
( ) We have no objections
( ) Comments attached

Contact Person: ___________________________ Phone: ________________

Signed: ___________________________ Date: ________________
Honorable Jeremy Harris, Mayor  
City & County of Honolulu  
City Hall  
Honolulu, HI 96813

Dear Mayor Harris:

Notice of an Application for Water Use Permit  
Puuloa Ground Water Management Area, Oahu

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-171-17(a), we are sending you a copy of the public notice for the water use permit application for Hawaii Prince Golf Club for Well Nos. 1900-02, 17 to 20 & 1901-03, which will be published in the Honolulu Advertiser.

In addition, Section 13-171-13(b), of our Administrative Rules, states:

"Within sixty days after receipt of notice of a permit application, the county shall inform the commission if the proposed use is inconsistent with the county land use plans and policies."

We have attached a copy of the application for your review and would appreciate receiving your comments, within the next sixty (60) days, on whether this water use is consistent with county plans and policies.

Very truly yours,

MICHAEL D. WILSON  
Chairperson

Enclosures
June 17, 1996

Lenore Nakama
Commission on Water Resource Management
Department of Land & Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

RE: FILING FEE FOR WATER USE PERMIT
FOR HAWAII PRINCE GOLF CLUB

Lenore:

I have enclosed check #47082 for the water use permit application recently dropped off at your office. At that time, we dropped off a $50.00 check and would appreciate it if you could return to my attention to the address noted on this letterhead.

Please call me if you have any questions. Thank you.

Sincerely,

Garrick K. Iwamuro
Director of Golf Operations

GI/sy
Enclosure
This pre-dates me -- seems like HP Price is saying that since approval of PIP was granted and wells are in water, that a WUP must have also been established. But, wasn't that policy (ie WUP before WCP/PIP) approved in 1992? (PIP action in 1990) leave
lenore, we need to update memo file if indeed 1.5 won 0.16 for startup of 0.9 mgd permit. Seems like we & they just didn't amend WUP and assumed PIP meant something different.

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<thead>
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<th>INIT.</th>
<th>TO:</th>
<th>INIT.</th>
<th>FOR:</th>
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<td>CHING, F.</td>
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<td>NAKAMA, L.</td>
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<td>Signature</td>
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<tr>
<td>KUNIMURA, I.</td>
<td></td>
<td>YODA, K.</td>
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I guess confusion arises re 3/31/1992 WUPA for 0.6 myd for all Hawaii Prince sources. Should have requested that 0.9 be combined or updated too.
Ms. Rae M. Loui  
Deputy Director  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809  

Re: Hawaii Prince Golf Club Water Use Permit  

Dear Ms. Loui:  

Thank you for your letter of June 6, 1996, responding to our request for clarification on the wells and pumps covered by Hawaii Prince Golf Club’s Water Use Permit for 0.9 mgd.  

Based upon the information you provided to us in your letter, the Hawaii Prince Golf Club did by letter dated June 12, 1996, request that its permanent water use permit be modified in accordance with Section 13-171-23 of the Administrative Rules of the State Water Code. While this request is now pending, we have conducted additional research and have reviewed further records because of the inference that we may have been violating the terms of the existing permit and/or the Commission’s rules.  

We are still seeking the requested clarification and, perhaps, a reconsideration of our request. This is based upon the following chronology of events with respect to Hawaii Prince Wells Nos. 1 to 5 (State Wells Nos. 1901-03, 1900-17 to 20), and the Commission’s actions regarding the well construction and pump installation permits associated with those pumps.  

**Permanent Water Use Permit**  

An application for water use permit was submitted to the Commission on or about June 15, 1988. On October 28, 1988, the Commission issued the water use permit for withdrawal of 1.5 mgd for golf course irrigation during the initial stage, followed by 0.9 mgd thereafter. At the time, EP-22 was the only well contemplated for that irrigation.
Both the application and the water use permit only designated EP-22 as the source of the water.

Shortly thereafter, Hawaii Prince's engineers recommended that it drill five new shallower wells along the makai property boundary. This was an effort to improve the quality of the irrigation water.

**Well Construction Permits, Hawaii Prince Wells 1-5**

Consequently, by letter dated May 25, 1989, the Myers Corporation, as developers of the Hawaii Prince Golf Club, submitted a letter to the Commission explaining the plans for the golf course and submitting a water use declaration for EP-22. In particular, the letter states as follows:

We soon will submit an application for well drilling permits for these 5 new wells, with a request to transfer the water use rights from well EP-22 to these new wells (with a total draw from all 5 wells equal to 1.5 MGD).

At that time, Mr. Will Beaton of the Myers Corporation had been in contact with Mr. Ed Sakoda of the Commission staff. A copy of this letter dated May 25, 1989 and obtained from the Commission's files is enclosed.

Applications for well construction permits were submitted in June 1989. The Commission issued a well construction permit for Hawaii Prince Wells 1-5 on August 24, 1989. A copy of that permit is also enclosed with this letter.

The Ewa Caprock was within a water management area at the time. Thus, the permit was limited to construction and testing only. No permanent pumps could be installed and no water used from the wells without the necessary pump installation permits.

**Pump Installation Permits for Hawaii Prince Wells 1-5**

On or about April 16, 1990, Seibu Hawaii, Inc. (the development affiliate for the Hawaii Prince) applied for pump installation permits for Hawaii Prince Wells No. 1-5. It is significant to note that at the time of the application, Hawaii Prince only had its permanent water use
permit in the amount of 1.5 mgd for the initial stage and 0.9 mgd after full establishment. It did not have, nor had it applied for, any interim water use permits.

The matter was scheduled for the Commission’s July 25, 1990, meeting. A copy of the staff submittal is enclosed. With respect to "Water Availability", the staff submittal stated as follows:

The wells are located in the Honouliuli-Puuloa sector of the Ewa Plain Caprock Aquifer, Oahu. Sustainable yield is estimated at 10-15 mgd. The applicant has a water use permit from the Commission to use 1.5 mgd for the initial stage and 0.9 mgd after full establishment of the golf course. (emphasis added).

The staff’s recommendation was approved by the Commission with certain amendments to the conditions. A copy of the staff submittal is enclosed.

The pump installation permits were issued on August 8, 1990, and a copy is enclosed. Since the Ewa Caprock Aquifer was in a water management area, it would have been necessary for Hawaii Prince to have had a corresponding water use permit unless its use was to be included under the permanent water use permit. This was clearly the intent as had been expressed in the May 25, 1989, letter from the Myers Corporation to the Commission. The intent was always to operate Wells 1-5 and EP-22 in an overall water management plan under the initial 1.5 mgd water use permit. This was expressly acknowledged by the staff submittal and the language quoted above.

This is also supported by the staff’s recommendation and Commission’s action. In particular, the pump installation permit was not conditioned upon obtaining any subsequent water use permit. This would certainly have been the case had there been no accompanying water use permit and, thus, available water authorized pursuant to the water code.

We therefore believed that Wells 1-5 were included from that date (August 8, 1990) forward in the Hawaii Prince permanent water use permit. The interim water use permit had not yet been contemplated, nor applied for.
Interim Water Use Permits

Subsequent to the initial stage of the golf course development, it became apparent that the 0.9 mgd allocation after full establishment would not be sufficient to irrigate the golf course for the conditions then existing. Hence, an interim water use application was made for an additional 0.5 mgd on August 27, 1992. This was a full two years after the pump installation permits for Wells Nos. 1-5 had been issued.

On the application, Wells 1-5 and EP-22 were noted as the sources of the water. Prior to the application, however, the Myers Corporation wrote to the Makena Resort Corp. formerly known as Seibu Hawaii, Inc.) regarding the Hawaii Prince Golf Club and the water use permit. In that letter, Mr. Joseph Metcalfe of the Myers Corporation did confirm a conversation with Mr. Sakoda regarding the inclusion of Wells 1-5 on the permanent water use permit, despite the fact that it was not officially noted on the water use permit issued two years prior to the installation permits. A copy of this letter (not a part of the Commission’s file) is also enclosed.

Based upon the foregoing, we request your further review and consideration of the timing and sequencing of the various permits and authorizations. Based on the additional information provided, we hope you will reach a similar conclusion that Hawaii Prince Wells 1-5 must have been included in the permanent water use permit.

Very truly yours,

J. DOUGLAS ING
WATANABE, ING & KAWASHIMA

JDI:dk

Enclosures

cc: Akemi Kurokawa (w/encls.)
    William F. Mielcke (w/encls.)
    Garrick Iwamuro (w/encls.)
    Tom Nance (w/encls.)

011535.01
May 25, 1989

Mr. Manabu Tagomori, Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
1151 Punchbowl St.
Honolulu, Hawaii 96813

PROJECT: Myers/Seibu Championship Golf Course near Ewa Beach

Dear Mr. Tagomori:

We are filing a Declaration of Water Use for well EP-22 but wish to describe both the current and planned future conditions related to this well, in addition to two other wells on our property (EP-20 and EP-24).

Prior to the purchase of the 270 acre golf course property, Oahu Sugar harvested sugar cane on 4 fields (See attached map with Fields 076, 077, 080, 081) and utilized all the wells on our property to irrigate those fields. Well EP-22 was utilized for field 081; well EP-20 was utilized for field 076; and well EP-24 was utilized for a field across Fort Weaver Road. After we purchased the golf course property Oahu Sugar harvested all of their fields and have replanted those portions of fields 076 and 080 that lie outside our property. Well EP-22 is no longer being utilized by Oahu Sugar and is the well for which we received a Water Use Permit on October 28, 1988 for the withdrawal of 1.5 million gallons per day (MGD). Oahu Sugar continues to utilize well EP-20 for field 076 and EP-24 for the field across Fort Weaver Road. It is our intention to allow Oahu Sugar to continue to utilize these wells for irrigation purposes until their lease expires for those two fields in 1994. For this reason Oahu Sugar has submitted Water Use Declaration forms for these two wells. When they discontinue use of these wells we plan to close the wells up and discontinue use of them altogether.

With regards to well EP-22, we had originally planned to utilize this well as the sole source for our golf course irrigation water. Since the time we received our Water Use Permit our engineers have completed their hydrological investigations and have recommended that we drill five new shallower wells along the makai property.
line (See attached golf course plan). We plan to pull less water from each well in an effort to improve the quality of our irrigation water. We soon will submit an application for well drilling permits for these five new wells, with a request to transfer the water use rights from well EP-22 to these new wells (with a total draw from all 5 wells equal to 1.5 MGD). We also plan to maintain well EP-22 as a back-up source for future use if necessary, but do not plan on utilizing any additional water above the 1.5 MGD now authorized in our Water Use Permit.

Because of these conditions, Mr. Ed Sakoda of your Department recommended that we file a Water Use Declaration form for well EP-22 and that Oahu Sugar file Declarations for the other two wells on our property. We hope this letter helps to clarify the current and future conditions anticipated for water use in this area. If you should have any questions or need further information please don't hesitate to call me.

Sincerely,

Will Beaton, AIA
Project Manager

WB:tj

Enc.

cc: Akemi Kurokawa
    Jack Myers
    Ken Sugita
    Ben Matsubara
    Mike Burke
**STATE OF HAWAII**
**COMMISSION ON WATER RESOURCE MANAGEMENT**
**DEPARTMENT OF LAND AND NATURAL RESOURCES**
**DIVISION OF WATER RESOURCE MANAGEMENT**

**REGISTRATION OF WELL**

**AND DECLARATION OF WATER USE**

**INSTRUCTIONS:** Please type or print. If information is not available or not applicable, indicate as N/A. Fill out as completely as possible, sign, and file form with the Division of Water Resource Management, P.O. Box 373, Honolulu, Hawaii 96808. Phone 948-5848 or 948-7343 for assistance.

**BATTERY OF WELLS:** For a battery of wells, on the surface, in a tunnel, or in a shaft, submit a registration form for each well together with a single map or plot plan showing layout of wells.

<table>
<thead>
<tr>
<th>STATE WELL NO.:</th>
<th>1900-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELL NAME OR DESIGNATION:</td>
<td>Ewa Plantation EP22</td>
</tr>
<tr>
<td>SOURCE OR STATION NAME (For a battery of wells):</td>
<td>Ewa Pump 22 (EP22)</td>
</tr>
</tbody>
</table>

**A. WELL OPERATOR**

| Firm name: | SEIBU HAWAII INC. |
| Contact person: | AKEMI KUROKAWA |
| Address: | 2237 KUHIO AVE., STE. 303 |
| HONOLULU, HAWAII |
| Zip: | 96815 |
| Phone: | (808)922-0848 |

**B. OWNER OF WELL SITE**

| Firm name: | SEIBU RAILWAY CO. LTD |
| Contact person: | AKEMI KUROKAWA |
| Address: | 2237 KUHIO AVE., STE. 303 |
| HONOLULU, HAWAII |
| Zip: | 96815 |
| Phone: | (808)922-0848 |

**C. WELL LOCATION**

| Tax Map Key: | 9-1-10:7 |
| Town, Place, District: | Puuloa, Ewa District |
| Attach USGS “Quad” map (scale 1:24,000), tax map, or other map showing the well location. |

**D. WELL DATA Vertical Shaft with Tunnel**

For Drilled Wells, submit “as-buil” drawing, driller’s log, and pump test results, and complete items below.
For Tunnels and Shafts, submit construction drawings, plot plan, or sketch map.

| Ground elevation (Mean sea level): | 22.95 ft. |
| Reference point (used to measure depth to water): | 22.95 ft. |
| Elevation: | 22.95 ft. |
| Description: | Elevation at surface of shaft |
| Depth to water (below reference point): | 22.75 ft. |
| Maximum recorded chloride: | 965 ppm |
| Minimum recorded chloride: | 440 ppm |
| Maximum chloride in 1987: | 965 ppm |
| Year drilled or constructed: | 1930 |
| Well contractor: | Ewa Plantation Co. |
| Casing diameter: | N/A in. |
| Solid casing depth (below ground): | N/A ft. |
| Perforated casing depth (below ground): | N/A ft. |
| Total depth of well: | 28.75 ft. |
| Minimum chloride in 1987: | 821 ppm |

**E. INSTALLED PUMP DATA**

| Pump type: | Vertical shaft |
| Power: | Diesel, 40 HP |
| Pump capacity: | 1720 gallons per minute |
| Pump installation contractor: | OAHU SUGAR COMPANY |

**... (continued over)**

For Official Use Only:

| Date received: | 9-1-10:7 |
| Date accepted: | 9-1-10:7 |
| Latitude: | |
| Longitude: | |
| Hydrologic Unit: | |
| State Well No.: | |

References: Hawaii Revised Statutes, Chapter 174C.
Hawaii Administrative Rules, Chapters 12-167 to 13-171.
F. DECLARATION OF WATER USE

NOTE: The purpose of the Declaration of Water Use is to obtain information necessary for the management of the State’s water resources. The Declaration does not confer a legal right to water or its use.

Water use data are recorded: □ Daily  □ Weekly  □ Monthly
□ Other (describe):

Method of measurement: □ Flow Meter  □ Orifice  □ Other (describe): Pump Run Time x Pump Capacity

Quantify of Use (Report metered or estimated monthly water use from the well described on the reverse side of this form, for the calendar years 1983 through 1987. For a battery of wells which are not individually metered, but which are connected to a single meter or other measuring device, report total use from the battery):

WATER USE, IN GALLONS x 1000

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<th>Additional Information</th>
<th>Number of service connections</th>
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<td>□ Irrigation</td>
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<td>□ Non-Crop:</td>
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<td>□ Landscape</td>
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<td>□ Golf Course (270 ACRES)</td>
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<td>□ Other (specify):</td>
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<td>Specify (livestock, aquaculture, etc.):</td>
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Minimum day’s use: 0 gallons  Maximum day’s use: 2,476,800 gallons
Typical times of usage: Constant usage throughout the day

Type of Use (Check all category boxes that apply and provide additional information as indicated):

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<th>Category</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Municipal (including resorts, hotels, businesses)</td>
<td></td>
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<tr>
<td>□ Domestic (systems serving 25 people or less)</td>
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<tr>
<td>□ Irrigation</td>
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<td>PAST (1988)</td>
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<td>FUTURE (1990)</td>
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<tr>
<td>□ Other (specify):</td>
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<tr>
<td>□ Non-Crop:</td>
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<tr>
<td>□ Landscape</td>
<td></td>
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<tr>
<td>□ Golf Course (270 ACRES)</td>
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<tr>
<td>□ Other (specify):</td>
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<tr>
<td>□ Industrial</td>
<td></td>
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<tr>
<td>□ Military</td>
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<tr>
<td>□ Other</td>
<td></td>
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<td></td>
<td>Specify (livestock, aquaculture, etc.):</td>
</tr>
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</table>

I declare that the contents of the above Declaration of Water Use are, to the best of my knowledge and belief, true, correct, and complete.

Water User’s Signature: [Signature]
Printed Name: AKEMI KUROKAWA
Firm or Title (Well Operator, etc.): DIRECTOR/SECRETARY
Date: 25 May 89
TO: Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct and test five wells within Tax Map Key: 9-1-10:6&7 for golf course irrigation use, is approved subject to the following conditions:

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

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

3. The following shall be submitted to DOWALD within 30 days after completion of the wells:

   a. Well Completion Reports.
   b. Elevation (referenced to mean sea level) survey by a Hawaii-licensed surveyor.
   c. As-built sectional drawings of the wells.
   d. Plot plan and map showing the exact locations of the wells.
   e. Complete pumping test record; including time, pumping rate, drawdown, chloride content, and water quality data.
4. The applicant shall comply with all applicable laws, rules, and ordinances.

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

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

AUG 24 1989
Date of Issuance

cc: USGS
   Department of Health,
       Drinking Water Program
       Ground Water Protection Program
   Honolulu Board of Water Supply
June 25, 1990

Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Seibu Hawaii, Inc.
Application for Pump Installation Permits
The Hawaii Prince Golf Club Wells 1 to 5, Ewa Beach, Oahu

Applicant:
Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

Landowner:
Seibu Railway Co., Ltd.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

Action Requested: Permission to install 300 gallons per minute (gpm) pumps into The Hawaii Prince Golf Club (formerly Ewa Golf Course) Wells 1 to 5 (Well Nos. 1901-03, 1900-17 to 20) for golf course irrigation.

Proposed Amount of Withdrawal: 300,000 gallons per day per well.

Well Description (typical):
Ground elevation: 20± ft.
Solid casing depth: 17 ft.
Screen casing depth: 25 ft.
Total depth: 25 ft.
Pump Capacity: 300 gpm

Analysis: The wells will develop brackish, caprock water. No immediate adverse impacts are expected.

Water Availability: The wells are located in the Honouliuli-Puuloa Sector of the Ewa Plain Caprock Aquifer, Oahu. Sustainable yield is estimated at 10 to 15 mgd. The applicant has a water use permit from the Commission to use 1.5 mgd for the initial stage and 0.9 mgd after full establishment of the golf course. The continued use of water from the Caprock Aquifer in the future will depend upon the ability of the water users in the area to find a source of recharge to the aquifer such as treated sewage effluent. Without such a supplemental source of recharge, the caprock resource will eventually become too saline to be used.

RECOMMENDATION:
That the Commission approve the issuance of pump installation permits for The Hawaii Prince Golf Club Wells 1 to 5, subject to the following conditions:

Approved by Commission on Water Resource Management at the meeting held in ____________________________

ITEM 12
Chairperson and Members
Commission on Water Resource Management

July 25, 1990

(1) The applicant shall notify the Division of Water Resource Management (DWRM) before work begins.

(2) The applicant shall submit a well completion report to DWRM within 30 days after completion of the work.

(3) The proposed use shall not adversely affect existing legal uses in the area.

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

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

Respectfully submitted,

MANABU TAGOMORI
Deputy Director

WILLIAM W. PATY, Chairperson
PUMP INSTALLATION PERMITS

for

The Hawaii Prince Golf Club Wells 1 to 5
Well Nos. 1901-03, 1900-17 to 20
Ewa Beach, Oahu

TO: Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install 300 gallons per minute pumps into five wells for golf course irrigation use is approved, subject to the following conditions:

1. The Division of Water Resource Management (DWRM), Geology-Hydrology Section, shall be notified at 548-7543, before any work covered by this permit commences.

2. The proposed use shall not adversely affect existing legal uses in the area.

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

4. The applicant shall submit a Well Completion Report to the DWRM within 30 days after completion of the work.

5. This permit may be revoked if work is not started within six months of the date of issuance or if work is suspended or abandoned for six months. The work shall be completed within two years of the date of issuance.
The continued use of water from the Caprock Aquifer in the future may depend upon the ability of the water users in the area to find a source of recharge to the aquifer such as treated sewage effluent. Without such a supplemental source of recharge, the caprock resource may eventually become too saline to be used.

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

AUG - 8 1986
Date of Issuance

cc: USGS
Department of Health
   Drinking Water Branch
   Ground Water Protection Program
Honolulu Board of Water Supply
July 8, 1992

Mr. Akemi Kurokawa
Makena Resort Corp.
2237 Kuhio Ave., Suite 303
Honolulu, HI 96815

PROJECT: THE HAWAII PRINCE GOLF CLUB
SUBJECT: Water Use Permit

Dear Akemi:

Enclosed please find a copy of the Water Use Permit for the Hawaii Prince Golf Club (shown as the Ewa Golf Course on the permit). This permit allows HPGC to draw 1.5 million gallons per day during the "initial stage", then .9 million gallons per day "after full establishment".

The well name and well number are shown on the permit as Pump 22 and 1900-02 respectively. It has been confirmed by Ed Sakoda of the Department of Land and Natural Resources, State of Hawaii, that even though the Wells 1-5 are not noted on the permit, they are included in the permitted amounts of withdrawal with Pump 22.

Please note the additional conditions on the permit, particularly item #2. Enclosed are blank Monthly Ground Water Use Report forms for HPGC use. Garrick can use this form and attach a computer printout of the water usage if he wishes, and reference the printout attached on the form.

After full establishment, if Garrick is going to need more than .9 million gallons per day to maintain the course in the condition the Owner is expecting, then HPGC will need to use an Application For Water Use Permit to increase this quantity to the level felt necessary. A blank form is enclosed for your use.

Sincerely,

THE MYERS CORPORATION

Joseph A. Metcalfe, AIA
Development Manager

cc: Ted McAneeley
    Garrick Iwamuro
June 12, 1996

Mr. Mike Wilson  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, Hawaii 96809

RE: WATER USE PERMIT FOR EP-22 (WELL #1900-22)

Dear Mr. Wilson:

I am requesting a change in the permanent water use permit allocation for EP-22 to include Wells #1901-03, and 1900-17-20 in the total allocation of .9 mgd.

This request is the result of our finding that the .9 mgd was for EP-22 only and not the other wells according to your records. Enclosed is the application for this change.

Please feel free to contact me if you have any questions. Thank you for your consideration in this matter.

Sincerely,

Garrick K. Iwamuro  
Director of Golf Operations

cc: Rae Loui, Deputy Director  
William Mielcze, Mauna Kea Properties  
Akemi Kurokawa, Seibu Inc.  
Ted McAneeley, Hawaii Prince Hotel Waikiki  
Douglas Ing, Watanabe Ing & Kawashima  
Tom Nance, Tom Nance Water Resource Engineering
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

APPLICATION FOR WATER USE PERMIT

6-12-96

Ground Water or Surface Water

PERMITTEE INFORMATION

1. (a) APPLICANT
   Hawaii Prince Golf Club
   Firm/Name: ______________
   Contact Person: Garrick Iwamoto
   Address: 91-1200 Fort Weaver Road
   City, State: Ewa Beach, HI 96706
   Source: Puuola Aquifer System

   (b) LANDOWNER OF SOURCE
   Hawaii Prince Hotel Waikiki Corp.
   Firm/Name: ______________
   Contact Person: AT
   Address: 91-1200 Fort Weaver Road
   City, State: Ewa Beach, HI 96706
   Source: Puuola Aquifer System

2. WATER MANAGEMENT AREA:
   Pearl Harbor, Ewa Caprock

3. (a) EXISTING WELL/DIVERSION NAME AND STATE NUMBER:
   1900
   1901-03

(b) PROPOSED (NEW) WELL/DIVERSION NAME:
   None

(c) LOCATION:
   Address: 91-1200 Fort Weaver Road
   State Number: 9-1-106
   (If location use is over multiple TMKs, please complete Table 1 on back of application)

4. SOURCE TYPE:
   (check one):
   • Stream
   • Basin
   • Dike-confined
   • Perched
   • Caprock

METHOD OF TAKING WATER:
   (check one):
   • Artesian
   • Well & Pump
   • Diverted Surface
   • Other (explain)

USE INFORMATION

6. LOCATION OF PROPOSED WATER USE:
   (If possible, show on same maps as source location. Otherwise, attach similar maps)
   (a) Proposed use of water is:
      • Existing
      • New
      • Both existing & new uses
   (b) Tax Map Key: 9-1-10-6
   (If location use is over multiple TMKs, please complete Table 1 on back of application)
   (c) Address: 91-1200 Fort Weaver Road
   (d) Current Land Use District:
      • Urban
      • Agriculture
      • Conservation
      • Rural
   (e) Current County Zoning Code:
      AG

7. QUANTITY OF WATER REQUESTED:
   900,000 gallons per day (averaged over 1 year)

8. METHOD OF MEASUREMENT:
   • Flowmeter
   • Open-pipe
   • Weir
   • Orifice
   • Other (explain)

9. QUALITY OF WATER REQUESTED:
   • Fresh
   • Brackish
   • Salt
   • Potable
   • Non-Potable

10. PROPOSED USE:
    (all):
    • Municipal (including hotels, stores, etc.)
    • Individual Domestic
    • Irrigation
    • Golf Course
    • Industrial
    • Military
    • Other (explain)

11. TOTAL NUMBER OF RESIDENTS TO BE SERVED:
    None

12. TOTAL ACRES TO BE IRRIGATED AND TYPE OF CROP:
    Golf Course Turf Grass
    (acre) 6-12-96
    (crop) 6-12-96

13. PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION:
    On Demand Throughout the Day
    (daytime hours of operation, ex. 7 a.m. to 2 p.m.)

14. APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON WATER USE:
    (a) Impact on Sustainable yield (?): None
    (b) Instream Flow Standards affected (?): No
    (c) Hawaiian Home Lands use affected (?): No
    (d) Other existing legal uses affected (?): No
    (e) Other (pending permits, EIS, etc.) (?): None

15. REMARKS, EXPLANATIONS:
    (On Back Side)

Note: Signing below indicates that the applicant understands that, if a water use permit is granted by the Commission on Water Resource Management, a permit is subject to prior existing permitted uses, changes in sustainable yields and increased flow standards, reserved uses as defined by the Commission, and Hawaiian Home Lands future uses. In addition, applicant understands that, upon permit approval, any shortage plan must be submitted which the Commission requires.

Applicant (print) Hawaii Prince Golf Club
Signature __________________________
Date 6-12-96

Landowner (print) Hawaii Prince Hotel Waikiki Corp.
Signature __________________________
Date 6-12-96

For Official Use Only:
Date Received __________________________
Hydrologic Unit No. __________________________
Date Accepted __________________________
Division Works No. __________________________
State Well No. __________________________
The applicant currently holds a water use permit for 0.9 MGD for EP 22 (State No. 1900-02). He wishes to have all six of his active caprock wells (Wells 1 to 5 as well as EP 22) included under his 0.9 MGD permitted use. This will allow pumpage to be more widely distributed across the property, enabling better water quality to be produced for the golf course's irrigation.

### TABLE 1. MULTIPLE TMKs TO USE REQUESTED WATER

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>TMK</th>
<th>CURRENT COUNTY ZONING CODE</th>
<th>UNITS OF NET ACRES</th>
<th>GPD/UNIT OF GPD/ACRE</th>
<th>TOTAL GPD</th>
<th>% OF TOTAL TO BE USED OVER NEXT 4 YEARS</th>
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### DEPARTMENT OF LAND AND NATURAL RESOURCES

<table>
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<th>DOCUMENT NO.</th>
<th>UAC OR ATTACHED WORKSHEET</th>
<th>DATE: 6/24/96</th>
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<th>OBJ</th>
<th>COST</th>
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<th>PROJECT</th>
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<th>ACT</th>
<th>AMOUNT</th>
<th>NAME/DESCRIPTION (WANG INPUT)</th>
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<td>Hawaii Prince Hotel</td>
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</tbody>
</table>

**TOTAL:** 50.00

**REMARKS:**

- LINE (1) Well No. 1900-02, 17 to 20 (WUPA)
- LINE (2) Well No. 1901-03 (WUPA)
- LINE (3)________________________________________
- LINE (4)________________________________________

---

**HAWAII PRINCE HOTEL**

WAIKIKI BRANCH
FIRST HAWAIIAN BANK
HONOLULU, HAWAII 96815

VOID AFTER 90 DAYS

**DATE**: 6/06/96
**CHECK NO**: 47007

**AMOUNT**: 50.00

---

**DEPT. OF LAND & NATURAL RESOURCES**

COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAI'I

P.O. BOX 621

HONOLULU, HAWAII 96809

***FIFTY AND 00/100 DOLLARS***

PAY TO THE ORDER OF [Signature]

TWO SIGNATURES REQUIRED
March 17, 1993 - Item 6: Application for Water Use Permits, Ewa Caprock Groundwater Management Area, Ewa, Oahu

April 28, 1993 - Item 5: Resubmittal: Applications for Water Use Permits Ewa Caprock Ground Water Management, Ewa, Oahu

July 28, 1993 - Agenda 2, Item 1: Resubmittal - Applications for Water Use Permits, Ewa- Kunia and Waipahu Ground Water Management Areas, Pearl Harbor, Oahu

September 15, 1993 - excused

October 27, 1993 - excused

July 13, 1994 - Item 3: Applications for Water Use Permits and Well Construction/Pump Installation permits, Ewa Caprock Ground Water Management Area; Hawaii Prince Golf Club

August 17, 1994 - excused


September 28, 1994 - Item 5: Sierra Club Legal Defense Fund, in.; Objection to Water Use Permit Application for Construction of the Ewa Marina, Ewa Caprock Ground Water Management Area, Oahu

December 16, 1994 - Item 6: Haseko (EWA), Inc., Application for Water Use Permit for Ewa Marina, Ewa Caprock Ground water Management Area, Oahu

January 25, 1995 - Item 9: Gentry Development Corporation, Application for Water Use Permit and Well Construction and Pump Installation Permit, Gentry Area 24 Well (Well no. 2001-10), Ewa Caprock Ground Water Management Area, Oahu

Voted
### Table A. BOA Water Reservation Petition: Agriculture Lands With Water Rights

<table>
<thead>
<tr>
<th>Tax Map Key</th>
<th>Land Owner</th>
<th>Total Acres</th>
<th>Usable Acres</th>
<th>Water Rate</th>
<th>Water Demand</th>
<th>LSB Map No./ USSG Quad Sht</th>
<th>Remarks</th>
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<td><strong>PRIME LANDS UNDER OAHU SUGAR:</strong></td>
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The Honorable Michael Wilson
Chairman
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Re: Appearance Before Commission on Behalf of Hawaii Prince Golf Club

Honorable Michael Wilson:

The Hawaii Prince Golf Club has filed certain applications with the Commission on Water Resource Management. Hawaii Prince is also requesting that I assist it in resolving several issues relating to its utilization of irrigation water from the Ewa Caprock Aquifer. A part of that assistance may necessitate appearing before the Water Commission as counsel for the Hawaii Prince Golf Club.

As a former member of the Commission on Water Resource Management, certain post employment/service restrictions apply to me as a matter of state law. These are set forth in HRS Chapter 84, Standards of Conduct. The State Water Code, HRS Chapter 174C, does not address post employment restrictions, nor does it address the appearance of persons in a representative capacity before the Water Commission. The Commission’s Rules of Practice and Procedure ("Rules" herein) do, however, also appear to restrict post employment/service activities of individuals in my capacity.

Section 13-167-21 of the rules provides as follows:

d) No person who has been associated with the commission as a member . . . shall be permitted at any time to appear before the commission in behalf or to represent in any
manner, any party in connection with any proceeding or matter which the person has handled or passed upon while associated in any capacity with the commission.

e) No person who has been associated with the commission as a member . . . shall be permitted to appear before the commission in behalf of, or to represent in any manner, any person in connection with any proceeding or matter which was pending before the commission at the time of the person's association with the commission unless the person shall first have obtained the written consent of the commission verifying that the person did not give personal consideration to the matter or proceeding in which the consent is sought or gained particular knowledge of the facts thereof during the person's association with the commission.

This provision of the Commission's rules differs in material respect from that of the post employment restrictions contained in the state statutes.

In accordance with Section 13-167-21(d) and (e) of the Rules, I am therefore seeking the written consent of the Commission verifying that I did not give personal consideration to certain matters in compliance with the foregoing.

By way of background, I was appointed to the Commission on January 8, 1993. I believe the first meeting that I attended as a Commissioner was held on January 13, 1993. My resignation from the Commission was submitted by letter dated January 10, 1995 and became effective on or about January 31, 1995.

The matters for which I may be appearing before the Commission as a representative of Hawaii Prince Golf Club include the following:


2. Applications for water use permit by Hawaii Prince Golf Club (Well Nos. 1900-02, 17220 and 1901-03).

4. Well modification and pump replacement applications for Well Nos. 1901-3 and 1900-17.

There were occasions when matters regarding the Hawaii Prince Golf Club did come before the Commission during the time that I was a commissioner. On each occasion, I believe I was excused from participating on those particular agenda items. In any event the necessary consent is hereby requested.

Very truly yours,

J. DOUGLAS ING
for
WATANABE, ING & KAWASHIMA

JDI:dk

cc: Hawaii Prince Golf Club
Mr. J. Douglas Ing
Watanabe, Ing & Kawashima
Hawaii Tower, 5th & 6th Floors
745 Fort Street
Honolulu, HI 96813

Dear Mr. Ing:

Water Use Permit for EP-22 (Well No. 1900-22)

We are responding to your request for clarification on the irrigation pumps associated with the permanent water use permit for EP-22.

Our records show that an application for a permanent water use permit, dated June 2, 1988, was made by The Myers Corporation for Pump 22 (Well No. 1900-02). A copy of the application and approved water use permit are attached.

We have no record of a permit modification application, pursuant to §13-171-23 HAR, to include Wells 1 to 5 (Well Nos. 1901-03 & 1900-17 to 20) under the permanent water use permit for EP 22, although there are interim water use permits for these sources. If you would like to apply for a permit modification at this time, please complete and return the attached application form to our office.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI
Deputy Director

LN:ss

Attachments
Ms. Rae M. Loui  
Deputy Director  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809

Re: EP-22 (Well No. 1900-22)

Dear Ms. Loui:

This law firm represents the Hawaii Prince Golf Club in connection with its use of irrigation water from the Ewa Caprock. We are writing to seek clarification on the irrigation pumps associated with the water use permit for EP-22.

Under Hawaii Prince’s permanent water use permit, only one well is identified, EP-22, Well No. 1900-02. However, at the time of the application, Hawaii Prince Wells No. 1 through 5 were included on the request. When the permit was issued on or about October 8, 1988, only Well EP-22 was listed.

At the time Hawaii Prince applied for the interim water use permit in August of 1992, it sought clarification of the various wells that were covered by the permanent water use permit. They were advised verbally at the time by the staff that the existing water use permit applied not just to Well EP-22, but to Hawaii Prince Wells 1 through 5 as well.

More recently, in the Water Commission submittal of April 15, 1996, a report on permit violations regarding the Ewa Caprock included a summary table regarding the Ewa Caprock permitted uses. The table continued to carry the distinction between: (a) EP-22 with a permanent allocation of 0.9 mgd. and (b) EP-22 and wells 1 to 5 with an interim allocation of 0.129 mgd. However, it has always been the understanding of Hawaii Prince that the permanent water use permit applied to Hawaii Prince Wells 1 to 5 as well.
The distinction is an important one because the Hawaii Prince's water management plan calls for rotation of the various pumps and the drawing of water from the wells with the lowest chloride levels. Most of this water would have to be drawn under the permanent water use permit. We therefore seek written clarification from the staff on this matter.

Thank you for your assistance on this matter. Please call me should you have any questions.

Very truly yours,

J. DOUGLAS ING
for
WATANABE, ING & KAWASHIMA

cc: Hawaii Prince Golf Club
    Attn: Garrick Iwamuro
WATER USE PERMIT NO. 783

This report has been prepared in accordance with 13-171-22(b) of the Hawaii Revised Statutes requiring a 20-year review of issued water use permits to determine permit compliance. Following is a summary of permit information, site characteristics, methodology, findings, and recommendations for this State permit file.

Permit Information

- **Water User:** Hawaii Prince Golf Club
  
  91-1200 Fort Weaver Rd.
  
  Ewa Beach, HI 96706

- **Landowner of Source:** Hawaii Prince Hotel Waikiki, Corp.
  
  100 Holomana St.
  
  Honolulu, HI 96815

- **Permitted Withdrawal Rate:** 0.301 mgd (Based upon a 12-month moving average)

- **Water Management Area:** Pu‘uloa

- **Island:** Oahu

- **Aquifer Sector/System:** Ewa Caprock/Pu‘uloa

- **System Sustainable Yield:** 1000 mg/l

- **Water Type:** Brackish

- **Original CWRM Date:** July 12th, 2006

- **Standard Conditions:** 1-19

- **Special Conditions:** 1-2, 38, 40-44

Water Source

- **State Well Number(s):** 1900-02, 1900-17, 1900-18, 1900-19, 1900-20, 1901-03

- **Well Name:** Well 1-5, EP 22

- **Water Source TMK Number(s):** 1st Division, 9-1-010:006

- **State Land Use Classification(s):** Urban

- **County Zoning Classification(s):** AG-2

- **Geographical Coordinates:**
  
  State Well 1900-02 (EP 22): Latitude 21° 19' 39.0” North
  
  Longitude 158° 00’ 29.7” West

  State Well 1900-17 (Well 2): Latitude 21° 19' 27.8” North
  
  Longitude 158° 00’ 37.0” West
State Well 1900-18 (Well 3): Latitude 21° 19’ 28.4” North
Longitude 158° 00’ 25.2” West

State Well 1900-19 (Well 4): Latitude 21° 19’ 31.1” North
Longitude 158° 00’ 17.2” West

State Well 1900-20 (Well 5): Latitude 21° 19’ 35.2” North
Longitude 158° 00’ 13.7” West

State Well 1901-03 (Well 1): Latitude 21° 19’ 25.5” North
Longitude 158° 00’ 47.0” West

End Use

End Use TMK Number(s): 1st Division, 9-1-010:006
State Land Use Classification(s): Urban
County Zoning Classification(s): AG-2
Beneficial Use Explanation: Use for golf course irrigation and water features

Background Information

State Well Nos. 1900-02, 1900-17, 1900-18, 1900-19, 1900-20, and 1901-03 were originally
governed by Water Use Permit 203, which was approved during the May 14th, 1997 Commission
on Water Resource Management meeting and permitted an allocation of 0.151 mgd. On January
21st, 1998, Water Use Permit 203 was superseded by Water Use Permit 469, which was issued to
increase the allocation from the aforementioned wells to 0.301 mgd. In July of 2006, Water Use
Permit 469 was superseded by Water Use Permit 783, which is the most current governing permit
document for this battery of wells. Water Use Permit 783 was issued to convert Water Use
Permit 469 from an interim to a permanent status. The permitted allocation of 0.301 mgd did
not change during this process.

Consistent water use reporting records are available for at least the past four years. The
permittee’s 12-month moving average has not exceeded the permitted amount of 0.301 mgd
since that time. Reference the permit file for additional information on reporting history.

Water Use Permit 783 was approved for transfer during the July 12th, 2006 Commission on
Water Resource Management meeting. This water source has been in use for approximately 11
years by the Hawaii Prince Golf Club. Standard conditions 1-19 and special conditions 1-2, 38,
& 40-44 are the governing conditions for this water use permit. A complete list of all standard
and special conditions is given in the final summary report to the Legislature for this 20-year Water Use Permit Review.

Field Investigation Information

Contact: Gerald Yoza
Site Address: 91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

Brown and Caldwell conducted a field investigation on March 10th, 2008 from 9:00 a.m. until 10:30 a.m. with Mr. Tani Cayetano, who is an associate of Mr. Gerald Yoza. During this time, type of water usage was verified, GPS coordinates of well head(s) were recorded, flow meter installation and functionality were documented, and property TMK information was verified. The wellhead, its related appurtenances, and water usage area were visually inspected to assess compliance with permit conditions. Visual inspection of water loss/waste was limited to outdoor areas within the usage boundary. The physical location of this site is at the Hawaii Prince Golf Club. Reference the TMK and GIS maps in the permit file for a visual representation of the site.

Summary of Findings for Water Use Permit No. 783

State Well Nos. 1900-02, 1900-17, 1900-18, 1900-19, 1900-20, and 1901-03 are located on TMK parcel 9-1-010:006 at the GPS coordinates given in previous sections of this report. All six wells have their own individual flowmeter and are currently in operation for use on the Hawaii Prince Golf Course, which resides entirely on TMK parcel 9-1-010:006. State Well Nos. 1901-03 (Well 1) and 1900-17 (Well 2) pump water into a water feature, which also doubles as a storage reservoir for the golf course irrigation system. A pump house located at 21° 19’ 31.3” N, 158° 00’ 44.8” W (±19 ft.) sits adjacent to the water feature and houses several booster pumps. The booster pumps draw water from the feature and distribute it across the golf course via an underground irrigation system. Once enough water is drawn from the water feature/storage reservoir, the well pumps must be manually initiated via control panels at the well heads to refill the storage reservoir. State Well Nos. 1900-18 (Well 3), 1900-19 (Well 4), 1900-20 (Well 5), and 1900-02 (EP 22) draw water strictly for use in various water features across the golf course. These well pump sequences are manually initiated and terminated with individual control panels at the well heads, similar to those previously described for State Well Nos. 1901-03 and 1900-17. Reference the Appendix for photographs of the previously described system components.

Based upon visual inspection of the system, all components appear to be in full working order. The permittee demonstrated functionality of an installed flowmeter and provided access to the site grounds where no wasting of water or water loss was observed. Visual inspection also
confirmed that water use was within the permitted TMK boundaries. Water use is currently being reporting on a monthly basis with no recent evidence of overpumpage violations.

The permittee for Water Use Permit No. 783 appears to be in full compliance with all standard and special conditions listed in the permit file.

**Recommendations**

- Address the following discrepancies between the Commission's electronic database and actual field investigation findings:
  - State land use and county zoning classifications
- No disciplinary action required for this WUP since the permittee is in compliance with all standard and special conditions.
20-Year Water Use Permit Review
Water Use Permit No. 783

APPENDIX

Field Investigation Photographs
Figure 1 – State Well No. 1901-03 (Well 1) w/flowmeter

Figure 2 – State Well No. 1900-17 (Well 2) w/flowmeter
Figure 3 – State Well No. 1900-18 (Well 3)

Figure 4 – Flowmeter for State Well No. 1900-18
Figure 5 - State Well No. 1900-19 (Well 4) w/flowmeter

Figure 6 - State Well No. 1900-20 (Well 5) w/flowmeter
Figure 7 – State Well No. 1900-02 (EP 22)

Figure 8 – Flowmeter for State Well No. 1900-02
Figure 9 – Water feature that doubles as a storage reservoir

Figure 10 – Housing for booster pumps
Figure 11 – Booster pumps and related irrigation system appurtenances

Figure 12 – Irrigation system controls
Figure 13 – Typical end use are for water features and irrigation
Standard Conditions List

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means “the use of water in such a quantity as is necessary for economic and efficient utilization, which is both reasonable and consistent with State and County land use plans and the public interest.” (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in Section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground-water use here must not interfere with surface or other ground-water rights or reservations.

5. The ground-water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its <Insert Date> meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

Variations of Standard Condition (8) are as follows:
   i. Modification of any permit condition shall be approved by the Commission. Modification of any permit condition without notification may result in the revocation of the water use permit.
9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. Protect the water sources (quantity or quality);
   b. Meet other legal obligations including other correlative rights;
   c. Insure adequate conservation measures;
   d. Require efficiency of water uses;
   e. Reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
   f. Meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
   g. Carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

Variations of Standard Condition (10) are as follows:
   i. The applicant shall keep monthly pumpage estimates to be submitted annually to the Commission.
   ii. An approved flowmeter(s) need not be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a yearly basis (attached).
   iii. 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.
   iv. Approved flowmeters must be installed to measure monthly withdrawals and a monthly record of withdrawals must be kept and reported to the Commission on Water Resource Management on a monthly basis.
   v. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a quarterly/yearly basis (attached).
   vi. An approved flowmeter shall be installed to measure water withdrawals.
   vii. An approved flowmeter(s) must be installed to measure withdrawals; and a record of the withdrawals must be kept and reported to the Department of
Land and Natural Resources, Division of Water and Land Development, P.O. Box 373, Honolulu, HI 96809, on a monthly basis.

viii. Although not stated as a condition of the permit § 13-168-7 HAR requires you to keep a record of your monthly total pumpage, water level, salinity, and water temperature. This information must be submitted to the Commission on a regular monthly basis using the enclosed water use report form.

ix. An approved flowmeter shall be installed and the withdrawal from Well 1851-73 shall be recorded and reported to DLNR on a monthly basis by the owner and/or operator of the well.

x. The withdrawals from these wells shall be recorded and reported to the DLNR on a monthly basis by the BWS.

xi. The applicant shall provide and maintain an approved meter or other appropriate device or means for measuring and reporting water usage on a monthly basis.

xii. The applicant shall provide and maintain an approved meter or other appropriate device or means for measuring and reporting total water usage. Water usage shall be measured on a monthly basis and reported to the Commission.

xiii. The applicant shall provide and maintain an approved meter or other appropriate device or means for measuring and reporting total water usage. Water usage shall be measured on a monthly basis and reported to the Commission along with water level and salinity measurements.

11. This permit shall be subject to the Commission’s periodic review of the <Aquifer> Aquifer System’s sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the <Aquifer> Aquifer System, or relevant modified aquifer(s), is reduced.

12. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer, which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

13. The uses(s) authorized by law and by this permit do not constitute ownership rights.

14. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances that will affect the permittee’s water use.

15. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservations, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter
into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period or forfeiture.

16. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee’s water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the <Aquifer>Ground-Water Management Area.

17. The water use permit shall be subject to the Commission’s establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

18. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.

19. Special conditions in the attached cover transmittal letter or attached exhibits are incorporated herein by reference.

20. If the ground-water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

**Variations of Standard Condition (20) are as follows:**

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

21. This permit may not be transferred or the use rights granted by this permit sold or in any other way alienated. Pursuant to HRS § 174C-59 and the requirements of Chapter 174C, the Commission on Water Resource Management has the authority to allow the transfer of the permit and the use rights granted by this permit in a manner consistent with HRS § 174C-59. Any such transfer shall only occur with the Commission’s prior express written approval. Any sale, assignment, lease, alienation, or other transfer of any interest in this permit shall be void.

22. The water use permit granted shall be an interim water use permit, pursuant to HRS § 174C-50. The final determination of the water use quantity shall be made within five (5) years of the filing of the application to continue the existing use.

23. The water use permit shall be issued only after agricultural review.

24. That scheduled adjustments to Oahu Sugar Co. permitted use shall be initiated upon discontinuance of agricultural uses.
25. The issuance of this permit was approved by the Commission on Water Resource Management at its meeting on <Insert Date>.

26. The permit shall be subject to the review by the Attorney General.

27. The permit holder may be required to relinquish this permit at any time or specified time after issuance to the Board of Land and Natural Resources in accordance with Chapter 166 of Title 13.

28. The applicant shall obtain the necessary land acquisition documents from the Hawaii Housing Authority.
Special Conditions List

1. Should an alternate permanent source of water be found for this use, then the Commission reserves the right to revoke this permit, after a hearing.

2. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

3. The applicant shall contact the Environmental Management Division, State Department of Health, at 586-4304, concerning “GUIDELINES APPLICABLE TO GOLF COURSES IN HAWAII” date <Insert Date & Version #>.

4. Standard Condition 10 is emphasized, to report consumption on a regular basis.

5. The applicant may continue this existing use of ground water within the limits approved by the Commission, and the actual issuance of the interim permit shall not be a reason to interrupt this existing use.

6. This interim water use permit shall cease to become interim and shall be subject to HRS § 174C-55 upon administrative review of the quantity within five (5) years, provided that all conditions of the use (including the review of the quantity which shall not be greater than the amount initially granted) remain the same. Enforcement of the allocation limit shall be stayed pending staff’s review and issuance of a permanent water use permit.

7. As-built drawings of the well and pump, and a complete pumping test record shall be submitted within sixty (60) days.

8. In the event the pump tests show that aquifer boundary conditions do not support the requested withdrawals, the Commission reserves the right to amend this permit, after a hearing, to a level that is supported by the pump tests.

9. The existing use may be continued within the levels approved by the Commission, and the actual issuance of the permit document shall not be a reason to interrupt the approved level of use.

10. The filing of an application by Kukui, Inc. for a new or modified water use permit for the Kualapuu Aquifer in excess of 2.0 mgd (total system withdrawal) shall be just cause for re-consideration of this interim permit by the Commission.

11. Upon completion of a new transmission line for the transport of water use by Well #17, the permit shall be modified to reduce the allocation amount by the additional 79,220 gallons per day allocated for use of the Molokai Irrigation System.

12. Within six (6) months from the date of approval of a water use permit for the well, the applicant shall conduct a feasibility study and submit a report describing
alternative sources of nonpotable water for irrigation uses at the resort area. It is suggested that the developer consider use of dual lines in the subdivisions so that effluent may be used in the existing reuse system. Another consideration is the development of brackish water wells in the Kaluakoi Aquifer system for mixing with the effluent generated at the resort.

13. Within six (6) months from the date of approval of a water use permit for the well, the application shall evaluate the filter back discharges into Kakaako Gulch to determine if excessive preventable waste is occurring and identify possible measures to eliminate or reduce such waste. The evaluation shall be conducted in cooperation with the Commission staff and staff of the Department of Health's Safe Drinking Water Branch, which regulates the drinking water system.

14. Within six (6) months from the date of approval of a water use permit for the well, the applicant shall 1) implement a leakage control and detection system and compete repairs to prevent such leakage and 2) implement use of xeriscaping and low-flow fixtures.

15. Action on the future use portion of the water use permit application for Well #17 (Well No. 0901-01) is deferred pending the establishment of existing uses in the aquifer. Kukui Inc.'s application for uses in excess of those uses existing on July 15, 1992 will be considered "new" uses and will be taken up by the Commission as soon as other existing use applications have been decided. In the interim,
   a. The Commission shall recognize that there is disagreement between the applicant's staff calculations of reasonable-beneficial existing use
   b. The Applicant will have the burden of proof to show within six (6) months reasonable-beneficial existing use calculations that support the applicant's request as opposed to staff's calculations.
   c. The Commission's enforcement of the approved existing use allocation will be suspended for six (6) months.

16. The permittee shall submit a notice of intent and written request to continue the use at least ninety (90) days prior to the expiration of the interim five-year permit.

17. The Commission shall delegate to Maui Department of Water Supply the authority to allocate the use of water for municipal purposes, as provided in §174C-48(b).

18. Maui Department of Water Supply shall be exempt from the requirements for permit modifications, as provided in §174C-57(c).

19. The permittee must meter water use and monitor chloride concentrations on a monthly basis and submit monthly reports of water use and chloride concentrations to the Commission.

20. Standard Condition 16 is waived for saltwater wells.

21. The permit will be revoked if (1) stream monitoring shows that pumping the well reduces stream flow, or (2) the electromagnetic resistivity survey indicates that the
well was drilled into a dike compartment, unless the applicant submits a petition for an amendment to the interim instream flow standard with the well completion report. However, no use of the water may be made without a Pump Installation Permit, which cannot be issued during consideration of the amendment of the interim instream flow standard.

22. The applicant shall present the results of the electromagnetic resistivity survey, pump tests, and stream monitoring to a community meeting as well as to the Commission.

23. A final determination of water use quantity shall be made within five (5) years of the filing date of the application (<Insert Date>) to continue existing use.

24. The applicant shall implement, by December 31, 1995, a biological and hydraulic monitoring program for a minimum 2-year period that: 1) documents the existing operating procedure, 2) seeks to identify the impacts of all operating alternatives on Waikolu Stream, and 3) seeks to identify the effectiveness of weir modifications (Dam No. 1). This program shall incorporate the three new wells, Wells #4-6 (Well Nos. 0855-06, -05, &-04, respectively), which may be pumped within the approved limits, for monitoring and testing purposes only. Further, semi-annual reports summarizing data and preliminary findings shall be submitted to the Commission. It is suggested that the Department of Agriculture work with the State Division of Aquatic Resources and other affected agencies to prepare the monitoring program in light of the difficult technical questions raised by this application. A particular concern is the coordination of this monitoring program with the ongoing National Park Service study by Anne Brasher. A draft of this plan shall be submitted to the Commission staff within ninety (90) days for technical review and comment. Results of the monitoring program shall be used to make recommendations to the Commission on any additional use of the wells, and shall be made readily available to all interested parties.

25. That the Commission approves the well construction permit for the Kamiloloa-Waiola Well (Well No. 0759-01), subject to the standard well construction conditions and the special conditions for the pumping well for the aquifer tests.

26. That the Commission authorizes the Chairperson to approve and issue a pump installation permit upon acceptance of adequate pump test result, subject to the standard pump installation conditions.

27. Should the well be used for back-up domestic supply, applicant is advised to contact DOH or otherwise ensure safe drinking water quality is maintained.

28. The applicant shall follow the agreed monitoring plan.

29. If pesticides used by the applicant are found in ground or surface water and can be traced to the applicant's use, the CWRM may revoke the permit immediately upon such finding.
30. Issuance of the interim permit shall be withheld until the reservation of water for DHHL is set by rule. Applicant may continue this existing use within the approved limits.

31. The applicant shall submit well modification and pump installation permit applications for administrative approval by chairperson prior to beginning any work required to complete well.

32. Should any stream flow impacts result from use, petition to amend interim instream flow standards shall be submitted.

33. Should any dewatering result from use, pumping shall cease immediately.

34. Shall submit accurate schematic diagram of distribution system for the battery of 5 wells.

35. Shall be subject to a 6-month independent audit & monitoring.

36. Final pump capacity shall be determined from pump test results & approved administratively by signature of chair.

37. The permittee shall seek and submit to the Commission within ninety (90) days written confirmation from the Department of Land Utilization of the non-conforming use.

38. Pumping shall cease immediately if the chloride reports show that the brackish water developed in the well exceeds 1,000 mg/l of chloride, unless a variance from the chloride limit has been granted. The authority to approve future variance requests is delegated to the chairperson.

39. The duration of the interim permit shall be:
   a. To July 1, 2006, or
   b. Until treated wastewater is available and acceptable for use, or
   c. Until such time that a significant change in permitted, actual, or projected uses or water supply occurs.

40. Action on any interim permit may be initiated by the Commission or any permittee upon letter request or pursuant to §174C-57 Haw. Rev. Stat. (Modification of permit terms).

41. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.

42. Require adherence to the chloride sampling protocol and the submittal of weekly chloride data. The authority to approve variances from the weekly reporting requirement is delegated to the Chairperson.

43. Require adherence to the Conservation Conditions.
44. In the event a water shortage is declared by the Commission, permittees in the <Insert Aquifer System> shall comply with the <Insert Aquifer System> water shortage plan adopted by the Commission.

45. The permittee shall contact the Department of Health, Clean Water Branch and obtain the necessary discharge permit(s).

46. Permit shall be interim and replaces existing WUP for 2051-07 & 11.

47. Applicant shall submit an acceptable archaeological inventory survey report to DHP. If historic sites affected, a plan to mitigate these affects must be accepted by DHP and completed by applicant.

48. Should the well be used for back-up domestic supply, applicant is advised to contact DOH or otherwise ensure safe drinking water quality is maintained.

49. (The permittee) may report monthly pumpage on yearly basis.

50. Prior to issuance of any permits, must submit filing fee for after-the-fact pump installation permit.

51. The term of this permit shall be twenty years from the date of issuance of the permit with a five-year Board review to determine compliance with the provisions of the permit.

52. The amount of water to be withdrawn under this permit shall be 0.19 mgd, averaged annually, for irrigation use. This permitted use of 0.19 mgd when added to a preserved use of 0.27 mgd amounts to a total of 0.46 mgd, averaged annually, which may be withdrawn from well 1646-01.

53. The use authorized by the permit must not interfered substantially and materially with existing individual household uses and existing uses.

54. The use of this well shall be subject to the shortage and emergency powers of the Board of Land and Natural Resources (BLNR).

55. This permit may be suspended or revoked, in accordance with Chapter 166.

56. The permit holder may be required to relinquish this permit to BLNR, in accordance with Chapter 166.

57. The withdrawal from Well 1646-10 shall be recorded and reported to DLNR on a monthly basis by the permittee.

58. In the event that emergency water use occurs, the permittee shall notify the Commission in writing within one (1) day of pumping, to in form the Commission as to the nature of the emergency and the expected duration of the emergency. A water
59. Note DOH’s requirements related to non-potable water systems (attached to original permit).

60. Standard Condition 16 requiring the submittal of a water shortage plan is waived.

61. All non-potable spigots and piping shall be clearly labeled as “DO NOT DRINK, NON-POTABLE” to prevent direct human consumption.

62. Standard Condition 10 is modified. Due to the inability to take water level measurements, the requirement to measure monthly water levels is waived. In addition, as long as the U.S. Geological Survey is collecting and analyzing the chloride content of the well water, the requirement for the permittee to measure and report chlorides is also waived.

63. Well elevation components must be surveyed by a licensed surveyor and this information must be submitted to commission prior to issuance of permanent permit.

64. The permittee shall obtain approvals from the Department of Health and the U.S. Environmental Protection Agency prior to use of the water.

65. This water use permit, WUP No. <Insert #>, shall supersed WUP No. <Insert #>.

66. WUP No. <Insert #> is revoked.

67. Standard Condition 17 is waived.

68. Standard Condition 22 for interim water use permits shall not apply.

69. To supplement our records, we request that you provide a map of the Galbraith Est. lands west of Wahiawa (2100 ac+) and the associated TMK's for use area.

70. Deferred action on portion requested for golf course irrigation pending further refinement of irrigation requirement and a feasibility study for utilization of surface water sources, including Wahiawa Reservoir.

71. Written justification be provided for any 'cushion' of 0.5 mgd.

72. The water use permit shall be an interim permit. The duration of the interim permit shall be until treated wastewater is available and acceptable for use. The permittee shall continue discussions with Honolulu Board of Water Supply regarding the use of reclaimed water.

73. The permittee is put on notice that this is a qualified approval in that this permit may be modified or revoked prior to the expiration of the interim permit if the
Commission decides that the use of additional basal ground water for dust control and landscape irrigation is not reasonable-beneficial use.

74. The permittee encouraged to use drought-tolerant landscaping to conserve water.

75. Should the applicant provide written evidence that the county DHCD approves a 201E exemption for the elderly affordable housing project then the applicant may modify a corresponding portion of their existing aquacultural use to be used by the exemption approved project within the Commission approved water use permit limits under recommendation 5.

76. The applicant shall obtain a water lease/permit from Land Division prior to actual use of the well water.

77. Require the permittee to sign a contract by May 14, 1998 with the City Department of Wastewater Management to buy and use 0.400 mgd of R-1 water for a corresponding reduction in allocation for Well Nos. 1900-02, 17 to 20, and 1901-03.

78. Standard Condition 9 is waived.

79. Standard Condition 10 is modified to exempt the permittee from monthly measurements of salinity and temperature.

80. Standard Condition 10 is waived.

81. Applicant must seek a determination from BLNR and Land Mgt Div as to whether water license required. If required, license must be obtained prior to issuance of permit. If not, permit will be issued w/out further action.

82. Commission defers action on use in excess of 452,000 gpd pending additional info from BWS and further staff analysis.

83. The permit shall be subject to the Commission's sustainable yield review by December 1990.

84. The Commission shall delegate to the Honolulu Board of Water Supply the authority to allocate the use of water for municipal purposes, in accordance with §174C-48(b) HRS.

85. Honolulu Board of Water Supply shall be exempt from the requirements of permit modifications as provided in §174C-57.

86. BWS must participate in discussions, to be coordinated by Commission Staff, regarding a monitoring program to address impacts to Kaneohe Bay water quality, prior to any action on applications for future municipal uses.

87. A pump installation permit application must be made and approved prior to the installation of a permanent pump.
88. The water withdrawn shall be 0.7 mgd for municipal use.

89. The installed pump capacity of the well shall not be more than 700 gpm or 1.01 mgd.

90. The term of permit shall automatically expire twelve months from the date of issuance.

91. The Honolulu Board of Water Supply may continue to submit monthly water data on their own form, provided that the data are submitted in a format that is acceptable to the Commission staff.

92. Standard Condition 7 shall not apply.

93. Standard Condition 22 shall not apply.

94. Standard Condition 10 is modified to exempt the permittee from monthly measurements of salinity and temperature.

95. This permit shall be subject to conditions providing for stream restoration if the Commission determines that additional water should be returned to the streams.

96. HECO 1 mgd for industrial use

97. Campbell Estate 1 mgd for municipal use through BWS, by separate agreement with HECO

98. BWS 1 mgd for municipal use.

99. The permit shall be subject to the Commission’s sustainable yield review by <Insert Date>.

100. The applicant shall obtain the current version of the Department of Health’s Guidelines Applicable to Golf Courses in Hawaii. Where relevant and viable, items of the guidelines should be implemented and sustained appropriately. To obtain the current version, contact the Safe Drinking Water Branch, Environmental Management Division at 808-586-4258 (Honolulu).

101. The future use portion of the application shall be deferred until existing uses in the Koolauloa area are established.

102. The water to be withdrawn under this permit shall be a total of 0.03 mgd (0.02 mgd preserved plus an additional 0.01 mgd permitted use), averaged annually, for domestic and irrigation use.

103. Existing well 1851-09 shall be properly sealed by a licensed drilling contractor. A well modification permit application, enclosed, shall be submitted to the Department for approval of the well sealing. A filing fee for sealing the well will not be required.
104. The permittee is required to test the source using a certified private laboratory and submit the test results to the Commission within three (3) months. The Commission will then forward the results to the Department of Health for their review. The Department of Health recommends that the well be routinely tested for microbiological and chemical parameters thereafter.

105. The permittee is required to submit a completed Registration of Well and Declaration of Water use by <Insert Date>.

106. The permittee shall contact the Department of Health for a written determination on the status of their water system and comply with any Department of Health requirements for monitoring and testing.

107. In the event that the original spring source decontaminates, the new well authorized will be shut down.

108. That within each aquifer the total permitted use shall not exceed the sustainable yield.

109. That any water available for allocation shall be for in-district use.

110. That scheduled reductions to Oahu Sugar Co. permitted use shall be initiated upon final termination of an Osco lease or sub-lease, whichever occurs later.

111. That interim permits for water use issued in accordance with the proposed schedule shall be interim permits subject to review and adjustment by 1995.

112. That the permit shall be an interim permit for a new use which is afforded to existing users as specified in §13-171-20.

113. That the original allocation of 0.200 mgd shall be taken to hearing for possible revocation at a later date to complete the transfer of the water use permit entirely to Well No. 3407-02. This revocation would reduce the current allocation afforded to the Kunihiro Well (Well No. 3406-06) to zero.

114. This allocation incorporates the unspecified domestic needs of the applicant and therefore necessitates a single meter be installed at the well.

115. Should any impacts to nearby wells or streams be established by the use of this well, the applicant shall address these issues to the satisfaction of the Commission.

116. If an economically feasible nonpotable source is identified, the applicant shall convert to the alternative nonpotable source.

117. The permit shall be subject to the Chairperson's approval of a water use plan recommending possible measures to prevent or minimize saltwater contamination and establish courses of action to follow should the aquifer become to saline to use.
118. Permittee shall provide the necessary end-use information on the 10th residence to allow regulation of the use under Chapter 174C.

119. Standard Conditions 10 & 18 shall not apply.

120. Standard Condition 10 is modified to exempt the permittee from the requirement to install a flowmeter. Salt water withdrawals may instead be estimated based on pumping capacity and run time.

121. The applicant shall review the existing year long period of pumpage and streamflow data and provide analysis on ground and surface water interaction. Deadline is January 25, 1994.

122. The water use permit for Well Nos. 2301-27 to -32 for 0.75 mgd (WUP No. 419) shall be revoked upon issuance of a pump installation permit for the well.

123. The permittee shall use mulching to decrease evaporative losses and manage irrigation scheduling to minimize water demand.

124. The permittee shall submit a detailed agricultural plan to support any future water use permit application for increased agricultural use at this parcel.

125. If not already obtained, the permittee shall seek and obtain any necessary permits from the Department of Health for the proposed discharge to Malaekahana Stream.

126. Standard Condition 10 is modified to waive the requirement for installing a water meter on Well Nos. 2358-21, 22, and 29. The permittee shall install a water meter on Well No. 2358-26 to measure total monthly flow through the discharge line. This quantity should then be assumed to be the rate of natural flow from the other three wells for monthly reporting purposes.

127. The permit shall be effective upon submittal of documentation by Navy that it has met the DOH requirements for a public system.

128. This WUP shall be subject to Army's application for a WUP to reduce the permitted use of the Army's Schofield Shaft (2901-02 to 04, 10) by 0.208 mgd to a new total of 5.648 mgd. The Army's application shall be submitted within 60 days after the approval of this WUP or this WUP shall be void. Approval of the modification request shall be obtained from the CWRM prior to use of Well No. 3100-02 and issuance of this WUP.

129. Navy shall submit an after-the-fact PIPA, and approval of the permit shall be obtained prior to use of the well.

130. The well shall not be used for drinking water purposes unless it is properly tested and treated.
131. This permit is approved subject to reclaimed water becoming a practical alternative and provided that the Department of Health approves the reuse application.

132. Should any opae ula be recovered in the well water, the permittee shall notify the Division of Aquatic Resources and provide specimens to the Division of Aquatic Resources for analysis.

133. If a single meter at the well is used, the Commission shall allow an additional 1,000 gallons per day to the water use permit amount for the domestic needs of two residences, although a permit for individual domestic consumption is not required. Otherwise, the applicant must provide a meter to separately measure the irrigation consumption.

134. This permit is approved under the requirement that conversion to either: 1) treated wastewater becoming available for reuse as an alternative supply source, provided that Department of Health concerns over the use of treated effluent over the potable water aquifer have been addressed; and/or 2) other nonpotable source becoming available will occur in a timely manner.

135. These permits shall be subject to a review of actual use within four years for possible modification of the permitted amount.

136. The permit shall be reviewed in two (2) years for possible additional revocation due to nonuse.

137. The allocation is based on the projects listed in Exhibit 5 (of Item 10 of the May 20, 1998 Staff Submittal), except for the Queen's Beach GC (TMK 139-11-2,3), Lot 9 (TMK 139-17-51), and Varsity Place (TMK 128-24-35).

138. Kamehameha Schools Bishop Estate/Honolulu Board of Water Supply shall transfer the water use permit within ninety (90) days of the effective date of the transfer of the pump station to the Honolulu Board of Water Supply, pursuant to §174C-59 Hawaii Revised Statutes.

139. The permittee shall ensure that the water is recycled by either directing it into the Waiahole Ditch for use by downstream farmers (subject to the approval of the Agribusiness Development Corporation's Board) or into Waikele Farm's existing irrigation system.

140. The permittee shall file a completed application to modify WUP No. 758 to reduce the allocation by 0.100 mgd within 60 days. If a completed water use permit modification application is not received within 60 days from this submittal's date, then the subject water use permit application (WUPA No. 767) shall be deemed denied without prejudice without the need for another hearing.

141. The water withdrawn shall be for municipal use. No improvements to the existing sources are required as the existing source capacities are greater than the increase.
142. Water license must be determined through LM.

143. Proposed other uses will be considered at a later date.
Field Investigation Checklist

WUP Number: 763  Well Number(s): Various

Water Source
Well Location TMK(s): 9-1-010:006
Well Head GPS Coordinates: Latitude: Below Longitude: Below
Well Type: Well Pump
Currently using water source? Yes ☑ No ☐
Notes/Comments: Well is for water feature water only.

Is there a flow meter installed? Yes ☑ No ☐
Is the flow meter operational? Yes ☑ No ☐
Notes/Comments: One meter per well, all operational.

Water Use
Water Use TMK(s): 9-1-010:016

What is the water being used for?

Features

Is the water being used within the permitted boundaries? Yes ☑ No ☐
If no, explain:

Are the permit conditions being complied with? Yes ☑ No ☐
If no, explain:

Other
Photographs of: Water Source ☑ Water Meter ☑ Usage Area ☑ Pump/Motor ☑

General Notes/Comments:
1900-02: 21°19'39.0"N, 156°00'29.7"W (±13 ft)
1900-17: 21°19'27.5"N, 156°00'37.0"W (±14 ft)
1900-18: 21°19'25.4"N, 156°00'25.2"W (±12 ft)
1900-19: 21°19'31.1"N, 156°00'17.2"W (±12 ft)
1900-20: 21°19'39.2"N, 156°00'13.7"W (±13 ft)
1900-03: 21°19'28.5"N, 156°00'17.3"W (±12 ft)

Investigated By: M. J. Date: 3/10/20 Time: 9:00 a.m.

Pump Haze: 21°19'31.3"N, 156°00'41.8"W (±19 ft)
Water Use Permit Survey
(Please complete one survey form for each WUP)

WUP Number: 783
Well Number(s): 1901-03, 1900-17, 1900-18, 1900-19, 1900-20, 1900-02

Contact Information (of the person who will be present at site visit):
Name: Gerald Yoda
Phone (for phone interview): (808) 944-4567
Fax: (808) 689-0812
Email: gyoza@hiprince.com
Best time to reach for phone interview: W-F 5:00 am - 11:00 am

Property Information (of the water use/well location):
Address: 91-1200 Fort Weaver Road
City: Banz Beach
Zip: 96706
Well Location TMK (list all if multiple wells present): __________________________
Water Use TMK (list all if used on multiple lots): ____________________________

Water Use/Well Information:
Is the water source currently in use? Yes ☑ No ☐
If no, please explain:

What are you currently using the water for? (example: "Use for 45 acres of diversified agriculture and 3 residences");
27 acres of water feature

Is a flow meter installed and working properly? Yes ☑ No ☐
If no, please explain:

Do you submit monthly water use reports to the State? Yes ☑ No ☐
If no, please explain:

Field Investigations:
A representative from Brown and Caldwell will be visiting wells in your area over the next several months between the times of 9:00 am and 5:00 pm. Each site investigation will take approximately 1-2 hours. Please indicate up to three potential days of the week and availability times for an on-site inspection of the well location and verification of water use compliance. The permit holder must provide Brown and Caldwell with at least five (5) working days notice of the need to reschedule.

Option #1 Date (M-F): 1/9/08 Time: 9:00 am ☑ 12:00 pm ☐ 3:00 pm ☐
Option #2 Date (M-F): 1/16/08 Time: 9:00 am ☑ 12:00 pm ☐ 3:00 pm ☐
Option #3 Date (M-F): 1/23/08 Time: 9:00 am ☑ 12:00 pm ☐ 3:00 pm ☐

Once this survey is returned, a Brown and Caldwell representative will be contacting you to conduct a phone interview and finalize the exact date and time of your field investigation. Please fax/mail completed surveys by December 12th, 2007 and direct any questions related to this survey to Mr. Milo Smith of Brown and Caldwell at:
1099 Alakea Street, Suite #2400
Honolulu, HI 96813
Tel: (808) 203-2661
Fax: (808) 533-0226
mcsmith@brwncald.com

For Official Use Only
Received: 12/15/07 Information Updated: 12/26/07 Phone Interview Complete:
Notes/Comments: ______________________________________
Phone Interview

WUP Number: 743

Well Number(s): Various

Contact Name: Gerald Yoo

Phone Number: 944-4547

Attempt #1:
Date/Time: 2/20/05 (4:30)
Result: Reached

Attempt #2:
Date/Time: N/A
Result: N/A

Well Location TMK(s):
9-1-010:006

Water Use TMK(s):
9-1-010:006

Water Source Address:
91-1200 Fort Weaver Rd.

City: Ewa Beach

Zip Code: 96705

Currently using water source?
Yes ☒ No ☐

Notes/Comments:
Use for 27 acres of water feature

How often is the water source being used?
Daily ☒ Weekly ☐ Monthly ☐

Notes/Comments:

How long have you been using this water source?: 17 years (approx)

Has there been any rezoning of the water source/water use properties?
Yes ☐ No ☒

Have you reported the rezoning to the State?
Yes ☐ No ☐ N/A ☒

If no, explain:

Scheduled field investigation day/time: 3/10/06 @ 9:00

Notes (Special directions, site conditions, potential hazards, general notes, etc.):

Comments To Make:

- Although we prefer that you do not change your scheduled field investigation time, if you require a reschedule, you must provide Brown and Caldwell with at least five (5) working days notice of the need to reschedule.
- A representative from Brown & Caldwell will be making a reminder phone call to you sometime during the week prior to your scheduled field investigation.
- It is very important that you provide access to the site at the day and time agreed upon. Due to a very tight schedule, if you fail to provide access at the agreed upon time and/or do not reschedule with at least a five (5) working day notice, a makeup date will not be allowed.
- If for some reason you don't know where your well head is located, it would be a good idea to locate it prior to your field investigation to help make the visit go quickly and smoothly.

Interviewed By: M. S.

Date: 2/20/05

Time: 4:30 a.m.
Dear Water Use Permittee:

Hawaii Prince Golf Club/Hawaii Prince Hotel Waikiki Corp.,
Well Nos. 1900-02, 1900-17 to 20, 1901-03, WUP No. 469, 0.301 mgd, TMK 9-1-10:6
Haseko (Ewa), Inc., Well Nos. 1901-06, 1902-01, 1902-09 to 11, WUP No. 650, 3.300 mgd, TMK 9-1-12:5
Department of Parks and Recreation, Well No. 2001-03, WUP No. 167, 0.030 mgd, TMK 9-1-61:35
Palm Court Association, Well No. 2002-12, WUP No. 169, 0.040 mgd, TMK 9-1-61:22
Palm Villa II Association, Well No. 2001-08, WUP No. 168, 0.048 mgd, TMK 9-1-61:27
Arbors Association, Well No. 2001-07, WUP No. 171, 0.063 mgd, TMK 9-1-61:32
U.S. Fish & Wildlife, Well No. 2101-14, WUP No. 247, 0.021 mgd, TMK 9-1-17:12
Gentry Development Co., Well No. 2001-04, WUP No. 302, 0.040 mgd, TMK 9-1-61:7
Gentry Development Co., Well No. 2001-09, WUP No. 344, 0.023 mgd, TMK 9-1-61:2
Ewa by Gentry Community Association, Well No. 2001-05, WUP No. 450, 0.066 mgd, TMK 9-1-70:132
Gentry Homes, Ltd., Well No. 2001-12, WUP No. 504, 0.249 mgd, TMK 9-1-102:31
Gentry Homes, Ltd., Well No. 1901-05, WUP No. 505, 0.056 mgd, TMK 9-1-69:8
U.S. DOC/NOAA/NWS, Well No. 1900-23, WUP No. 501, 0.023 mgd, TMK 9-1-1:1
Coral Creek Golf, Inc., Well No. 2002-17, WUP No. 577, 0.498 mgd, TMK 9-1-69:10
Coral Creek Golf, Inc., Well No. 2001-13, WUP No. 578, 0.800 mgd, TMK 9-1-69:10
Coral Creek Golf, Inc., Well Nos. 2001-14, 2002-15, 17, 19, WUP No. 579, 0.892 mgd, TMK 9-1-69:10&11, 9-1-61:54
AOAO Suncrest/The Shores/Lombard Way/Avalon, Well No. 2001-10, WUP No. 629, 0.022 mgd, TMK 9-1-10:17
State Housing Community Development Corporation of Hawaii, Well Nos. 2003-04,07, WUP No. 432, 0.494 mgd, TMK 9-1-16:25
State Housing Community Development Corporation of Hawaii, Well Nos. 2003-08, WUP No. 520, 0.237 mgd, TMK 9-1-16:108
Kapolei People’s Inc., Well Nos. 2003-01,02,05, WUP No. 438, 1.000 mgd, TMK 9-1-16:25
Honolulu Board of Water Supply, Well Nos. 1905-08,10, WUP No. 740, 0.302 mgd, TMK 9-1-16:1

Conversion of Interim Water Use Permits for
New Irrigation Uses to Permanent Water Use Permits
Puuloa and Kapolei Ground Water Management Areas, Oahu

This letter serves as your official notice of action by the Commission on Water Resource Management (Commission) on the subject water use permits.
By a unanimous vote at their meeting on July 12, 2006, the Commission corrected the error of approving and issuing interim permits for new irrigation uses in the Puuloa and Kapolei Ground Water Management Areas of the Ewa Caprock Aquifer Sector Area by converting the subject interim water use permits to permanent water use permits. All terms and conditions of the permits shall remain unchanged, except for Special Condition d., which is deleted.

The Commission ruled that permittees shall be notified by letter of the Commission's action to convert these water use permits from interim to permanent and the deletion of Special Condition d. The Commission further ruled that re-issuance of these water use permits is not necessary.

Please be advised that a compliance review will be initiated shortly as required under §174C-56 Hawaii Revised Statutes. We recommend that you carefully review the conditions of your permit and ensure that you are in compliance with all Standard and Special Conditions.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

DEAN A. NAKANO
Acting Deputy Director

LYN:ss
STANDARD WATER USE PERMIT CONDITIONS

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground-water use here must not interfere with surface or other ground-water rights or reservations.

5. The ground-water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its July 18, 2001 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. protect the water sources (quantity or quality);
   b. meet other legal obligations including other correlative rights;

EXHIBIT 3
Staff Submittal

July 12, 2006

c. Insure adequate conservation measures;
d. Require efficiency of water uses;
e. Reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
f. Meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
g. Carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

11. This permit shall be subject to the Commission's periodic review of the [Puuloa or Kapolei] Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the [Puuloa or Kapolei] Aquifer System, or relevant modified aquifer(s), is reduced.

12. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

13. The use(s) authorized by law and by this permit do not constitute ownership rights.

14. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use.

15. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the four-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the four-year period of forfeiture.

EXHIBIT 3
16. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the [Puuloa or Kapolei] Ground-Water Management Area.

17. The water use permit shall be subject to the Commission's establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

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

19. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.
SPECIAL CONDITIONS

a. Should an alternate permanent source of water be found, the Commission reserves the right to revoke the permit, after a hearing.

b. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

c. Pumping shall cease immediately if the chloride reports show that the brackish water developed in the well exceeds 1,000 mg/l of chloride, unless a variance from the chloride limit has been granted. The authority to approve future variance requests is delegated to the Chairperson.

d. The duration of the interim permit shall be
   a) to July 1, 2006, or
   b) until treated wastewater is available and acceptable for use, or
   c) until such time that a significant change in permitted, actual, or projected uses or water supply occurs.

e. Action on any interim permit may be initiated by the Commission or any permittee upon letter request or pursuant to §174C-57 Haw. Rev. Stat. (Modification of permit terms).

f. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.

g. Require adherence to the chloride sampling protocol shown in Attachment B and the submittal of weekly chloride data. The authority to approve variances from the weekly reporting requirement is delegated to the Chairperson.

h. Require adherence to the Conservation Conditions shown in Attachment C.

i. In the event a water shortage is declared by the Commission, permittees in the Puuloa Aquifer System shall comply with the Puuloa Water Shortage Plan adopted by the Commission.
Mr. Garrick K. Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
Ewa Beach, HI 96706  

Dear Mr. Iwamuro:  

Approval of Water Use Permit for Well Nos. 1900-02, 17 to 20 & 1901-03  
Puuloa Ground Water Management Area, Oahu  

This letter transmits your water use permit for EP 22 and Wells 1 to 5 (Well Nos. 1900-02, 17 to 20 & 1901-03) for use of 0.301 million gallons per day (mgd) of water on a 12-month moving average basis that was approved by the Commission on Water Resource Management (Commission) on January 14, 1998.

As part of the Commission’s approval, the following special conditions were added and are part of your permit under Standard Permit Condition 20:

**Special Conditions**

a. The duration of the interim permit shall be to October, 1998 or until such time that a significant change in permitted, actual, or projected use of water supply or water quality occurs.

b. Require adherence to the chloride sampling protocol (attached) and the submittal of weekly chloride data, as may be amended by the Commission staff.

c. Require adherence to the Conservation Conditions (attached).

d. Require the permittee to sign a contract by May 14, 1998 with the City Department of Wastewater Management to buy and use 0.400 mgd of R-1 water for a corresponding reduction in allocation for Well Nos. 1900-02, 17 to 20, 1901-03.

e. This water use permit, WUP No. 469, supersedes WUP No. 203.

Enclosed with this letter of approval are the following:

1. Your water use permit

2. Your official monthly water use report form
Please be sure to read the conditions of your approved permit. If you accept these terms, please sign and return one copy of this permit to the Commission and retain a copy for your record.

You are required to keep a record of your monthly total pumpage, water level, and water temperature. This information must be submitted to the Commission on a regular monthly basis using the enclosed water use report form. You should make copies of the enclosed report form as needed.

Second, you are required to submit a water shortage plan to the Commission within thirty (30) days of the issuance date of this permit. Your water shortage plan simply identifies what you are willing to do should the Commission declare a water shortage situation in the PUULOA Ground Water Management Area and can be as short as a one page letter. In a water shortage situation, the Commission may require temporary reductions in pumpage from all sources. The Commission is required, by law, to formulate a plan to implement such area-wide reductions, which should accommodate, include, and be consistent with your plans. Therefore, your help, by submitting your water shortage plan, is greatly needed in formulating the Commission's overall Water Shortage Plan.

If you have any questions, please call the Commission staff at 587-0218.

Aloha,

Michael D. Wilson
Chairperson
GROUND WATER USE PERMIT
WUP NO. 469

PERMITTEE

Applicant/Water User
Address: HAWAII PRINCE GOLF CLUB
         91-1200 FORT WEAVER RD.
         EWA BEACH, HI 96706

Landowner of Source
Address: HAWAII PRINCE HOTEL WAIIKI CORP.
         100 HOLOMOANA ST.
         HONOLULU, HI 96815

PERMITTED SOURCE INFORMATION

<table>
<thead>
<tr>
<th>Island</th>
<th>OAHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Management Area</td>
<td>PUULOA</td>
</tr>
<tr>
<td>Aquifer Sector</td>
<td>EWA CAPROCK</td>
</tr>
<tr>
<td>Aquifer System</td>
<td>PUULOA</td>
</tr>
<tr>
<td>System Sustainable Yield</td>
<td>NA mgd</td>
</tr>
<tr>
<td>Well Name</td>
<td>EP 22 &amp; WELLS 1 TO 5</td>
</tr>
<tr>
<td>State Well No.</td>
<td>1900-02, 17 TO 20 &amp; 1901-03</td>
</tr>
</tbody>
</table>

PERMITTED USE INFORMATION

Reasonable beneficial use
GOLF COURSE IRRIGATION AND LAKE EVAPORATION

Withdrawal (12 month moving ave.)
0.301 mgd

Chloride Cap
1,000 mg/l

Location of water use
TMK #
9-1-10-6
Address
91-1200 FORT WEAVER RD.
State land use classification
AGRICULTURE
County zoning classification
AG

Pursuant to Hawaii's State Constitution, Article XI, Section 7, Hawaii Revised Statutes, Chapter 174C; Hawaii Administrative Rules, Chapters 13-167 through 13-171; and Hawaii decisional law and custom, the applicant is hereby authorized to use ground water from the sources and in the amount and from and upon the locations described above; subject however, to the requirements of law including but not limited to the following conditions:
1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with State and County general plans and land use designations;
   f. Is consistent with County land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).

4. The ground water use here must not interfere with surface or other ground water rights or reservations.

5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and submittal, as amended, approved by the Commission at its January 14, 1998 meeting are incorporated into this permit by reference.

8. Any modification of the permit terms, conditions, or uses may only be made with the express written consent of the Commission.

9. This permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. protect the water sources (quantity or quality);
   b. meet other legal obligations including other correlative rights;
   c. insure adequate conservation measures;
   d. require efficiency of water uses;
   e. reserve water for future uses, provided that all legal existing uses of water as of June, 1987 shall be protected;
   f. meet legal obligations to the Department of Hawaiian Home Lands, if applicable; or
   g. carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. An approved flowmeter(s) must be installed to measure monthly withdrawals and a monthly record of withdrawals, salinity, temperature, and pumping times must be kept and reported to the Commission on Water Resource Management on forms provided by the Commission on a monthly basis (attached).

12. This permit shall be subject to the Commission's periodic review of the PUULOA Aquifer System's sustainable yield. The amount of water authorized by this permit may be reduced by the Commission if the sustainable yield of the PUULOA Aquifer System, or relevant modified aquifer(s), is reduced.
13. A permit may be transferred, in whole or in part, from the permittee to another, if:
   a. The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
   b. The Commission is informed of the transfer within ninety days.

Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit. A transfer which involves a change in any condition of the permit, including a change in use covered in HRS § 174C-57, is also invalid and constitutes a ground for revocation.

14. The use(s) authorized by law and by this permit do not constitute ownership rights.

15. The permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee’s water use.

16. The permittee understands that under HRS § 174C-58(4), that partial or total nonuse, for reasons other than conservation, of the water allowed by this permit for a period of four (4) continuous years or more may result in a permanent revocation as to the amount of water not in use. The Commission and the permittee may enter into a written agreement that, for reasons satisfactory to the Commission, any period of nonuse may not apply towards the fourteen-year period. Any period of nonuse which is caused by a declaration of water shortage pursuant to section HRS § 174C-62 shall not apply towards the fourteen-year period of forfeiture.

17. The permittee shall prepare and submit a water shortage plan within 30 days of the issuance of this permit as required by HAR § 13-171-42(c). The permittee’s water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the PUULOA Ground Water Management Area.

18. The water use permit granted shall be an interim water use permit, pursuant to HAR § 13-167-3(6). The final determination of the water use quantity shall be made within five years of the filing of the application.

19. The water use permit shall be subject to the Commission’s establishment of instream standards and policies relating to the Stream Protection and Management (SPAM) program, as well as legislative mandates to protect stream resources.

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

21. The permittee understands that any willful violation of any of the above conditions or any provisions of HRS § 174C or HAR § 13-171 may result in the suspension or revocation of this permit.

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: Mr. Donn Takahashi, Hawaii Prince Hotel Waikiki Corp.
Mr. Garrick Iwamuro
Hawaii Prince Golf Club
91-1200 Fort Weaver Road
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Pump Installation Permit
Hawaii Prince No. 1 (Well No. 1901-03)

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. The permittee shall adhere to the chloride sampling protocol (attached) and the submittal of weekly chloride data.

The permittee, well operator, and/or well owner are responsible for all conditions of the permit. Be advised that you may be subject to fines of up to $1000 per day for any violations of your permit conditions starting from the permit approval date.

Please sign and have the contractor sign both permit originals and return one for our files. A copy of your water use report form is enclosed for your use.

Except for the monthly water use report form, please provide copies of all the information in this packet to your pump installation contractor.

Finally, this letter is notice that we have accepted your Well Completion Report Part II as complete as of August 3, 2000.

If you have any questions, please call Lenore Nakama of the Commission staff at 587-0218.

Aloha,

TIMOTHY E. JOHNS
Chairperson

Enclosure
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 Hawaii Prince No. 1 (Well No. 1901-03) at Ewa, Oahu, TMK 9-1-10:6, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

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

2. The pump installation permit shall be for installation of a 290 gpm capacity, or less, pump in the well.

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

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

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

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

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

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

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

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

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

Date of Approval: August 3, 2000
Expiration Date: August 3, 2002

TIMOTHY E. JOHNS, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the pump installer have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee's Signature: [Signature]
Firm or Title: [Title]

Installer's Signature: [Signature]
Firm or Title: [Title]

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

Attachments
- USGS
  Department of Health's Safe Drinking Water & Wastewater Branch
  Honolulu Board of Water Supply
Mr. Garrick Iwamuro
Hawaii Prince Golf Club
91-1200 Fort Weaver Road
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Pump Installation Permit
Hawaii Prince No. 2 (Well No. 1900-17)

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. The permittee shall adhere to the chloride sampling protocol (attached) and the submittal of weekly chloride data.

The permittee, well operator, and/or well owner are responsible for all conditions of the permit. Be advised that you may be subject to fines of up to $1000 per day for any violations of your permit conditions starting from the permit approval date.

Please sign and have the contractor sign both permit originals and return one for our files. A copy of your water use report form is enclosed for your use.

Except for the monthly water use report form, please provide copies of all the information in this packet to your pump installation contractor.

Finally, this letter is notice that we have accepted your Well Completion Report Part II as complete as of August 3, 2000.

If you have any questions, please call Lenore Nakama of the Commission staff at 587-0218.

Aloha,

TIMOTHY E. JOHNS
Chairperson

Enclosure
PUMP INSTALLATION PERMIT
Hawaii Prince No. 2, Well No. 1900-17

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 Hawaii Prince No. 2 (Well No. 1900-17) at Ewa, Oahu, TMK 9-1-10:6, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson to the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work covered by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules.
2. The pump installation permit shall be for installation of a 300 gpm capacity, or less, pump in the well.
3. The permittee, well operator, and/or well owner shall provide and maintain an approved meter or other appropriate means for measuring and reporting withdrawals and water levels, and appropriate devices or means for measuring chlorides and temperature. These data shall be measured monthly and reported to the Commission on weekly basis, on forms provided by the Chairperson (attached).
4. The proposed use shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to pump water from a well shall not constitute a determination of correlative water rights. The permittee, well operator, and/or well owner are notified and by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.
5. The permittee, well operator, and/or well owner shall complete and submit as-built drawings and Part II - (Permanant) Pump Installation Report of the Well Completion Report (attached) to the Chairperson within sixty (60) days after completion of work.
6. The permittee, well operator, and/or well owner shall comply with all applicable laws, rules, and ordinances, and non-compliance may be grounds for revocation of this permit.
7. The pump installation permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97). If the HWCPS is not followed and as a consequence water is wasted or contaminated, a lien on the property may result.
8. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the pump installation permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee, well operator, and/or well owner notice of the proposed action and an opportunity to be heard.
9. If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee, well operator, and/or well owner must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.
10. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit.
11. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: August 3, 2000
Expiration Date: August 3, 2002
TIMOTHY E. JOHNS, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the pump installer have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee's Signature: [Signature]
Printed Name: [Printed Name]
Firm or Title: [Firm or Title]
Date: [Date]

Installer's Signature: [Signature]
Printed Name: [Printed Name]
Firm or Title: [Firm or Title]
Date: [Date]

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

Attachments

USGS
Department of Health/ Safe Drinking Water & Wastewater Branch
Honolulu Board of Water Supply
Mr. Garrick Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Road  
Ewa Beach, HI 96706  

Dear Mr. Iwamuro:

Notice of Expiration  
Well Construction Permits to Modify Well Nos. 1901-03 & 1900-17

From your August 3, 2000 telephone conversation with Commission on Water Resource Management staff, we understand that no work was performed under the subject permits, which expired on August 14, 1998. Accordingly, the permits have been cancelled as of the permit expiration date.

If you wish to proceed with the well modifications in the future, please visit our website at www.state.hi.us/dlnr/cwrm to download the most updated application form.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

LINNEL T. NISHIOKA  
Deputy Director
Mr. Garrick Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Road  
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Pump Installation Permit  
Hawaii Prince No. 1 (Well No. 1901-03)

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. The permittee shall adhere to the chloride sampling protocol (attached) and the submittal of weekly chloride data.

The permittee, well operator, and/or well owner are responsible for all conditions of the permit. Be advised that you may be subject to fines of up to $1000 per day for any violations of your permit conditions starting from the permit approval date.

Please sign and have the contractor sign both permit originals and return one for our files. A copy of your water use report form is enclosed for your use.

Except for the monthly water use report form, please provide copies of all the information in this packet to your pump installation contractor.

Finally, this letter is notice that we have accepted your Well Completion Report Part II as complete as of August 3, 2000.

If you have any questions, please call Lenore Nakama of the Commission staff at 587-0218.

Aloha,

TIMOTHY E. JOHNS  
Chairperson

Enclosure
PUMP INSTALLATION PERMIT  
Hawaii Prince No. 1, Well No. 1901-03

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 Hawaii Prince No. 1 (Well No. 1901-03) at Ewa, Oahu, TMK 9-1-10:6, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

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

2. The pump installation permit shall be for installation of a 290 gpm capacity, or less, pump in the well.

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

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

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

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

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

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

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

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

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

Date of Approval: August 3, 2000  
Expiration Date: August 3, 2002  
TIMOTHY E. JOHNS, Chairperson  
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the pump installer have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee's Signature: ___________________________ Date: ___________

Printed Name: ___________________________ Firm or Title: ___________________________

Installer's Signature: ___________________________ C-57, C-57a, or A License #: ___________

Date: ___________

Printed Name: ___________________________ Firm or Title: ___________________________

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

Attachments  
USGS  
Department of Health/ Safe Drinking Water & Wastewater Branch  
Honolulu Board of Water Supply
Mr. Garrick Iwamuro
Hawaii Prince Golf Club
91-1200 Fort Weaver Road
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Pump Installation Permit
Hawaii Prince No. 2 (Well No. 1900-17)

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. The permittee shall adhere to the chloride sampling protocol (attached) and the submittal of weekly chloride data.

The permittee, well operator, and/or well owner are responsible for all conditions of the permit. Be advised that you may be subject to fines of up to $1000 per day for any violations of your permit conditions starting from the permit approval date.

Please sign and have the contractor sign both permit originals and return one for our files. A copy of your water use report form is enclosed for your use.

Except for the monthly water use report form, please provide copies of all the information in this packet to your pump installation contractor.

Finally, this letter is notice that we have accepted your Well Completion Report Part II as complete as of August 3, 2000.

If you have any questions, please call Lenore Nakama of the Commission staff at 587-0218.

Aloha,

TIMOTHY E. JOHNS
Chairperson

Enclosure
PUMP INSTALLATION PERMIT
Hawaii Prince No. 2, Well No. 1900-17

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 Hawaii Prince No. 2 (Well No. 1900-17) at Ewa, Oahu, TMK 9-1-10:6, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

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

2. The pump installation permit shall be for installation of a 300 gpm capacity, or less, pump in the well.

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

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

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

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

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

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

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

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

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

Date of Approval: August 3, 2000
Expiration Date: August 3, 2002

TIMOTHY E. JOHNS, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the pump installer have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

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

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

C-57, C-57a, or A License #: ____________________________

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

Attachments

USGS
Department of Health/ Safe Drinking Water & Wastewater Branch
Honolulu Board of Water Supply
**PART II: PERMANENT PUMP INSTALLATION REPORT**

20. Pump Installation Company: **MEL'S WATER WORKS, INC.**
21. Name of person who performed work: **MEL LIMA**
22. Date Pump Installation Completed: **7-16-97**
23. PUMP INSTALLATION

<table>
<thead>
<tr>
<th>Pump Type, Make, Serial No.:</th>
<th>Capacity: 300 gpm</th>
</tr>
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<tbody>
<tr>
<td><strong>GRUNDFOS 3008753</strong></td>
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<tr>
<td>Motor type, H.P., Voltage, rpm:</td>
<td>SHREWSBURY FRANK, 7½ H.P., 460 V, 3450 RPM</td>
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<tr>
<td>Depth of Pump Intake Setting</td>
<td>22.7 ft. below o well bench mark</td>
</tr>
<tr>
<td>Depth to bottom of aquifer</td>
<td>NO G. ft. below o ground o well bench mark</td>
</tr>
<tr>
<td>Pumping Head</td>
<td>60 ft. Type of flow meter: <strong>Propeller</strong></td>
</tr>
</tbody>
</table>

24. As-built drawings attached?: **No**
25. Other remarks/comments: (see below)

---

**Pump Installation Contractor (print):** **MEL'S WATER WORKS**
**Lic. No.:** **G-1798**
**Signature:**
**Date:** **AUGUST 1, 2000**

**Applicant (print):** **GARRICK K. IWAKURO**
**Signature:**
**Date:**

---

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

<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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19. & 25. Remarks: **1900-17 HAWAII PRINCE WELL 2**
**WELL COMPLETION REPORT**

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

**WELL COMPLETION REPORT**

**Instructions:** Please print in ink or type and send completed well completion report (with attachments, if applicable) to the Commission on Water Resource Management, P.O. Box 821, Honolulu, Hawaii 96809. The Commission may not accept incomplete reports. For assistance, call the Regulation Branch at 587-6225. For updates to this form or additional information, please visit our website at [http://www.hawaii.gov/dlnr/dwm/dwm.html](http://www.hawaii.gov/dlnr/dwm/dwm.html)

1. **State Well No.:** 1900-17  
2. **Well Name:** HAWAII PRINCE WELL 12  
3. **Island:** OAHU  
4. **Location/Address:** 91-1200 FORT WEAVER RD., ENA BEACH  
5. **Tax Map Key:** 9-1-10-7

<table>
<thead>
<tr>
<th>3. Drilling Company:</th>
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<tbody>
<tr>
<td>4. Name of driller who performed work</td>
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<tr>
<td>5. Type of rig/construction:</td>
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<tr>
<td>6. Date(s) Well Construction and pump tests (if any) completed:</td>
<td></td>
</tr>
</tbody>
</table>
| 7. GROUND ELEVATION (referenced to mean sea level, msl): | _ft.
| Well Bench Mark (description/location): |  
| Elevation (msl): | _ft.  |
| 8. DRILLER'S LOG: Please attach geologic log (if available or required by permit) |  |
| Depths (ft.) | Rock Description, Water Level, Dates, etc. | Depth (ft.) | Rock Description, Water Level, Dates, etc. |
| 9. Total depth of well below ground: | _ft.  |
| 10. Hole size: | inch dia. from ft. to ft. below ground |
| 11. Casing installed: | in. I.D. x in. wall solid section to ft. below ground |
| 12. Annulus: | Grouted from ft. below ground to ft. below ground |
| 13. Initial water level: | ft. below ground. |
| 14. Initial chloride: | ppm |
| 15. Initial temperature: | °F |
| 16. PUMPING TESTS: Reference Point (R.P.) used: | which elevation is _ft.  |
| 17. Pump Test Procedures data and graphs (12/17/97 SDPTD & CRPTD Forms) attached? | Yes No |
| 18. As-built drawings attached? | Yes No |
| 19. Other remarks/comments: (on back of this form) |  |

<table>
<thead>
<tr>
<th>Well Drilling Contractor (print):</th>
<th></th>
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<tbody>
<tr>
<td>Surveyor (print):</td>
<td></td>
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<tr>
<td>Applicant (print):</td>
<td></td>
</tr>
</tbody>
</table>
HAWAII PRINCE WELL #2

G.L.

22.7'
250'
26.5'
20.0'
PUMP INSTALLATION

Pump Type, Make, Serial No.: GRUNDGES 375875-1
Capacity: 290 gpm
Motor type, H.P., Voltage, rpm: SUBMERSIBLE PUMP, 3/4 HP, 460V, 3450 RPM
Depth of Pump Intake Setting: 24.5 ft. below ground, 4 ft. well bench mark
Depth to bottom of well: 30 ft. below ground, 1 ft. well bench mark
Pumping Head is: 50 ft. Type of flow meter: PROPELLER

Pump Installation Contractor (print): MEL'S WATER WORKS, INC.
Signature: [Signature]
C-57 Lic. No: C-1798
Date: AUGUST 1, 2000

Applicant (print): GARRETT A. INAMURO
Signature: [Signature]
Date: 8/3/00

DRILLER'S LOG (cont'd):

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Rock Description, Water Level, Dates, etc.</th>
<th>Depth (ft.)</th>
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Remarks: 1901-03 HAWAII PRINCE WELL 1
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

WELL COMPLETION REPORT

Instructions: Please print in ink or type and send completed well completion report (with attachments, if applicable) to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96806. The Commission may not accept incomplete reports. For assistance, call the Regulation Branch at 587-0225. For updates to this form or additional information, please visit our website at http://www.hawaii.gov/dlnr/dwm/wrm.html

1. State Well No.: 1901-03 Well Name: HAWAII PRINCE GCV
2. Location/Address: 91-1300 FORT WERTH, KAILUA KONA, HAWAII
3. Drilling Company:
4. Name of driller who performed work:
5. Type of construction:
6. Date(s) Well Construction and pump tests (if any) completed:
7. GROUND ELEVATION (reference to mean sea level, msl): ______ ft.
   Well Bench Mark (description/location): Elevation (msl): ______ ft.
8. DRILLER'S LOG: Please attach geologic log (if available or required by permit)

<table>
<thead>
<tr>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, Dates, etc.</th>
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</thead>
<tbody>
<tr>
<td>_______ to _______</td>
<td>_______ to _______</td>
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<tr>
<td>(if more space is needed, continue on back)</td>
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</table>

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: _______ Date and time of measurement: _______
16. PUMPING TESTS: Reference Point (R.P.) used: _______, which elevation is _______ ft.
   (1) Step Drawdown Test Date _______
   Start water level _______ ft. below R.P.
   End water level _______ ft. below R.P.
   (2) Long Term Aquifer Test Date _______
   Start water level _______ ft. below R.P.
   End water level _______ ft. below R.P.
17. Pump Test Procedures data and graphs (12/17/97 SDPTD & CRPTD Forms) 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. _______ Date _______
Signature _______ Date _______
Surveyor (print) _______ Lic. No. _______ Date _______
Signature _______ Date _______
Applicant (print) _______ Date _______
Signature _______ Date _______

WGR Form 7/23/98
HAWAII PRINCE WEL#1
11-29-96
TO: Lenore Nakama, CWRM
FROM: Garrick Iwamuro, Director of Golf Operations
Phone: (808) 689-2260 Fax: (808) 689-4445
E-mail: giwamuro@hiprince.com
DATE: August 3, 2000
# of Pages: 7, including cover sheet
RE: Well Completion Report

Aloha Lenore!

Please see the attached well completion report.

If you have any questions, please don’t hesitate to call me at 689-2260.

Mahalo!

Garrick Iwamuro
Director of Golf Operations

Attachments
August 22, 1996

Mr. Mike Wilson
Chairperson
State of Hawaii
Department of Land & Natural Resources
Commission on Water Resource Management
P.O. Box 621
Honolulu, Hawaii 96809

RE: WELL CONSTRUCTION PERMITS
WELL NO. 1901-03 and 1900-17

Mr. Wilson:

Thank you for sending well construction permits for Hawaii Prince Wells #1 and #2. As requested, I have returned a signed set for your records.

Please feel free to call me if you have any questions. Thank you again.

Sincerely,

Garrick K. Iwamuro
Director of Golf Operations

Enclosures
WELL CONSTRUCTION PERMIT
Hawaii Prince No. 1 Well, Well No. 1901-03

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 Hawaii Prince No. 1 Well (Well No. 1901-03) at Ewa, Oahu, TMK 9-1-10:6, subject to the following conditions:

STANDARD PERMIT CONDITIONS:

1. The Commission on Water Resource Management, P.O. Box 621, Honolulu, HI 96808, 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 14, 1998

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: [Name]

Firm or Title: [Title]

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

cc: USGS
Department of Health/ Safe Drinking Water & Wastewater Branches
Honolulu Board of Water Supply
WELL CONSTRUCTION PERMIT

Hawaii Prince No. 2 Well, Well No. 1900-17

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 Hawaii Prince No. 2 Well (Well No. 1900-17) at Ewa, Oahu, TMK 9-1-10-6, subject to the following conditions:

STANDARD PERMIT CONDITIONS

1. The Commission on Water Resource Management, 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.

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   c. As-built sectional drawing of the well.
   d. Plot plan and map showing the exact location of the well.
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7. The permittee shall comply with all applicable laws, rules, and ordinances.

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

Date of Approval: August 14, 1996
Expiration Date: August 14, 1998

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: [Printed Name]
Firm or Title: [Firm or Title]

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

cc: USGS
Department of Health/ Safe Drinking Water & Wastewater Branches
Honolulu Board of Water Supply

M I C H A E L  D. W I L S O N , C h a i r p e r s o n
Commission on Water Resource Management
Mr. Garrick Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Road  
Ewa Beach, Hawaii 96706  

Dear Mr. Iwamuro:

Well Construction Permit  
Hawaii Prince No. 2 (Well No. 1900-17)

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**

- b. The long term continuous test shall be run a minimum of 72 hours. No step-drawdown test is required.
- c. The permittee is hereby informed, and agrees as a condition of this permit, that the issuance of the drilling permit shall in no way prejudice any future consideration by the Commission on the issuance or non-issuance of a water use permit.

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.

The Commission has authorized the Chairperson to approve and issue a pump installation permit upon acceptance of aquifer pumping test results.

If you have any questions, please call Rae M. Loui, Deputy Director, at 587-0214.

Aloha,

MICHAEL D. WILSON  
Chairperson

Enclosures
**WELL CONSTRUCTION PERMIT**

**Hawaii Prince No. 2 Well, Well No. 1900-17**

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 Hawaii Prince No. 2 Well (Well No. 1900-17) at Ewa, Oahu 8-1-10/6, subject to the following conditions:

**STANDARD PERMIT CONDITIONS**

1. The Commission on Water Resource Management, 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 14, 1998

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

**Attachment**

cc: USGS
Department of Health/ Safe Drinking Water & Wastewater Branches
Honolulu Board of Water Supply
Mr. Garrick Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Road  
Ewa Beach, Hawaii 96706  

Dear Mr. Iwamuro:

Well Construction Permit  
Hawaii Prince No. 1 (Well No. 1901-03)  

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**


b. The long term continuous test shall be run a minimum of 72 hours. No step-drawdown test is required.

c. The permittee is hereby informed, and agrees as a condition of this permit, that the issuance of the drilling permit shall in no way prejudice any future consideration by the Commission on the issuance or non-issuance of a water use permit.

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.

The Commission has authorized the Chairperson to approve and issue a pump installation permit upon acceptance of aquifer pumping test results.

If you have any questions, please call Rae M. Loui, Deputy Director, at 587-0214.

Aloha,

MICHAEL D. WILSON  
Chairperson

Enclosures
WELL CONSTRUCTION PERMIT

Hawaii Prince No. 1 Well, Well No. 1901-03

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 Hawaii Prince No. 1 Well (Well No. 1901-03) at Ewa, Oahu, TMK 9-1-6, subject to the following conditions:

STANDARD PERMIT CONDITIONS

1. The Commission on Water Resource Management, 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 submital 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 14, 1998

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.

Attachment
cc: USGS
Department of Health/ Safe Drinking Water & Wastewater Branches
Honolulu Board of Water Supply
9. Prior to construction, the applicant shall submit photo documentation of the existing Philip Street bridge to the State Historic Preservation Division. The quality of the photo documentation shall be acceptable to the State Historic Preservation Division.

TESTIMONY BY APPLICANT:

Ms. Laura Mau, Consultant for the applicant, was available for questions.

MOTION: (NOBRIGA/RICHARDS)

To approve staff’s recommendation.

UNANIMOUSLY APPROVED.

Vice Chairperson Cox called for a short recess at 12:15 p.m.

The meeting was reconvened at 12:25 p.m.

10. HAWAII PRINCE GOLF CLUB, APPLICATION FOR WELL PERMITS, HAWAII PRINCE NOS, 1 & 2 (WELL NOS, 1901-03 & 1900-17). WELL MODIFICATION: DEEPEN TWO (2) EXISTING WELLS BY 5 FEET TO TOTAL DEPTHS OF 30 FEET: PUMP INSTALLATION: REPLACEMENT OF TWO (2) EXISTING 210 GPM PUMPS WITH 300 GPM PUMPS, EWA, OAHU (TMK: 9-1-10:6)

PRESENTATION OF SUBMITTAL: Ms. Lenore Nakama

STAFF RECOMMENDATION:

Staff recommends that the Commission:

1. Approve the issuance of well modification permits for Hawaii Prince Nos. 1 & 2 Wells (Well Nos. 1901-03 & 1900-17), subject to the standard well construction permit conditions in Attachment A, and the following special conditions:


   b. The long term continuous test shall be run a minimum of 72 hours. No step-drawdown test is required.

   c. The applicant is hereby informed, and agrees as a condition of these permits, that the issuance of the drilling permit shall in no way prejudice any future consideration by the commission on the issuance or non-issuance of a water use permit.

2. Authorize the Chairperson to approve and issue pump installation permits upon acceptance of aquifer pumping test results required in Standard Condition 6.e., subject to the standard permit conditions in Attachment B.
STAFF SUBMITTAL
for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT
August 14, 1996
Honolulu, Oahu

Hawaii Prince Golf Club
APPLICATION FOR WELL PERMITS
Hawaii Prince Nos. 1 & 2 (Well Nos. 1901-03 & 1900-17)
Well Modification: Deepen Two (2) Existing Wells by 5 feet to Total Depths of 30 feet
Pump Installation: Replacement of Two (2) Existing 210 gpm pumps with 300 gpm pumps

TMK 9-1-10:6 Ewa, Oahu

APPLICANT:
Hawaii Prince Golf Club
91-1200 Fort Weaver Road
Ewa Beach, HI 96706

LANDOWNER:
Hawaii Prince Hotel Waikiki Corp.
100 Holomoana St.
Honolulu, HI 96815

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

BACKGROUND:
Two (2) applications for combined well construction/pump installation permits were accepted as complete on June 6, 1996.

WATER AVAILABILITY:
Puuloa Area of the Ewa Caprock Aquifer System
Estimated Sustainable Yield: 5 mgd
Current Actual Use (12-MAV as of 5/96): 2.836 mgd

ISSUES/ANALYSIS:
Agency Review: The application was published in the Commission's Water Resource Bulletin in July, 1996. Review letters were sent to the Department of Health's Safe Drinking Water and Wastewater Branches. No comments or concerns were raised.

Staff Review: The applications are to deepen the existing wells by 5 feet to total depths of 30 feet and to replace the existing 210 gpm pumps with new 300 gpm pumps. The wells tap brackish water in the Ewa Caprock Aquifer and are currently used in battery with four (4) other wells (Well Nos. 1900-02 & 1900-18 to 20) for the Hawaii Prince Golf Course irrigation supply.
The proposed work will allow the applicant to withdraw greater quantities of water from the two (2) wells, which consistently have the lowest chlorides among the six (6) wells presently being used for irrigation. Rising chlorides in the Hawaii Prince wells appear to be a localized problem. The staff does not anticipate any adverse impacts to other surrounding wells under present caprock pumping conditions.

The battery of wells were awarded a permanent water use permit for 0.9 mgd in 1989; a request for additional allocation is pending. Standard Condition 5 and Special Condition 1.c. address the concern regarding reliance on a water use permit.

RECOMMENDATION:

Staff recommends that the Commission:

1. Approve the issuance of well modification permits for Hawaii Prince Nos. 1 & 2 Wells (Well Nos. 1901-03 & 1900-17), subject to the standard well construction permit conditions in Attachment A, and the following special conditions:
   b. The long term continuous test shall be run a minimum of 72 hours. No step-drawdown test is required.
   c. The applicant is hereby informed, and agrees as a condition of these permits, that the issuance of the drilling permit shall in no way prejudice any future consideration by the commission on the issuance or non-issuance of a water use permit.

2. Authorize the Chairperson to approve and issue pump installation permits upon acceptance of aquifer pumping test results required in Standard Condition 6.e., subject to the standard permit conditions in Attachment B.

Respectfully submitted,

[Signature]
RAE M. LOUI
Deputy Director

Attachment(s):
A (Standard Well Construction Permit Conditions)
B (Standard Pump Installation Permit Conditions)

Exhibit(s):
1 (Location Map)
2 (Proposed Well Section)

APPROVED FOR SUBMITTAL:

[Signature]
MICHAEL D. WILSON, Chairperson
STANDARD WELL CONSTRUCTION PERMIT CONDITIONS

1. The Commission on Water Resource Management, 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.

ATTACHMENT A
STANDARD PUMP INSTALLATION PERMIT CONDITIONS

1. The Commission on Water Resource Management, 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.

2. The pump installation permit shall be for installation of a 300 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, 1998 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 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.

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.

ATTACHMENT B
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.
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.
LONG-TERM AQUIFER TEST DATA

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Water level measurements by:  
- [ ] steel tape  
- [ ] pressure transducer  
- [ ] airline

START TEST  
Date: ___________  
Hour of day: ___________

Flow Meter Reading Start: __________ gals

| Suggested elapsed time (min) | Actual elapsed time (min) | Depth to water (nearest 0.01 ft) | Drawdown (unadjusted to nearest 0.01 ft) | Pumping rate Q (gpm) | EC (umhos) | Cl (mg/l) | Temp. °F or °C | Data in this table is for:  
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<td>Depth to water (nearest 0.01 ft)</td>
<td>Drawdown (s) (unadjusted to nearest 0.01 ft)</td>
<td>Pumping rate (Q) (gpm)</td>
<td>EC ((\mu)hos)</td>
<td>(\text{Cl}^-) (mg/l)</td>
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Use same ending drawdown figure as start for recovery

Max possible duration, water level or quality did not stabilize for any 24 period

Begin recovery data next page

Flow meter reading at end of pumped period: ____________ gals
<table>
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<tr>
<th>Suggested elapsed time (min)</th>
<th>Actual elapsed time (min)</th>
<th>Depth to water (nearest 0.01 ft)</th>
<th>Recovery (unadjusted to nearest 0.01 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (microhoes)</th>
<th>Cl⁻ (mg/l)</th>
<th>Temp. _° F  or _° C</th>
<th>Data in this table is for:</th>
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Start recovery

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
1. State Well No.: 1901-03  Well Name: Hawaii Prince No. 1  Island: Oahu
2. Location/Address: Ewa, Oahu  Tax Map Key: 9-1-10:6

PART I.

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): __________ ft.  
   Well Bench Mark (description/location): __________ ft.  
   Elevation(msl): __________ ft.
8. DRILLER'S LOG: Please attach geologic log (if available or if required by permit) 
   Depths (ft.) Rock Description, Water Level, Dates, etc. 
   ________________________________ to __________ ft. Rock Description, Water Level, Dates, etc. 
   ________________________________ to __________ ft. Rock Description, Water Level, Dates, etc. 
   ________________________________ to __________ ft. Rock Description, Water Level, Dates, etc. 
   ________________________________ to __________ ft. Rock Description, Water Level, Dates, etc. 
   (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. 
   (1) Step-Drawdown Test Date __________  
      Start water level __________ ft. below R.P.  
      End water level __________ ft. below R.P. 
   (2) Long-term Aquifer Test Date __________  
      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 __________________
# (PERMANENT) PUMP INSTALLATION REPORT

## PART II

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>
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<td>Applicant (print)</td>
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8. (cont'd) DRILLER'S LOG (cont'd):

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<th>Water Level Dates</th>
<th>Depth (ft.)</th>
<th>Rock Description, Remarks,</th>
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<th>Depth (ft.)</th>
<th>Rock Description, Remarks,</th>
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19. & 25. Remarks:

____________________________________________________________________

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____________________________________________________________________
## WELL COMPLETION REPORT

### PART I. WELL CONSTRUCTION REPORT

1. **State Well No.:** 1900-17  
   **Well Name:** Hawaii Prince No. 2  
   **Island:** Oahu  
   **Location/Address:** Ewa, Oahu  
   **Tax Map Key:** 9-1-10:6

2. **Drilling Company:**  
   **Name of driller who performed work:**  
   **Type of rig/construction:**

3. **Date(s) Well Construction and pump tests (if any) completed:**

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

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

<table>
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<tr>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, Dates, etc.</th>
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6. **Total depth of well below ground:** __________ ft.

7. **Hole size:**  
   **Casing installed:** __________ in. I.D. x __________ in. wall solid section to __________ ft. below ground  
   **Casing Material/Slot Size:**

8. **Initial water level:** __________ ft. below ground  
   **Initial chloride:** __________ ppm  
   **Initial temperature:** __________ °F

9. **PUMPING TESTS:** Reference Point (R.P.) used: __________, which elevation is __________ ft.

<table>
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<tr>
<th>Step-Drawdown Test Date</th>
<th>Long-term Aquifer Test Date</th>
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<tr>
<td>Start water level __________ ft. below R.P.</td>
<td>Start water level __________ ft. below R.P.</td>
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<tr>
<td>End water level __________ ft. below R.P.</td>
<td>End water level __________ ft. below R.P.</td>
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</table>

10. **Aquifer Pump Test Procedures data & graphs (18/96 LTAT Form) attached?** Yes No

11. **As-built drawings attached?** Yes No

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

### WELL DRILLING CONTRACTOR

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<th>C-57 Lic. No.</th>
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</table>
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 __________.

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):

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19. & 25. Remarks:

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State of Hawaii  
Department of Land and Natural Resources  
COMMISSION ON WATER RESOURCE MANAGEMENT  

MONTHLY GROUND WATER USE REPORT FOR  

HAWAII PRINCE GOLF CLUB  
91-1200 FORT WEAVER ROAD  
EWA BEACH, HI 96706  

Month of ________ , 19_  

Date Measurement(s) Taken  
__/__/19__  
(Month / Day / Year)  

INSTRUCTIONS: Please TYPE OR PRINT CLEARLY. Complete this form to report total monthly ground water use, and, if required, other information from each of your well sources. Mail to: Commission on Water Resource Management, P.O. Box 621, Honolulu HI 96809. For assistance, please call 587-0265 (Oahu only) or 1-800-488-4644 (neighbor islands).  

<table>
<thead>
<tr>
<th>State Well No.</th>
<th>Well Name</th>
<th>Quantity Pumped (gallons)</th>
<th>Method of Measurement</th>
<th>Chloride (mg/l)</th>
<th>Temp. (°F)</th>
<th>Water Level (ft. above mean)</th>
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</thead>
<tbody>
<tr>
<td>1900-02</td>
<td>EP 22</td>
<td></td>
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<tr>
<td>1901-03</td>
<td>WELL 1</td>
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<tr>
<td>1900-17</td>
<td>WELL 2</td>
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<td></td>
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<td></td>
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<tr>
<td>1900-18</td>
<td>WELL 3</td>
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<tr>
<td>1900-19</td>
<td>WELL 4</td>
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<td>1900-29</td>
<td>WELL 5</td>
<td></td>
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</tr>
</tbody>
</table>

Other comments or additional information:  

Submitted by (print) ___________________________ Title ___________________________  
Signature ___________________________ Date ___________________________
9. PROPOSED WELL SECTION

Elevation at top of casing: 21 ft., msl.

Cement Grout: 4 ft.

Rock Packing: None.

Hole Diameter: 24 in.

Total Depth: 25 ft.

Ground Elevation: 20 ft., msl.

Solid Casing:
- Material: PVC
- Length: 17 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.

Casing: Perforated
- Material: PVC
- Length: 8 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.
- Openings: 134.4 sq. in. A.F.

Open Hole:
- Length: 5 (To Be Added) ft.
- Diameter: 13 in.

EXHIBIT 2

*Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted.
Mr. Garrick K. Iwamuro  
Hawaii Prince Golf Club  
91-1200 Ft. Weaver Road  
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Thank you for submitting the items and documents requested in our letter of May 29, 1996. We have reviewed the information and hereby acknowledge that the conditions of the well construction and pump installation permits for Well Nos. 1900-02, 17 to 20 & 1901-03 have been met.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI  
Deputy Director

LN:ss
Lenore:

Please find enclosed Well As-Builts and Pump Installation As-Builts as discussed. Please advise if the enclosed items are ok. Call me at 689-2260 if you have any questions or would like to discuss in more detail. Thank you.

Transmitting from Hawaii Prince Golf Club Administrative Office (808) 689-4445. If you experience any difficulties in transmission, please call (808) 689-2211.

Hawaii Prince Golf Club is a Division of the Hawaii Prince Hotel Waikiki
91-1200 Fort Weaver Road, Ewa Beach, Hawaii 96706
FACSIMILE TRANSMITTAL

DATE: 7/18/96

TO: Myers Corp.

FROM: Tracy Runnels

RE: Gold Course Wells

Wells 172 250 feet deep
Wells 3445 250 feet deep
Otherwise, wells are identical.

Called the Water Commission to be sure
of what they wanted.

Pretty simple

Tracy

Post-it® brand fax transmittal memo 7671

To: STACEY TAMADA
Co: Makani Prince G.C.
Phone: 687-9445
Fax: 687-9445

From: Joe Metcalfe
Co: Myers Corp.
Phone: 521-9400
Fax: 521-9439
Hawaii Prince Golf Course well 1

9. PROPOSED WELL SECTION AS BUILT

Well NO. 1901-02

Elevation at top of casing 22.9 ft. msl

Ground Elevation: 22 ft. msl

Cement Grill: 5 ft.

Rock Packing: N/A

Main Diameter: 24 in.

Total Depth: 26 ft.

Gauge Casing:

Material: PVC
Length: 25 ft.
Diameter: 24 in.
Wall Thickness: 56 ga.

Casing: 0 Screen 5/613

Material: PVC
Length: 25 ft.
Diameter: 24 in.
Wall Thickness: 56 ga.

Open Hole:

Material: N/A
Length: N/A
Diameter: N/A

*Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/abandonment reports.
Hawaii Prince Golf Course well 1

3. PROPOSED WELL SECTION No. BUILT

Well No. 1900-17

Elevation at top of casing
22.0 ft. msl.

Ground Elevation: 22.0 ft. msl

Cement Grout: 5 ft.

Rock Packing: NA

Hole Diameter: 24 in.

Total Depth: 26 ft.

B last Casing:
- Material: PVC
- Length: 24 ft.
- Diameter: 12 in.
- Wall thickness: .50 in.

Casing:
- Perforated: No
- Screen: 50 ft.

Material: PVC
- Length: 24 ft.
- Diameter: 12 in.
- Wall thickness: .50 in.
- Openings: NA in.

Open Hole:
- Length: NA
- Diameter: NA

*Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.
**Hawaii Prince Golf Course Well #3**

**PROPOSED WELL SECTION**

**As Built**

**WELL No. 1900-18**

- **Elevation at top of casing**
  - 20 feet, msl.

- **Cement Grout**
  - 5 feet

- **Rock Packing**
  - N/A

- **Hole Diameter**
  - 24 inches

- **Total Depth**
  - 25 feet

**Well Completion**

- **Casing**
  - Material: PVC
  - Length: 20 feet
  - Diameter: 15 inches
  - Wall thickness: 5/16 inches

- **Perforated**
  - Material: PVC
  - Length: 20 feet
  - Diameter: 15 inches
  - Well clearance: 5/16
  - Openings: 3/16

- **Screen**
  - Material: 5/16

**Ground Elevation**

- 20.9 feet, msl.

---

*Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.*
Hawaii Prince Golf Course Well No. 1900-19

**S. Proposed Well Section**

**Well No.: 1900-19**

- **Elevation at top of casing:** 200 ft. msl
- **Cement Grout:** 5 ft.
- **Reactor Packing:** **NA**
- **Hole Diameter:** 24 in.
- **Total Depth:** 25 ft.

- **Solid Casing:**
  - **Material:** **C**
  - **Length:** 25 ft.
  - **Diameter:** 15 in.
  - **Well完备:** 1.50 in.

- **Casing:**
  - **Perforated:** **X**
  - **Screen:** 5.0 ft.
  - **Material:** **C**
  - **Length:** 25 ft.
  - **Diameter:** 15 in.
  - **Well完备:** 1.50 in.
  - **Openings:** 125 sq. in. A.F.

- **Open Hole:**
  - **Length:** **NA**
  - **Diameter:** **NA**

*Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.*
Hawaii Prince Golf Course Well #5

9. PROPOSED WELL SECTION

Well No. 1900-20

Elevation at top of casing: 20 ft. msl.

Cement Crawl: S ft.

Rock Packing: N/A ft.

Hole Diameter: 24 in.

Total Depth: 25 ft.

20.2

Ground Elevation: 20 ft. msl.

SOD Casings:

Material: PVC
Length: 15 ft. 0 in.
Diameter: 1 5/8 in.
Wall thickness: 0.10 in.

Casing:

1. Perforated
2. Screen

Material: PVC
Length: 8 ft.
Diameter: 15 5/8 in.
Wall thickness: 0.30 in.
Openings: 18 in. sq. in.

Open Hole:

Length
Diameter

*Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/well abandonment report.
TO: Honorable Lawrence Miike, Director  
Department of Health  
Attention: Dennis Tulang, Wastewater Branch  
William Wong, Safe Drinking Water Branch

FROM: Michael D. Wilson, Chairperson  
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Applications for  
Hawaii Prince Well Nos. 1 & 2 (Well Nos. 1901-03 & 1900-17)

Transmitted for your review and comment are copies of well construction/pump installation permit applications.

We would appreciate your comments on the captioned applications for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by July 25, 1996.

Please find a map, attached, to locate the proposed wells. If you have any questions about these permit applications, request additional information, or request additional review time, please contact Lenore Nakama at 587-0218.

Contact Person: Lori N. Kajiwara  
Phone: 586-4294

Signed: Lori N. Kajiwara  
Date: 7-10-96
TO: Honorable Lawrence Miike, Director
Department of Health
Attention: Dennis Tulang, Wastewater Branch
William Wong, Safe Drinking Water Branch

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Applications for
Hawaii Prince Well Nos. 1 & 2 (Well Nos. 1901-03 & 1900-17)

Transmitted for your review and comment are copies of well construction/pump
installation permit applications.

We would appreciate your comments on the captioned applications for any conflicts
or inconsistencies with the programs, plans, and objectives specific to your department.
Please respond by returning this cover memo form by July 25, 1996.

Please find a map, attached, to locate the proposed wells. If you have any questions
about these permit applications, request additional information, or request additional review
time, please contact Lenore Nakama at 587-0218.

RESPONSE: ( ) We have no comments
( ) Comments attached

Contact Person: Bill Wong
Phone: 586-4258

Signed: Bill Wong
Date: 7/2/96
Mr. Garrick Iwamuro  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
Ewa Beach, HI 96706  

Dear Mr. Iwamuro:  

Permit Applications for  
Hawaii Prince Well Nos. 1 & 2 (Well Nos. 1901-03 & 1900-17)  

We accepted your well construction/pump installation permit applications for the captioned wells and hereby acknowledge that they are complete. We are planning to submit these applications for Commission action concurrently with your pending water use permit applications; tentatively, at the Commission's regular meeting of August 14, 1996.

If you have any questions about your applications, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI  
Deputy Director  

LN:ss
TO: Honorable Lawrence Miike, Director  
Department of Health  
Attention: Dennis Tulang, Wastewater Branch  
William Wong, Safe Drinking Water Branch

FROM: Michael D. Wilson, Chairperson  
Commission on Water Resources Management

SUBJECT: Well Construction/Pump Installation Permit Applications for  
Hawaii Prince Well Nos. 1 & 2 (Well Nos. 1901-03 & 1900-17)

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We would appreciate your comments on the captioned applications for any conflicts  
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Please respond by returning this cover memo form by July 25, 1996.

Please find a map, attached, to locate the proposed wells. If you have any questions  
about these permit applications, request additional information, or request additional review  
time, please contact Lenore Nakama at 587-0218.

LN:ss  
Attachment(s)

RESPONSE: ( ) We have no comments  
( ) Comments attached

Contact Person: _________________________ Phone: _________________________

Signed: _________________________ Date: _________________________
### DEPARTMENT OF LAND AND NATURAL RESOURCES

**UAC OR ATTACHED WORKSHEET**

**DATE:** 6/25/96

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**TOTAL:** 25.00

**REMARKS:**
- LINE (1) Well No. 1900-17, 1901-03 (WCA/PIPA)
- LINE (2)
- LINE (3)
- LINE (4)

---

### Hawaii Prince Hotel, Waikiki

Hawaii Prince Hotel, 100 Holomoana Street, Honolulu, Hawaii 96815
Telephone: (808) 956-1111

---

### DEPT. OF LAND & RESOURCES

**FILING FEE/PERMIT FOR WELLS.**

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<th>INVOICE NO.</th>
<th>INVOICE DATE</th>
<th>INVOICE AMT.</th>
<th>DISCOUNT AMT.</th>
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**HAWAII PRINCE HOTEL**

 Waikiki Branch
First Hawaiian Bank
HONOLULU, HAWAII 96815

**VOID AFTER 90 DAYS**

**DATE:** 6/13/96

**CHECK NO.:** 47082

***TWENTY FIVE AND 00/100 DOLLARS***

**DEPT. OF LAND & NATURAL RESOURCES**

**COMMISSION ON WATER RESOURCE MANAGEMENT**

**STATE OF HAWAII**

**P.O. BOX 621**

**HONOLULU, HI. 96809**
June 4, 1996

Mr. Michael Wilson
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

RE: WELL MODIFICATION AND PUMP REPLACEMENT APPLICATIONS FOR
WELL 1901-03 AND 1900-17 IN THE HAWAII PRINCE GOLF COURSE
EWAPACROCK AQUIFER, PUULOA AQUIFER SYSTEM

Dear Mr. Wilson:

Enclosed, please find well modification and pump replacement applications and filing fees for Wells 1 and 2 (State Nos. 1901-03 and 1900-17, respectively) at the Hawaii Prince Golf Course. At present, both wells terminate approximately five feet into water and are outfitted with 210 GPM (nominal capacity) pumps. Our applications seek approval to deepen both wells by up to 5 feet and install pumps of approximately 300 GPM capacity.

Beginning in March of this year, Hawaii Prince Golf Club began weekly monitoring of chlorides in all six irrigation wells. The resulting chloride levels have been used to prioritize operation of the wells to produce the lowest aggregate salinity levels possible. Use of EP22 (State No. 1900-02), which has the highest chloride concentration, has been generally limited to one day each week, primarily to obtain a representative water sample. Enclosed with this letter are graphs of the weekly chloride levels and daily pumpage of each of the wells. Chlorides in Well 1 and 2 have consistently been in the range of 800 to 900 MG/L. This is 400 to 500 MG/L less than in Wells 4, 5 and EP 22 and 200 to 300 MG/L lower than Well 3. The proposed well modifications and pump replacement are aimed at taking full advantage of the better quality water available from these two wells. With these changes, Well 1 and 2 would provide a greater share of the golf course's total pumpage, enabling the weighted average chloride concentration of the irrigation supply to be lowered. In turn, this would allow us to minimize usage of EP 22 and the higher salinity water it produces.
With increased irrigation requirements through the hot summer months, we respectfully request expedited processing of our permit applications so that we can implement these changes as soon as possible. Thank you for your consideration.

Sincerely,

Garrick K. Iwamuro
Director of Golf Operations

GI/sy
Enclosures
cc: William Mielcke, Mauna Kea Properties
    Akemi Kurokawa, Seibu Inc.
    Ted McAneeley, Hawaii Prince Hotel Waikiki
    Douglas Ing, Watanabe Ing & Kawashima
    Tom Nance, Tom Nance Water Resource Engineering
1. APPLICANT: (circle primary contact a, b, or c) 
   (a) WELL OWNER 
   Firm/Name: Hawaii Prince Golf Club 
   Contact Person: Garrick Iwamuro 
   Address: 91-1200 Fort Weaver Road 
   Ewa Beach, Hawaii 96706
   (b) LANDOWNER 
   Firm/Name: Hawaii Prince Hotel Waikiki Corp. 
   Contact Person: Akemi Kurokawa 
   Address: 100 Holomopana Street 
   Honolulu, Hawaii 96815
   (c) CONTRACTOR 
   Firm/Name: (TO BE DETERMINED) 
   Contact Person: 
   Address: 

2. WELL LOCATION/NAMESPACE: Hawaii Prince Well No. 1 (1901-03) 
   Island: Oahu 
   Address: 91-1200 Fort Weaver Road, Ewa Beach 
   Tax Map Key: 9-1-10-6 
   (Attach a USGS map, scale 1"=2000', and a property tax map showing well location referenced to established property boundaries.)

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

4. PROPOSED PUMP INFORMATION: 
   Rated Pump Capacity: 300 gallons per minute 
   Pump Type: 
   □ Deep Well Turbine 
   □ Rotary 
   □ Propeller 
   □ Submersible 
   □ Rotary-Displacement 
   □ Reciprocating 
   □ Centrifugal 
   □ Rotary-Gear 
   □ Impulse 
   Motor: 
   □ Diesel 
   □ Gas 
   □ Electric, rated horsepower: 7.5 
   (If Pump Replacement, Existing Pump Capacity: 210± gallons per minute)

5. PROPOSED USE: 
   □ Municipal (including hotels, stores, etc.) 
   □ Domestic (individual, noncommercial water sys.) 
   □ Industrial 
   □ Irrigation (crop) 
   □ Other (explain) 
   □ Golf Course Irrigation 

6. (a) PROPOSED AMOUNT OF WITHDRAWAL: 400,000± gallons per day 
   (b) METHOD OF FLOW MEASUREMENT: 
   □ Flow-meter 
   □ Orifice Plate 
   □ Weir 

7. PENDING ACTIONS: 
   □ CDUA 
   □ SMA 
   □ EIS 
   □ EA 
   □ NONE 
   □ Other (explain) 
   Completion Date: **Not Applicable**

8. REMARKS, EXPLANATIONS: 
   Well Nos. 1 and 2 consistently have the lowest chlorides among the six wells presently in use for golf course irrigation. Both wells will be deepened by five feet (they were originally drilled 5 feet into water) and
   (If more space is needed, continue on back)

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

Hawaii Prince Golf Club Hawaii Prince Hotel Waikiki Corp. 
Well Owner 
Landowner 
Contractor 

Signature 
Date 
Signature 
Date 
Signature 
Date 

For Official Use Only: 
Date Received 
Date Accepted 
Field Checked By 
Date 
Longitude 
Aquifer System Name 
Latitude 
State Well No. 

*TELEPHONE CONFIRMATION 
4/6/96
8. Remarks, Explanations (cont'd): the 5 HP, 210 GPM pumps will be replaced by 7.5 HP, 300 GPM pumps.

9. PROPOSED WELL SECTION

Elevation at top of casing: 21 ft., msl.

Cement Grout: 4 ft.

Rock Packing: None

Hole Diameter: 24 in.

Total Depth: 25 ft.

Ground Elevation: 20 ft., msl

Solid Casing:
- Material: PVC
- Length: 17 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.

Casing: □ Perforated □ Screen
- Material: PVC
- Length: 8 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.
- Openings: 134.4 sq. in./F.

Open Hole:
- Length: 5 (To Be Added) ft.
- Diameter: 13 in.

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

State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

APPLICATION FOR PERMIT

96-16
5-28-96

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 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 808-692-5225.

1. APPLICANT: (circle primary contact a, b, or c) Primary Fax: 689-4445
(a) WELL OWNER

Firm Name Hawaii Prince Golf Club
Contact Person Garrick Iwamuro Ph. 689-2200
Address 91-1200 Fort Weaver Road
Ewa Beach, Hawaii 96706

(b) LANDOWNER

Firm Name Hawaii Prince Hotel Waikiki Corp.
Contact Person Akemi Kurokawa Ph. 944-4480
Address 100 Holomouma Street
Honolulu, Hawaii 96815

(c) CONTRACTOR

Firm Name (TO BE DETERMINED) Ph: Contractor’s C-57 License No.
Contact Person
Address

2. WELL LOCATION/NAME: Hawaii Prince Well No. 2 (1900-17). Island Oahu
Address 91-1200 Fort Weaver Road, Ewa Beach Tax Map Key 9-1-10:6

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

3. (a) PROPOSED WORK: [ ] Drill New Well [ ] Deepen [ ] Install New Pump
[ ] Modify Existing Well [ ] Redrill [ ] Modify Pump
[ ] Abandon/Seal * [ ] Replace Pump

* Be sure to complete and submit well abandonment report upon completion of work.

(b) WELL TYPE:

[ ] Dug [ ] Bored [ ] Driven [ ] DvRed [ ] Radial

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

4. PROPOSED PUMP INFORMATION: Rated Pump Capacity: 300 gallons per minute

Motor: [ ] Diesel [ ] Gas

Pump Type: [ ] Deep Well Turbine [ ] Rotary [ ] Centrifugal
[ ] Submersible [ ] Propeller [ ] Rotary-Displacement
[ ] Reciprocating [ ] Frequency

If Pump Replacement, Existing Pump Capacity: 210± gallons per minute

5. PROPOSED USE: [ ] Domestic (individual, noncommercial water use)
[ ] Irrigation (crop)

[ ] Military [ ] Industrial [ ] Other (explain) Golf Course Irrigation

6. (a) PROPOSED AMOUNT OF WITHDRAWAL: 400,000± gallons per day

(b) METHOD OF FLOW MEASUREMENT: [ ] Flow-meter [ ] Open-pipe
[ ] Orifice Plate [ ] Weir

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

Completion Date: Not Applicable

8. REMARKS, EXPLANATIONS: Well Nos. 1 and 2 consistently have the lowest chlorides among the six wells presently in use for golf course irrigation. Both wells will be deepened by five feet (they were originally drilled 5 feet into water) and

(I more space is needed, continue on back)

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

Hawaii Prince Golf Club
Well Owner

Hawaii Prince Hotel Waikiki Corp.
Landowner

Contractor

Signature 1/30/96
Signature 1/30/96
Signature 1/30/96

Date 1/30/96
Date 1/30/96
Date 1/30/96

For Official Use Only:
Date Received __________________
Date Accepted __________________
Field Checked By __________________
Date __________________

* TELEPHONE COMMUNICATION WITH T. NANCE 1/30/96

© 2005 WCRL Form
8. Remarks, Explanations (cont'd): the 5 HP, 210 GPM pumps will be replaced by 7.5 HP, 300 GPM pumps.

9. PROPOSED WELL SECTION

Elevation at top of casing 21 ft., msl.

Cement Grout: 4 ft.

Rock Packing None

Hole Diameter: 24 in.

Total Depth 25 ft.

Ground Elevation: 20 ft., msl

Solid Casing:
- Material: PVC
- Length: 17 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.

Casing: □ Perforated □ Screen
- Material: PVC
- Length: 8 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.
- Openings: 134.4 sq. in. A.F.

Open Hole:
- Length: 5 (To Be Added) ft.
- Diameter: 13 in.

*Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.
Tom Name, Bernard Swainson
68, LW

1. Taking samples after pumping 24 hrs. since CS-4 by 9-500 ppm
2. Motors burning out because water in too small, probablyichjg
3. Danve & Moore Exp. No. 11474-010-11
4. Follow up WHP, Exp. 21.9 \to all air
5. Exp. 21.9 \to all air
6. Do first after work on
7. P.P.
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**TOTAL 50.00**

**REMARKS:**

**LINE (1)** Well No. 1900-02, 17 to 20 (WUPA)

**LINE (2)** Well No. 1901-03 (WUPA)

**LINE (3)**

**LINE (4)**

---

**HAWAII PRINCE HOTEL**

WAIKIKI

© PRINCE HOTELS

Hawaii Prince Hotel, 100 Holomoana Street, Honolulu, Hi 96815

Telephone: (808) 956-1111  Facsimile: (808) 944-4426

---

**WAIKIKI BRANCH**

FIRST HAWAIIAN BANK

HONOLULU, HAWAII 96815

58-101 1213 47007

VOID AFTER 90 DAYS

DATE CHECK NO.

6/06/96 47007

---

**AMOUNT 50.00**

DEPT. OF LAND & NATURAL RESOURCES

COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII

P.O. BOX 621

HONOLULU, HAWAII 96809

---

***FIFTY AND 00/100 DOLLARS***
Mr. Garrick K. Iwamuro  
Hawaii Prince Golf Club  
91-1200 Ft. Weaver Road  
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Please find enclosed your 35-page fax transmittal, which we are returning to you. With the exception of the well elevation information, the documents that you transmitted on May 14, 1996 are already included in our administrative record. With regard to the well elevation information, we request that you provide official documentation from a Hawaii-licensed surveyor.

We are still not in receipt of the following items and documents that are required under the terms of the well construction permit(s) that were approved by the Commission on Water Resource Management (Commission) for Well Nos. 1900-17 to 20 and/or requested in our letter of April 23, 1996:

1. Elevation (referenced to mean sea level) surveys by a Hawaii-licensed surveyor.
2. As-built sectional drawings of the wells (sample attached).
3. As-built sectional drawings of the pumps for Well Nos. 1900-17 to 20 and Well No. 1900-02 (sample attached).
4. Part II of the attached Well Completion Report for Well No. 1900-02.

Please submit the above items and documents as soon as possible. The Commission has directed staff to resolve violations prior to Commission action on requests for continued uses.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director

LN:ss

Attachments
Lenore:

Enclosed please find a copy of a letter received from George Yoshimura with elevations for well sites for Hawaii Prince Golf Club. The letter also shows that he is a licensed professional land surveyor.

Please feel free to call us directly at 689-2211 if you have any questions. Thank you.

Stacey
May 14, 1996

Garrick K. Iwamura
Director of Golf Operations
Hawaii Prince Golf Club
91-1200 Ft. Weaver Road
Ewa Beach, Hawaii 96706

Dear Garrick:

Subject: Establish Elevations on Well Sites, Hawaii Prince Golf Course

This is to certify that on May 14, 1996, the undersigned supervised a survey to establish elevations on the well sites located on the premises of Hawaii Prince Golf Club, 91-1200 Ft. Weaver Road, Ewa Beach, Oahu, Hawaii. The following are the elevations established by differential leveling from the City & County Street Survey Monument at the intersection of Hanalu and Hahamui Streets (elevation =19.27' MSL):

WELL NO. 1 (11901-03)——Ground Elevation = 22.9'
Benchmark = 22.99'

WELL NO. 2 (1900-17)——Ground Elevation = 22.0'
Benchmark = 22.70'

WELL NO. 3 (1900-18)——Ground Elevation = 20.9'
Benchmark = 20.96'

WELL NO. 4 (1900-19)——Ground Elevation = 20.1'
Benchmark = 20.01'

WELL NO. 5 (1900-20)——Ground Elevation = 20.7'
Benchmark = 20.93'

WELL NO. 22 (1900-02)——Ground Elevation = 30.2'
Benchmark = 30.18'

Thank you for the opportunity to do this project. If you have any questions on this matter, please call the undersigned at 533-4635.

Sincerely yours,

[Signature]

GEORGE S. YOSHIMURA
Professional Land Surveyor

[License Stamp]

TOTAL P.02
FILE CLOSED

4/28/96

SEE FOLDER 2
EWA GOLF COURSE IRR. WELLS 1 to 5
(1901-03, 1900-17 to 20)
Mr. Garrick K. Iwamuro  
Hawaii Prince Golf Club  
91-1200 Ft. Weaver Road  
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Our records show that we have not received the following items and documents that are required under the terms of the well construction permit(s) that were approved by the Commission on Water Resource Management (Commission) for Well Nos. 1900-17 to 20:

1. Elevation (referenced to mean sea level) surveys by a Hawaii-licensed surveyor.
2. As-built sectional drawings of the wells.

In addition, as-built sectional drawings of the pumps should be submitted for Well Nos. 1900-17 to 20 and Well No. 1900-02. Lastly, please complete and return Part II of the attached Well Completion Report for Well No. 1900-02.

We request that the above items and documents be submitted no later that May 15, 1996. Be aware that you may be considered in willful violation and subject to fines imposed by the Commission if we do not receive the items required under the terms of your permits by the May 15, 1996 deadline.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI  
Deputy Director

LN:ss

Attachment
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5/1 called Garrieh, told him Item is tentatively scheduled for action on 6/5/96, but to check the agenda (he's on mailing list).
April 16, 1996

Ms. Rae M. Loui, Deputy Director
Commission on Water Resource Management
Department of Land & Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

(WELLS NOS. 1900-01 and 1901-01)

Dear Ms. Loui:

Bert Hatton provided us with a copy of your March 28, 1996 letter to him regarding your recommendation to the Commission to revoke the permits for EP 20 and EP 24. As you are probably aware, these two Oahu Sugar Company wells are located on the Hawaii Prince Golf Course property. Since their respective water use permits are for agricultural use on properties outside the golf course, we have no objection to your recommendation to revoke these permits. We note, however, that we do not fully understand the legal or regulatory basis for the recommendation and cannot comment on that aspect of the letter.

In order to better distribute pumpage across our property and to achieve the best aggregate water quality possible, we do intend to install a moderate capacity pump in EP 24. We understand that water use and pump installation permits are required to do this. These permit applications will be submitted after they have been prepared. The request will not be for an increase in use beyond our current requests and authorization, but rather to simply add EP 24 as another location to pump from. Please provide us with notice and an opportunity to further comment when this matter is placed on the Commission's agenda.

Please call me at 689-2211 if you have any questions regarding this letter. Thank you.

Sincerely,

Garrick K. Iwamuro
Director of Golf Operations

cc: Bert Hatton

Hawaii Prince Golf Club, 91-1200 Ft. Weaver Road, Ewa Beach, Hawaii 96706 Telephone: (808) 944-4567 Facsimile: (808) 689-4445
MINUTES
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: April 15, 1996
TIME: 9:00 a.m.
PLACE: DLNR Board Room, 1st Floor
Kalanikukou Building

Chairperson Michael Wilson called the meeting of the Commission on Water Resource Management to order at 9:10 a.m.

The following were in attendance:

MEMBERS: Mr. Michael Wilson
Mr. Richard Cox
Dr. Lawrence Miike
Mr. Robert Girald
Mr. David Nobriga
Mr. Herbert Richards, Jr.

STAFF: Ms. Rae Loui
Mr. Roy Hardy
Mr. Charley Ice
Ms. Lyann Mizuno
Ms. Lenore Nakama
Ms. Janis Uwaine

COUNSEL: Mr. William Tam

OTHERS:
Douglas MacDougal
Ben Matsubara
Richard Montgomery
Kathleen Hoff
Yvonne Izu
Carol Wilcox

Dawn K. Wasson
Yukie Ohashi
Kay Muranaka
Garrick Iwamuro
Barry Usagawa
Stephen Kubota

Dr. Jim Anthony
Tom Nance
Harry Hida
Herb Lee, Jr.
Chester Lao

All written testimonies submitted at the meeting are filed in the Commission office and are available for review by interested parties. The items were not taken in the order posted on the agenda.

ITEM 1.

MINUTES OF THE MARCH 13, 1996 MEETING.

MOTION: (RICHARDS/NOBRIGA)
To approve the minutes.
UNANIMOUSLY APPROVED.
TESTIMONY BY APPLICANT:

Mr. Ben Matsubara, representing Pacific Atlas, Inc., testified that they are in agreement with the staff recommendation and intend to comply with them. He further stated that the applicant accepts full responsibility for what has occurred and have undertaken steps to ensure that all of the requirements are complied with and will be updating the Commission staff in regards to their progress.

TESTIMONIES:

Ms. Carol Wilcox, testified that there should be no excuses for overlooking permits that are required.

Mr. Stephen Kubota, a Kaneohe resident, testified that he is concerned about the potential impacts on the fishpond, which he felt is valuable to Kaneohe Bay.

Mr. Herb Lee, Consultant to Pacific Atlas, Inc. and President of Waikalua Fishpond Preservation Society, which was set up due to a condition agreement between the City and the community, and Pacific Atlas, Inc. to preserve the Waikalua Fishpond as part of the SMA and PRU agreement going back to September, 1994. He testified that the Society is comprised of people from the community and recently got their preservation plan approved by the Department of Land and Natural Resources and have been in the process of implementing it since then. Part of that plan is to eradicate all of the mangrove around the pond area. They are also looking into planting native Hawaiian coastal plants around the pond as well as in the golf course area.

Mr. Ben Matsubara informed the Commission that they are currently grassing the area to prevent erosion.

Deputy Director Rae Loui suggested that the staff go to the area and report back to the Commission at its next meeting on April 19, 1996.

MOTION: (COX/GIRALD)

To defer action for 30 days and have the applicant stop all work related to the permits but allow work necessary to control the erosion.

UNANIMOUSLY APPROVED AS AMENDED.

ITEM 10

REPORT ON PERMIT VIOLATIONS, APPLICANTS FOR NEW INTERIM WATER USE PERMITS, EWA CAPROCK, GROUND WATER MANAGEMENT AREA, OAHU

PRESENTATION OF REPORT: Ms. Lenore Nakama
Staff submitted a report as requested by the Commission during the March 13, 1996 meeting.

No action was required on this item.

ITEM 10. OTHER BUSINESS

None.

ADJOURNMENT: Chairperson Wilson adjourned the meeting at 2:52 p.m.

Respectfully submitted,

JANIS F. UWAINE
Secretary

APPROVED AS SUBMITTED:

RAE M. LOUI
Deputy Director
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

April 15, 1996
Honolulu, Oahu

REPORT ON PERMIT VIOLATIONS
Applicants for New Interim Water Use Permits
Ewa Caprock Ground Water Management Area, Oahu

APPLICANT(S):

(Well Nos. 1905-08, 10)
The Estate of James Campbell
1001 Kamokila Blvd.
Kapolei, HI 96707

(Well Nos. 2003-04, 07)
State of Hawaii,
Housing Finance & Development Corp.
7 Waterfront Plaza, Suite 300
500 Ala Moana Blvd.
Honolulu, HI 96813

(Well Nos. 1900-02, 17 to 20 & 1901-03)
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

(Well Nos. 2001-03, 04, 05, 09, 10, 11)
Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809

(Well No. 2001-07)
The Arbors Association
91-920 La'a'ulu St., #1G
Ewa Beach, HI 96706

LANDOWNER(S):

Same
Same
Same
Same
Same
BACKGROUND:

On March 13, 1996, the Commission on Water Resource Management (Commission) deferred action on all pending requests to continue uses in the Ewa Caprock and directed the staff to submit a report describing permit violations in the Ewa Caprock. The Commission also directed staff to resolve the violations prior to Commission action on the requests for new interim water use permits.

A summary of the permit violations is shown in Table 1.
### Table 1. Summary of Permit Violations

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<th>WATER USE</th>
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* Not a clear condition of the permit
** After-the-fact application for a pump installation permit received 3/13/96.

**WCR**  Well Completion Report
**ELEV**  Elevation (referenced to mean sea level, msl) survey by a Hawaii-licensed surveyor.
**AS-BUILT**  As-built sectional drawing of the well
**PUMP TEST**  Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other water quality data.
**PCR**  (Permanent) Pump Installation Completion Report
**AS-BUILT**  As-built sectional drawing of the permanent pump installation
**WUR**  Water Use Report
**OVER PUMPAGE**  12-month moving average withdrawals in excess of allocation
WELL CONSTRUCTION/PUMP INSTALLATION PERMIT VIOLATIONS:

The asterisk (*) denotes items that were not clear conditions of the permit, but are needed by the staff to carry out resource assessment and analytical work. In most cases, the lack of clarity resulted from the issuance of combined well construction/pump installation permits, which did not specifically require pump completion reports and as-built sectional drawings of the pump installation. The staff has addressed this problem by developing a new procedure for combined well construction/pump installation permits applications, whereby the staff will recommend that the Commission approve the issuance of the well construction permit and delegate to the Chairperson the authority to approve the issuance of the pump installation permit upon the Commission's receipt of adequate pump test results and any other items that were required under the terms of the well construction permit.

Table 1 shows a number of wells under "Gentry Development" that have been transferred to individual homeowner's associations. However, Gentry was the entity in control of the well at the time that the construction violations occurred and thus should be responsible for seeking after-the-fact permits and/or compliance with well/pump permit conditions. A similar condition exists for wells listed under "State HFDC", where three (3) of the wells have been transferred to Kapolei Peoples, Inc.

WATER USE REPORTING:

The frequency of reporting water data for Well No. 2001-03 is inconsistent. As of April 3, 1996, the staff is not in receipt of any reports for 1996. Section 13-168-7(b) HAR requires the owner or operator of any well to file a report "...on a regular monthly (calendar or work schedule) basis to the commission on forms provided by the commission on or before the end of the month following the month for which water usage is to be reported."

At present, water data are being reported for Well No. 2001-05 on a regular basis; however, as of April 3, 1996, a report for January 1996 has not been submitted, and there are no reports for March-June 1995.

Reports for Well No. 2002-12 are inadequate, i.e., for the January 1996 report, the beginning of the period for which the amount is reported is unknown. In addition, when withdrawals are zero, monthly reports should still be submitted with the "Date Measurement(s) Taken" field filled in. A sample of the Commission's official report form is shown in Exhibit 1.

OVERPUMPAGE:

Table 1 also shows that withdrawals at the Hawaii Prince wells (Well Nos. 1900-02, 17 to 20 & 1901-03) and two Gentry-developed wells (Well Nos. 2001-05 and 2001-08) are in excess of the respective allocations. The graphs of reported monthly water use and computed 12-month moving averages are shown in Exhibits 2 to 4. The water use permit for Well No. 2001-08 has been transferred to Palm Villa II Homeowners Association. The current water use permittees should be held responsible for any violations related to usage and water use reporting.
An issue is whether the overpumpage should be viewed as an indication of underestimated water needs or whether enforcement action is more appropriate. The Commission has been approving interim permits for new uses pending verification of the actual quantity of water needed. Section 174C-50(g) provides "[i]n the final determination, the Commission may increase or reduce the amount initially granted the permittee".

With regard to pumpage at the Hawaii Prince wells, the extent to which the withdrawals have exceeded the allocation is not certain. Hawaii Prince has been estimating their water use on the basis of pumping times and pump capacities. The pump in EP 22 (Well No. 1900-02), Hawaii Prince’s major pumping source, is a very old OSCo pump that is most likely running at less than 100% efficiency. Therefore, reported estimated pumpage is probably greater than actual pumpage. The installation of flowmeters in each of the Hawaii Prince wells was completed on February 29, 1996. A review of actual water use in relation to the allocation should be done in light of metered pumpage data.

SUMMARY/CONCLUSION:

Letters have been sent to each of the entities listed in Table 1, notifying them of their lack of compliance with permit conditions and requesting the submittal of other items and documents that are needed by the Commission but were not clear conditions of the permit. The letters establish a May 15, 1996 deadline for compliance.

The requests for continued uses will be resubmitted for Commission action once all violations have been resolved and following the public hearing to modify the Water Resources and Protection Plan to include the Ewa Caprock as a hydrologic unit and to establish a sustainable yield for the caprock aquifer system. We are planning to hold the public hearing in July 1996.

Respectfully submitted,

[Signature]
 Rae M. Loui
Deputy Director

Exhibit(s):
1 (Monthly Water Use Report Form)
2 (Graph of Monthly Water Use for Well No. 2001-05)
3 (Graph of Monthly Water Use for Well No. 2001-08)
4 (Graph of Monthly Water Use for Well Nos. 1900-02, 17 to 20 & 1901-03)

APPROVED FOR SUBMITTAL:

[Signature]
MICHAEL D. WILSON, Chairperson
State of Hawaii  
Department of Land and Natural Resources  
COMMISSION ON WATER RESOURCE MANAGEMENT

MONTHLY GROUNDWATER USE REPORT FOR  
GENTRY DEVELOPMENT CORP.  
P.O. BOX 295  
HONOLULU, HI 96809

Month of ________, 19__

Date Measurement(s) Taken  
/ /  
(Month / Day / Year )

INSTRUCTIONS: Please TYPE OR PRINT CLEARLY. Complete this form to report total monthly groundwater use, and, if required, other information from each of your well sources. Mail to: Commission on Water Resource Management, P.O. Box 621, Honolulu HI 96809. For assistance, please call 587-0265 (Oahu only) or 1-800-468-4644 (neighbor islands).

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Other comments or additional information:

Submitted by (print) ___________________________  
Signature ___________________________  
Date ___________________________

EXHIBIT I
Exhibit 2

Ewa By Gentry Community Association
Soda Creek III (Well No. 2001-05)

Graph showing pumpage (mgd) and Cl (mg/l) from Jan 95 to Jan 96 with latest data as of 02/96.

- Monthly values
- WUP
- Cl (mg/l)
- 12-MAV
Hawaii Prince G.C. Combined Pumpage
(Well Nos. 1900-02, 17 to 20; 1901-03)

EXHIBIT 4

- 12-MAV
- WUP
- combined monthly withdrawal
MINUTES
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: March 13, 1996
TIME: 9:00 a.m.
PLACE: Honolulu Int'l Airport
        Interisland Terminal Conference Center, 7th Floor

Chairperson Michael Wilson called the meeting of the Commission on Water Resource Management to order at 9:15 a.m.

The following were in attendance:

MEMBERS: Mr. Michael Wilson
          Mr. Richard Cox
          Dr. Lawrence Miike
          Mr. Robert Girald
          Mr. David Nobriga
          Mr. Herbert Richards, Jr.

STAFF: Ms. Rae Loui
       Mr. Roy Hardy
       Mr. Glenn Bauer
       Mr. Charley Ice

COUNSEL: Mr. William Tam

OTHERS:

Alan Suwa  Yvonne Izu  Garrick Iwamuro
James Kumagai  Kathleen Hoff  E.A. Ho'oipo Martin
Piikea Miller  Lola N. Mench  Yukie Y. Ohashi
Bob Nakata  Stephen Thomas  Tom Nance
Ryan Imata  Raymond Kanna

All written testimonies submitted at the meeting are filed in the Commission office and are available for review by interested parties. The items were not taken in the order posted on the agenda.

1. MINUTES OF THE FEBRUARY 21, 1996 MEETING

MOTION: (NOBRIGA/RICHARDS)

To approve the minutes.

UNANIMOUSLY APPROVED.

2. OLD BUSINESS/ANNOUNCEMENTS

Deputy Director Rae Loui announced that there would be a hearing on Friday, March 15, 1996 on Maui regarding the following:
ORDER TO SHOW CAUSE TO THE COUNTY OF MAUI WHY:

1. A WATER EMERGENCY SHOULD NOT BE DECLARED FOR THE IAO AQUIFER SYSTEM

2. THE ACTIONS NECESSARY TO MEET THE EMERGENCY SHOULD NOT BE ORDERED

3. REQUEST TO SCHEDULE A PUBLIC HEARING TO MODIFY WATER RESOURCES AND PROTECTION PLAN, SUSTAINABLE YIELD ESTIMATE FOR EWA CAPROCK AQUIFER SYSTEM

GENTRY DEVELOPMENT COMPANY, APPLICATION FOR A WATER USE PERMIT, APPLICATION FOR WELL PERMITS, GENTRY AREA 26 WELL (WELL NO. 2001-11), WELL CONSTRUCTION: 19-INCH DIAMETER, 58-FOOT DEEP WELL, PUMP INSTALLATION: 500 GPM PUMP, WATER USE: FUTURE NONPOTABLE URBAN USE FOR 0.172 MGD

APPLICATIONS FOR WATER USE PERMITS, REQUESTS TO CONTINUE NONPOTABLE URBAN USES, EWA GROUND WATER MANAGEMENT AREA, OAHU

(WELL NOS. 1905-08,10), THE ESTATE OF JAMES CAMPBELL

(WELL NOS. 2003-01,02,04,05,07), STATE OF HAWAII, HOUSING FINANCE & DEVELOPMENT CORP.

(WELL NOS. 1900-02,17 TO 20 & 1901-03), HAWAII PRINCE GOLF CLUB

(WELL NOS. 2001-03,04,05,09,10,11 & 2002-15), GENTRY DEVELOPMENT CO.

(WELL NO. 2001-07), THE ARBORS ASSOCIATION

(WELL NO. 2001-08), PALM VILLAS II ASSOCIATION

(WELL NO. 2002-12), PALM COURT ASSOCIATION

(WELL NO. 1902-01), HASEKO (EWA), INC.

PRESENTATION OF SUBMITTAL: Deputy Director Rae Loui and Glenn Bauer

STAFF'S RECOMMENDATION:

Staff requested to amend the recommendation as follows:

1. The Commission directs staff to submit the preliminary draft report for a peer review and to finalize the report in light of any review comments that may be received. The final report should include recommendations on further delineation of aquifer systems within the Ewa Caprock Aquifer and the possible adoption of a sustainable yield estimate(s).
2. The Commission authorizes staff to schedule a public hearing to modify the Water Resources and Protection Plan in accordance with HRS 174C-31(m). This hearing must be held on Oahu and must be noticed at least 90 days in advance. Permittees shall be mailed a copy of the notice.

3. The Commission directs staff to notify existing water use permittees and applicants for new water uses in the Ewa Caprock Aquifer System that the applications for continued or future use will be deferred for a period of approximately six (6) months until a decision is made on the possible establishment of a sustainable yield estimate in the Water Resources Protection Plan.

4. Direct staff to resolve violations prior to Commission action on requests for continued uses.

5. The Commission adopts the following policy statement on water reclamation:

   It is the policy of the Commission on Water Resource Management (Commission) to promote the viable and appropriate reuse of reclaimed water in so far as it does not compromise beneficial uses of existing water resources.

   I. Ewa Caprock

   Recognizing that reclaimed water is a valuable resource in the Ewa Plain and reuse will be championed by the Commission. It is the policy of the Commission that the water resources of the Ewa Caprock Aquifer will be allocated only for nonpotable uses.

TESTIMONIES:

James Kumagai, consultant for the Commission on Water Resource Management was available to answer questions.

Deputy Director Rae Loui stated that a report on the progress of the recharge trench would be submitted to the Commission at the next Oahu Commission meeting.

MOTION: (COX/GIRALD)

To approve staff's recommendation as amended.

UNANIMOUSLY APPROVED AS AMENDED.

Chairperson Wilson directed Deputy Director Rae Loui to send a letter informing the Ewa caprock users that there may not be enough water to go around at a certain time and to stress to the users that it is important for them to work with the City and County and also to indicate to the City and County that we are anxious to help them in working with the users. In the event that the users and the City and County cannot work together to come up with a solution, then the Commission will have to step in and institute a solution.

The Commission requested staff to submit a report on the permit violations in the Ewa Caprock.
The Commission also requested a report on current allocations and potential pumpages in the caprock.

**4. PACIFIC ATLAS (HAWAII) INC., DEFERRAL-APPLICATION FOR A WATER USE PERMIT, BAY VIEW NOS. 1 TO 5 WELLS (WELL NOS. 2447-02 TO 06), TMK 4-5-30:37, FUTURE IRRIGATION USE FOR 0.208 MGD, KOOLAUPOKO GROUND WATER MANAGEMENT AREA, OAHU**

**PRESENTATION OF SUBMITTAL: Ms. Lyann Mizuno**

Staff amended the second paragraph under the Background section of the submittal as follows:

> On October 5, 1995, pump installation permit applications were received from Pacific Atlas (Hawaii), Inc. for Bay View Nos. 1 to 5 (Well Nos. 2447-02 to 06).

**STAFF’S RECOMMENDATION:**

Staff recommended that the Commission:

1. Defer action on the water use permit application for Bay View Nos. 1 to 5 (Well Nos. 2447-02 to 06) until the next regular meeting on Oahu.

2. Direct staff to report to the Commission on the applicant's compliance with the well construction permit conditions, along with recommendations on the imposition of fines, if any. This report shall be submitted prior to recommendations for Commission action on the applications for the pump installation permits, the after-the-fact stream channel alteration permit, and the water use permit.

**TESTIMONY BY APPLICANT:**

Mr. Tom Nance, project engineer, stated that they pumped each of the wells for just two days. There is an effect on the other wells that is noticeable and in that time period they did not see any affect on the stream. He also stated that there may be one over a longer period of time, although he does not think it will happen but he is willing to run more tests. He further stated that these are very small capacity wells with a cost of around $15,000 each and a seven day pump test would double their cost. He requested that they put the permanent pumps in the wells and pump them simultaneously, which is how they would be operated, and run the aquifer test in that manner. They would pump three of the five wells over a seven day period, producing a little more than the water use permit that they are asking for and they would monitor all the wells, including the two that weren't pumped. They would also monitor several locations on Kawa Stream and would get all the information that they would need. He further testified that the grassing begins next week. The only source of water that they have is a temporary connection to the Board of Water Supply and they received notice that they need to get off. He asked that the Commission consider allowing the permanent pumps to be installed for testing and grassing. Therefore, he requested that the Commission allow them to go ahead and
STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

March 13, 1996
Honolulu, Oahu

REQUEST TO SCHEDULE A PUBLIC HEARING
TO MODIFY WATER RESOURCES AND PROTECTION PLAN
Sustainable Yield Estimate for
Ewa Caprock Aquifer System

Gentry Development Company
APPLICATION FOR A WATER USE PERMIT
APPLICATION FOR WELL PERMITS
Gentry Area 26 Well (Well No. 2001-11)
Well Construction: 19-inch Diameter, 58-foot Deep Well
Pump Installation: 500 gpm Pump
Water Use: Future Nonpotable Urban Use for 0.172 mgd

APPLICATIONS FOR WATER USE PERMITS
Requests to Continue Nonpotable Urban Uses
Ewa Ground Water Management Area, Oahu

APPLICANT(S):

(Well Nos. 1905-08,10)
The Estate of James Campbell
1001 Kamokila Blvd.
Kapolei, HI 96707

(Well Nos. 2003-01,02,04,05,07)
State of Hawaii,
Housing Finance & Development Corp.
7 Waterfront Plaza, Suite 300
500 Ala Moana Blvd.
Honolulu, HI 96813

LANDOWNER(S):

Same

Same

Item 3
Staff Submittal March 13, 1996

(Well Nos. 1900-02,17 to 20 & 1901-03)
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

(Well Nos. 2001-03,04,05,09,10,11 & 2002-15)
Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809

(Well No. 2001-07)
The Arbors Association
91-920 L'a'aulu St., #1G
Ewa Beach, HI 96706

(Well No. 2001-08)
Palm Villas II Association
91-1119 Mikohu St., #D
Ewa Beach, HI 96706

(Well No. 2002-12)
Palm Court Association
91-1019 Puaniu St., #25R
Ewa Beach, HI 96706

(Well No. 1902-01)
Haseko (Ewa), Inc.
820 Mililani St., Suite 810
Honolulu, HI 96813

BACKGROUND:

In 1990, the Commission on Water Resource Management (Commission) adopted the Water Resources and Protection Plan (Plan). The Plan included, as required by HRS 174C-31(c), "hydrologic units and their characteristics, including the quantity and quality of available resource...". The Plan did not include the brackish Ewa Caprock Aquifer as a hydrologic unit (Exhibit 1).

In the 1988-1992 timeframe, Ewa Caprock water use permits totalling 19.524 million gallons per day (mgd) were awarded mainly to existing irrigation uses (eg. Oahu Sugar Co.). Other existing water use permits totaled 39.608 mgd for various salt water and highly brackish to saline water uses (chlorides > 1,000 MG/L).
On March 3, 1993, the Commission officially adopted the boundary of the entire brackish Ewa Caprock Aquifer and designated the aquifer as a water management area (Exhibit 1). Due to uncertainties regarding the aquifer's sustainable yield, the Commission did not adopt a sustainable yield estimate for the aquifer.

On March 17, 1993, the Commission deferred action on pending applications for water use permits in the Ewa Caprock Aquifer to provide additional time for the public to review the proposed permits and issues related to water use permit processing.

On April 28, 1993, to satisfy the needs of new developments in the Kapolei and Puuloa areas of the caprock, applicants were awarded interim water use permits with a specified duration of one year. Special conditions were attached to each interim permit; these are shown in Exhibit 2.

On May 18, 1994, the Commission deferred action on requests for new interim permits to continue nonpotable urban uses to provide applicants with an additional thirty (30) days to comply with the data reporting requirement of the expired interim permits. In order for the Commission to track the behavior and response of aquifers in designated ground water management areas, all water use permits are conditioned on regular monthly reporting of pumpage, chlorides, water levels, and water temperatures. Water use reporting is required from all ground and surface water users statewide in accordance with §13-168-7 HAR.

On July 13, 1994, the Commission awarded new interim permits, valid for one year, for the above sources (excluding Well Nos. 2001-10 & 11). The special conditions of the new interim permits are shown in Exhibit 3.

On January 25, 1995, an interim water use permit was issued to Gentry Development Corp. for a new source to supply the Ewa by Gentry developments (Well No. 2001-10). The duration of this permit was for less than one year to be consistent with all other interim permits set to expire on July 13, 1995.

At the July 5, 1995 Commission meeting at Honokaa, Hawaii, the Commission voted to extend the duration of the interim permits that were due to expire on July 13, 1995, to allow decision-making on these requests to be made on Oahu. Requests for new water use permits to continue ground water uses after the July 12, 1995 expiration date have been received from each of the above applicants. Hawaii Prince has requested that their interim permitted use be increased by 0.371 mgd to bring their total interim allocation to 0.5 mgd.

On August 25, 1995, Gentry Development Company submitted applications for new well construction/pump installation and water use permits for Gentry Area 26 Well (Well No. 2001-11) for future nonpotable urban use for 171,600 gpd. At the January 24, 1996 Commission meeting in Wailuku, Maui, action on the water use permit application was deferred to the Commission's next regular meeting on Oahu.
On February 21, 1996, the Commission approved the staff's recommendation to again defer action on the applications for Well No. 2001-11 pending the staff's review and analysis of ground water conditions in the Ewa Caprock Aquifer.

**ANALYTICAL WORK:**

The Ewa Caprock Aquifer is currently undergoing a period of change in response to the large-scale modifications in land and water use as sugarcane is replaced by urban developments. There has been much effort involved in modelling the behavior of the caprock aquifer. In an effort to better understand the existing and historical data upon which assessments of Ewa Caprock Aquifer dynamics are based, the available historical data from basal and caprock wells that were used for sugarcane irrigation supply were compiled and analyzed by staff. In addition, the staff has established a monitoring network and has been collecting ground water data at Oahu Sugar Company (OSCo) and private wells since April 1994. The primary purpose of sampling is to provide baseline data that can measure changes to the caprock aquifer over time.

A preliminary draft report of this analysis is submitted herewith as Exhibit 4. The major preliminary conclusions drawn in the draft report include recommendations for:

1. A sustainable yield of less than 10 mgd in the Puuloa area and less than 5 mgd in the Kapolei area. (Exhibits 5 and 6 show the current allocations and pending requests for ground water in the Puuloa and Kapolei areas.)

2. Reduction in permitted uses, unless there is a drastic change to the inflow of ground water to the caprock.

3. Adoption of a "go slow" approach to new wells in the Puuloa region.

4. Further division of the caprock into smaller management areas.

**WATER USE PERMITS:**

One condition that new water use permit applications must meet is that the use: "[c]an be accommodated with the available water source..." §174C-49(a) HRS. An estimate of sustainable yield is critical to this determination.

In light of the staff's recent analysis, which recommends a sustainable yield that is considerably less than current permitted uses, the Commission should defer action on new use applications pending 1) a final draft report, revised subsequent to peer review, and 2) incorporation of the Ewa Caprock Aquifer in the Water Resources and Protection Plan (in the event that the final report recommends adoption of a sustainable yield for the caprock aquifer). Pursuant to §174C-31(m), a public hearing must be held to modify the Water Resources and Protection Plan. Staff hopes to hold the public hearing by July 1996.
Possible violations are another issue with the interim water use permits in the caprock. There are possibly twenty (20) violations which range from unpermitted well construction and pump installations to noncompliance with approved permit conditions concerning all permittees to differing degrees. The staff is in the process of identifying potential violations for each well listed above and will attempt to resolve these issues with the applicants.

With regard to well construction permit conditions for wells that have been transferred to another permittee, it is unclear who should be responsible for compliance. For example, pumps have been installed in a number of the Gentry wells without an application or approval. Some of these wells have since been transferred to individual homeowner's associations. Should the homeowner's association be responsible for seeking an after-the-fact permit, or should the entity who was in control of the well at the time of the violation be responsible?

NON-POTABLE WATER MASTER PLAN:

The Planning Department, City and County of Honolulu, is in the process of revising the Development Plans for Ewa and Central Oahu. The draft plan shows a projected population increase from 130,526 in 1990 to 185,091 in 2020. This corresponds to a 42% increase in population for the area. A 60% increase in housing units over the same time period is projected: from 36,262 units in 1990 to 58,118 units in 2020 (for Ewa Employment and Dispersed Residential; Exhibit 7). This will result in an unquantified (as yet) but certain increase in nonpotable water needs.

To address the expected increase in nonpotable water demand for urban uses, the Commission and the City Department of Wastewater Management hired a consultant to develop a nonpotable water master plan for Central Oahu, including the Ewa plain. The plan recommends construction of a demonstration recharge trench in the Ewa Caprock using reclaimed water. There are many issues regarding the use of reclaimed water. An entity is needed to address and resolve these issues. Staff has been discussing the feasibility and potential application of the recharge trench proposed by our consultant as a means by which to ensure the future viability of the nonpotable Ewa Caprock Aquifer with key personnel from the Department of Health, City Department of Wastewater Management, City Planning Department, and the Board of Water Supply. The consensus is that a water reclamation program should move forward, and the recharge trench is a good first step.

It is recommended that the Commission adopt a reclaimed water policy statement, which specifically addresses only the Ewa Caprock, but may include other areas in the future. The policy statement should recognize reclaimed water as a valuable water resource. A policy statement is also needed to address the concerns of the Department of Health regarding contamination of potable water resources. Specific language is suggested in the recommendation section below.
RECOMMENDATIONS:

The staff recommends the following:

1. The Commission directs staff to submit the preliminary draft report for a peer review and to finalize the report in light of any review comments that may be received. The final report should include recommendations on further delineation of aquifer systems within the Ewa Caprock Aquifer and the possible adoption of a sustainable yield estimate(s).

2. The Commission authorizes staff to schedule a public hearing to modify the Water Resources and Protection Plan in accordance with HRS 174C-31(m). This hearing must be held on Oahu and must be noticed at least 90 days in advance. Permittees shall be mailed a copy of the notice.

3. The Commission directs staff to notify existing water use permittees and applicants for new water uses in the Ewa Caprock Aquifer System that the applications for continued or future use will be deferred for a period of approximately six (6) months until a decision is made on the possible establishment of a sustainable yield estimate in the Water Resources Protection Plan.

4. Direct staff to resolve violations prior to Commission action on requests for continued uses.
5. The Commission adopts the following policy statement on water reclamation:

It is the policy of the Commission on Water Resource Management (Commission) to promote the viable and appropriate reuse of reclaimed water in so far as it does not compromise beneficial uses of existing water resources.

I. Ewa Caprock

Recognizing that reclaimed water is a valuable resource in the Ewa Plain, direct or indirect reuse will be championed by the Commission. It is the policy of the Commission that the water resources of the Ewa Caprock Aquifer will be allocated only for nonpotable uses.

Respectfully submitted,

W. Parfrey

for RAE M. LOUI
Deputy Director

Attachments

APPROVED FOR SUBMITTAL:

MICHAEL D. WILSON, Chairperson
Marginal to Potable EP Basal Sources
Chlorides and Pumpage

FIGURE 3

Ewa Plantation Pumps 2, 7, 8, 15 & 16 supplied marginal quality to potable irrigation water.

Ewa Pumps 15, 16 constructed in 1937

Combined Pumps 2, 7, 8, 15 & 16 pumpage (mgd)

Average Yearly Pumpage (mgd)

Chloride Concentration (mg/l)
Marginal EP Basal Sources
Chlorides and Pumpage

FIGURE 2
- Ewa Pump 3  - Ewa Pump 4  - Ewa Pump 5  - Ewa Pump 6
Most Saline EP Basal Sources
Chlorides and Pumpage

FIGURE 1

Ewa Pump 1
Ewa Pump 9 (Well A)
Ewa Pump 9 (Wells B,C,D)
Ewa Pump 9 (Wells E,F)
Ewa Pump 9 (Wells G,H)

Ewa Plantation Pumps 1 and 9 supplied the most saline water. They were located near Ewa Mill.


REFERENCES

Board of Water Supply, unpublished data files.


Several major conclusions can be drawn from the above discussion:

1. Sustainable yield for the caprock aquifer assumes that total pumpage within a sector will maintain a chloride concentration of 1,000± mg/l.

2. The caprock aquifer, especially the Honouliuli-Puuloa area, has not reached an equilibrium since cessation of cane irrigation in 1994. To achieve and maintain a good irrigation quality water will require a change in the sustainable yield to a value less of than 10 mgd, and less than 5 mgd in the Kapolei-BPNAS area. The historical record of the caprock aquifer argues for a reduction of permitted uses, unless there is a drastic change to the inflow of ground water.

3. In light of 2. above, the Commission should adopt a "go slow" approach to new wells in the Puuloa region. Small irrigation wells appear not to presently cause problems; however, cumulative effects could occur. At the present time we do not have enough data regarding the natural post-OSCo changes that are occurring within the limestone aquifer. The isochlor maps do show a continuing change throughout the Ewa Plain.

4. The Malakole area is pumping much higher than the sustainable yield of less than 1 mgd estimated in R-79. This sector should be divided into two. Sustainable yield for Campbell Industrial Park is meaningless when water for industrial purposes is used. However, there should be some limit, because heavy pumpage could affect ground water underlying BPNAS. Mauka of Campbell Industrial Park, pumpage should be limited to less than 1 mgd.

5. Future modelling efforts should use calibration "targets" of equilibrium periods of 1930-1940 and from 1952-1965.

6. Separation of the Ewa caprock aquifer into three broad management areas has merit. These broad regions can be subdivided into smaller areas that require special management. Perhaps the concept of "sustainable capacity", the amount of water developed from a well or a battery of wells (such as Hawaii Prince Golf Course) that will allow stabilization of chlorides, should be more fully developed and used by the Commission for special management of smaller areas.
0.150 mgd with chlorides averaging 500 mg/l. The Desalt Plant wells are presently off line. Its caprock source, Well 1905-09, averaged about 700 mg/l. The Desalt Plant wells can almost be placed in the Malakole Sector.

Water quality underlying Barbers Point Naval Air Station is unknown. Pumpage from the mauka Kapolei Golf Course wells and the Kapolei Campbell wells will affect ground water quality and its availability when BPNAS is turned over to the State.

Malakole Sector

Pumpage from the Malakole Sector is presently about 12.6 mgd. The estimated sustainable yield for 1,000 mg/l water is less than 1 mgd. Of the total quantity pumped, 2.6 mgd from is brackish water developed by Kalaeloa Partners (wells 1805-03-09). Specific conductivity of the water developed by them average about 10,000 umhos which is equivalent to a chloride concentration of over 3,000 mg/l. The additional 9.6 mgd is essentially highly brackish and saline used for wash down, cooling and other industrial purposes.

CWRM personnel sample the Hawaii Raceway Park well (1905-01). This well is used infrequently for dust control. Chlorides ranged between 1,100 mg/l in June 1993 to 580 mg/l in October 1995. Most of the samples collected hover around 870 mg/l.

If the Commission wants to preserve the 1,000 mg/l water for other than industrial purposes, then the Malakole Sector should be divided. Total pumpage for new wells mauka of Hawaii Raceway Park could be managed at less than 1 mgd, whereas industrial wells in Campbell Industrial Park can be allowed to continue at present rates.

Refinement of Data and Future Projects

Water quality and pumpage data collected by CWRM personnel and by water users will be continually updated by graphs and isochlor maps. More sampling points need to be added to the CWRM network. Three or four test holes should be drilled within or near BPNAS. Though water level do not appear to be related to water quality, a network of small diameter water level wells should be drilled throughout the Ewa Plain.

Bolke and Bauer (in prep.) began a ground water model using SUTRA. The model was calibrated to a period (late 1980’s) that was not in equilibrium. Additional work should be done to calibrate the model to the two stable periods outlined above. Additional modelling work combined with caprock monitor wells need to address the changes in natural leakage that are now occurring from both the Waianae and Koolau aquifer.

Conclusions and Recommendations
are about 20 feet apart, both drilled to a bottom elevation of -15 feet msl. Chloride concentrations are typically 50-200 mg/l apart, with water quality ranging between 500 and 700 mg/l chloride. General trend shows that chlorides have increased in Well 1902-03 but have remained stable in Well 1902-04. The difference in water quality must be due to some geologic control, such as a crack or solution cavity within the coral aquifer.

As stated above, water levels within the caprock are do not enter into estimating sustainable yield. Water levels can fluctuate as much as 0.5 feet during the day due to the tidal signal. During 1957-58 water levels were collected in EP Pumps 21-24. Figure 16 shows that instantaneous water levels varied during the two years of measurement. Water levels dropped to a low of 1.3 in January 1958. The strike began in February 1958 and lasted two months. Even though irrigation ceased, water levels were increasing when the first measurements were done after the strike. Report R-88 indicates that years these years had average to slightly above average rainfall. Static water levels in January 1957 were about 2.5 feet msl. The highest water level during the entire time appears to be near EP Pump 22 and could indicate mounding of irrigation water at that site, since wells west and north appear to be "down-gradient".

Figure 17 plots 1995 water level data collected by Tom Nance at EP Pump 24 with daily rainfall at Ewa Mill and Honolulu Observatory at Ewa Beach. There does not seem to any correlation between storm events and rising water levels. In fact, several high water level periods are during the driest part of the year. When Nance (personal communication, 1996) compared EP Pump 24 water levels with ocean tidal data he found a very close correlation. Tides could account for large water level changes observed in Figure 16. Storm events seem to have a greater impact on water quality than water levels.

Unknown factors make it difficult to compare water levels presented in Figure 16 to Figure 17. What is known, however, irrigation water was applied to fields by the furrow method in the 1950's, with water levels changing by a foot over a year. EP Pump 24 water levels collected by Nance represent a time of localized and limited irrigation and average about 1.7± feet msl.

Kapolei-BPNAS Sector

Present water use in this sector averages about 1.1 mgd. Most of the pumpage occurs at the Kapolei (HFDC) Golf Course. Of the six wells drilled, five are pumping. Water quality has stayed relatively constant. Figures 18 and 18a present pumpage and chloride data for Well B (2003-02). Average chloride is 450 mg/l. Increased leakage from the basal aquifer is thought to be the reason for the constancy of the chloride data.

Other wells in the sector include the Kapolei Campbell wells 1905-08 and 1905-10. The primary source, 1905-08, pumps about
occur in the Puuloa Sector. Present pumpage for the area averages 2.8 mgd. About 1.5 mgd of the present pumpage is east of Fort Weaver Road at the Hawaii Prince Golf Course and Ewa International Golf Club. Gentry Development Company irrigation wells and the Honouliuli Sewage Treatment Plant wells make up the remainder with small capacity wells.

Figures 9, 9a, 10, 10a, 11, and 11a focus on chloride as related to pumpage and land use changes since 1992 at Hawaii Prince Golf Course. Six wells supply the course with water. HPGC wells 1, 2, and EP Pump 22 (wells 1901-03, 1900-17, and 1900-02 respectively) are located about 500 feet, 1,000 feet, and 2,000 east of Fort Weaver Road respectively. Water quality at HPGC wells 1 and 2 appears to be improving over time, whereas at EP Pump 22 the opposite is occurring. EP Pump 22 pumps about four times the amount of water produced from each of the other wells. Though not shown, water quality at the HPGC wells near EP Pump 22 are affected by the high pumpage, suggesting possible upconing. Evaporation from the large reservoir ponds prior to irrigation will increase the chlorides of the applied water. Pan evaporation in Ewa is about 85 inches/year (R-79, p. 43). Salt can build up in the soil, only to be flushed back into the aquifer after a storm. The wells closer to Fort Weaver Road may also be affected more by storm recharge because of improving quality.

Currently, there is a request to increase the usage at EP Pump 22. From the data presented in Figures 11 and 11a, an increase in pumpage is not warranted since chlorides are already in excess of what the grass can tolerate and exceeds the 1000 mg/l associated with sustainable yield. Greater pumpage at this well could adversely affect their other sources by increasing the chloride mixture of the irrigation water applied to the west end of the course, as well as exacerbate the localized up-coning on the east side. Ewa International Golf Club, located south and down gradient of Hawaii Prince, could also be detrimentally affected.

Figures 12, 12a, 13, 13a, 14, and 14a illustrate chloride and pumping trends at three Gentry sources. Palm Villa 1 (2001-06), and Palm Court (2002-12) show a steady chloride decline since 1994. Palm Villa 2 (2001-08) averaged about 800 mg/l since 1994, but had declined from 1,200 mg/l from a sample collected in 1993.

Gentry Development is proposing two new wells and water use permits in Puuloa. Because of the small pump capacities proposed for these wells, the likelihood that they would detrimentally affect the aquifer or neighboring wells is simply unknown. What will occur will be a reduction of ground-water flux equal to amount of pumpage.

Figures 15 and 15a show an unusual phenomena at the Honouliuli Sewage Treatment Plant (STP). Wells 1902-03 and 04
and over a single day. Most of the wells are located in the Puuloa Sector, three wells are in the Kapolei Sector, and two wells are in the Malakole Sector. Since the program began, several wells were dropped and others added depending upon access or reliability of the measurement. The primary purpose of sampling is to provide baseline data that can measure changes to the caprock aquifer with time.

Figures 6, 7 and 8 are computer-drawn isochlor (lines representing equal chloride concentration) maps based on chloride data collected from wells in June 1994, September 1995, and February 1996. The isochlor lines only relate chloride data between the wells from which they were collected. In June 1994 sugar was still being cultivated in the vicinity of EP Pump 23. Figures 7 and 8 represents land and water use conditions as they are today. Recharge by rainfall and natural leakage will lower chloride concentrations and cause a shift of the isochlor lines. What is apparent when comparing Figures 6 with 7 and 8 is the worsening water quality around EP Pump 22, and freshening taking place west and southeast of Kapolei Golf Course. The EP Pump 22 situation may be a result of pumping and irrigation practices at Hawaii Prince Golf Course, whereas changes in water quality west of Kapolei Golf Course are probably natural.

Generally, the data collected since 1994 support an estimated sustainable yield that is less than 10 mgd for the Puuloa area (current pumpage averages 2-3 mgd). As will be shown later, individual wells equipped with small capacity pumps, show either a reduction or stabilization of chlorides, while EP Pump 22, fitted with a large capacity pump, shows a continuing rise in chlorides. Figures 6-8 provide a "animated" view of the changes now occurring.

In the Kapolei-BPNAS Sector, the majority of the pumpage is from the Kapolei Golf Course. Chlorides at the golf course are stable, and may be a result of basal ground-water leakage from the Waianae aquifer. The sustainable yield estimated by Mink (R-79, 1989) was less than 5 mgd. Present usage is about 1.1 mgd. A large portion of this aquifer is located under BPNAS where no pumpage occurs. Leakage from the Waianae basal aquifer is no longer 30 mgd estimated by Eyre (1987) but some lesser quantity. This amount would be natural ground-flux (estimated 33 mgd) minus total pumpage in Ewa-Kunia Aquifer System (present average about 9 mgd) or about 22 mgd.

R-79 estimated the Malakole area sustainable yield to be less than one mgd after sugar irrigation. Most of the usage is industrial. The upper aquifer supplies some water that is in excess of 1,000 mg/l. Pumpage from this sector is over 12 mgd. Some of the pumpage is from a lower coral aquifer in the caprock.

Honouliuli-Puuloa Area

Since the demise of OSCo the greatest aquifer changes will
storm recharge + natural leakage + minor irrigation return water) is slowly moving through the coral aquifer. Hydrologic properties of the aquifer will govern how long it takes to change to a new steady-state.

As stated above, estimated sustainable yield for the caprock was based on a net pumpage that supported a particular water quality. Net pumpage now does not include a large return irrigation component, but may include an increase in natural leakage due to reduction of 60± mgd of plantation pumpage and attendant changes in the basal water level. Therefore, a new sustainable yield that would maintain irrigation quality water must be much less than previously assigned. For the Honouliuli-Puuloa area, estimates for natural leakage and rain recharge could be as high as 12 mgd or as low as 5 mgd. A good estimate for caprock recharge was lost when sugar cultivation ceased.

Golf course irrigation is different than drip irrigation for cane since it is less intensive and is concentrated over a small area. Giambelluca (1991, p. 43) estimates that recharge attributed to park irrigation is about 6 percent of recharge from drip-irrigated cane fields. Golf courses may be somewhat greater. For natural areas Giambelluca's water balance puts recharge at 16 percent of drip irrigation.

The Commission granted a current allocated use of 19 mgd for the caprock aquifer. If everyone with a permitted use pumped their allocated amount, the aquifer would quickly salt up and become unusable for irrigation. Every user would have to cease or drastically reduce pumping and wait for natural leakage or for some kind of artificial recharge to improve water quality. From Figure 5, nonuse of EP Pump 27,28 after 1994 drastically reduced the chloride concentration at that source. Later, Figures 6-8 will show a movement of fresher water into the area surrounding EP Pumps 27,28.

Due to the profound changes in land and water use, the Commission should tread slowly until there is a better idea of the natural changes occurring within the aquifer. The new sustainable yield for the Puuloa area will be less than 10 mgd, perhaps close to 5 mgd. Constant monitoring of pumpages and chloride data will provide a refined estimate. As will be discussed below, we know that low capacity wells in Puuloa Sector have maintained relatively stable or improving water quality, whereas large capacity plantation wells appear to cause localized up-coning and increasing chlorides.

Analysis of Caprock Aquifer Since 1994

Anticipating the cessation of sugar and the accompanying widespread land and water use changes, the CWRM staff have regularly sampled OSCo and private wells since April 1994. Chloride samples and specific conductance measurements are collected from about 20 wells on a monthly to six week schedule,
From the above analysis of the return component, R-79 (p. 48) estimated the sustainable yield for the three areas. Sustainable yield is maintaining chlorides at "less than 1,000 mg/l for current [as of 1989] and anticipated land use conditions". "Future" means when sugar operations cease, our present condition, and when there is no significant amount of return irrigation water. Below is the table presented in R-79 (p. 48).

<table>
<thead>
<tr>
<th>Area</th>
<th>Current (mgd)</th>
<th>Future (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honouliuli-Puuloa</td>
<td>10-15</td>
<td>&lt;10</td>
</tr>
<tr>
<td>Kapolei-BPNAS</td>
<td>5</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Malakole</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

*The present time*

Presently the Puuloa Sector caprock aquifer is in a state of non-equilibrium. All imported basal water has ceased. Though pumpage from private wells averages between 2-3 mgd, a very small fraction of that amount returns as recharge. Recirculation of the same water and salt build-up in the soil can only be alleviated by direct infusion of fresh water. This infusion comes from sporadic large winter storms and from an unknown amount of leakage from the basal aquifer. The estimated recharge by rainfall over the Puuloa Sector is 2 mgd (R-79, p. 42).

Leakage estimates for the range from 1-1.5 mgd/mile (CDM Report, 1993) to 5 mgd/mile as used in the Ewa Plain strip model (Bolke and Bauer, in prep.). Over the two mile boundary, the inflow estimates range from 3-10 mgd. The R-79 single-cell mixing model estimated 15 mgd inflow from Honouliuli into Puuloa, but of that amount natural leakage was estimated to be 4 mgd.

Eyre (1987, p. 12) estimated a net of 30 mgd leaking into the caprock (Kapolei area) from the Waianae basal lens during the plantation era (after removing plantation pumpage), and 33 mgd for pre-development (pre 1879) time (8 mgd of rainfall and 25 mgd natural ground-water flow from Schofield). The hydrologic budget was based on work by Giambelluca (1986) and employed by Eyre to solve a mixing-cell model that determined the effects of drip irrigation to water quality in the basal aquifer.

**Changes to Sustainable Yield**

The caprock aquifer is currently undergoing a period of change. It will take an unknown amount of time for a new equilibrium to set in. One and a half years have elapsed since the cessation of both sugar and the infusion of basal irrigation that resulted. Ground water (residual cane irrigation water +
total pumpage and the return irrigation component plus natural leakage.

During the plantation time, water quality was a function of cane acreage, caprock pumpage, irrigation method (furrow or drip), and basal water quality. Assuming that natural leakage is constant, changes in the irrigation method and acreage changed net pumpage or sustainable yield. Since the upper limestone aquifer is a result of a 100 years of irrigation, past land use changes and irrigation methods have altered the sustainable yield several times. Return basal irrigation water and natural basal leakage inflow from the Honouliuli alluvium into the limestone aquifer contributed to recharge. The table below summarizes these changes as presented in R-79 and Figure 5 for the Puuloa area.

<table>
<thead>
<tr>
<th>Period</th>
<th>Average Caprock Pumpage (mgd)</th>
<th>Caprock Chloride (mg/l)</th>
<th>Irri. Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930-1940</td>
<td>11</td>
<td>700-1050</td>
<td>Furrow</td>
<td>Equilibrium condition 2500 acres of cane</td>
</tr>
<tr>
<td>1970-1980</td>
<td>22</td>
<td>600-800</td>
<td>Furrow Drip</td>
<td>Non-equilibrium conditions EP Pumps 20,21,22 increasing chlorides</td>
</tr>
<tr>
<td>1980-1989</td>
<td>21</td>
<td>900-1000</td>
<td>Drip</td>
<td>Non-equilibrium conditions</td>
</tr>
<tr>
<td>1989-1994</td>
<td>14</td>
<td>1000-1400</td>
<td>Drip</td>
<td>Non-equilibrium conditions Reduced acreage</td>
</tr>
</tbody>
</table>

Report R-79 estimates (p. 41) that fields irrigated by Koolau or Waianae basal sources return 53 percent of the applied water if furrow irrigation methods are employed or 41 percent if drip methods are used (using water balance coefficients applied in CWRM Report R-78, 1988). For caprock sources 49 percent is returned for furrow, whereas only 29 percent is returned for drip. Using 1981 and 1986 (mentioned in R-79 as predominately furrow and drip years respectively) to compare differences for return water quantities over the entire region, the report estimates that 32 mgd of basal water and 15.3 mgd of caprock water was return irrigation in 1981, while 16 mgd basal and 5.5 mgd caprock was return water in 1986. Net pumpage in 1981 was 15.7 mgd, while in 1986 it was 13.5 mgd (R-79, p. 43).
Report R-79 utilized a single cell mixing model to calculate ground water flows and caprock water chloride concentrations. The model calculated a steady-state inflow of return water and natural leakage for 1930 at 15 mgd. For the drip irrigation period between 1982-87 the model still assumes a 15 mgd inflow of ground water with a quality of 550 mg/l. The model calculated a steady-state mix of 1226 mg/l for water pumped from the caprock aquifer. Mink (1989) estimates that 4 mgd of the 15 mgd was the due to natural leakage, and 11 mgd was return irrigation water.

Since the late 1980’s, Ewa Plain land use changes occurred rapidly as many cane fields were replaced by golf courses and housing developments. Consequently, the amount and location of applied irrigation water changed considerably. By November 1994 all irrigation to Ewa Plain cane fields had ceased and all OSCo caprock sources stopped pumping (except EP Pump 22). This action reduced the average 1994 pumpage from the caprock aquifer in the Puuloa area from 17 mgd to 3 mgd, and a portion of irrigation water ceased returning to the caprock aquifer.

**Periods of Chloride Equilibrium**

Examination of Figure 5 shows that only two periods of relative chloride stability exist in the record. The first is from 1930 to about 1940, and the second is from 1952 to approximately 1970. These intervals represent periods of stable pumping, acreage, and irrigation methods. The chloride quality of the mixture of the applied basal water (Figures 1-3) was relatively stable during the early 1930’s, and again between 1952 to 1970. Chlorides in the caprock wells rose in the early 1940’s when water quality in EP Pumps 1 and 9 worsened.

All other periods in the record that show rising (1940-1949; 1975-present) or falling (1950-1952) chloride values are during times of non-equilibrium when a major change took place such as caprock pumpage, irrigation method, acreage, or quality of applied basal water.

It is interesting to note from Figure 5 that even after sugar ceased, and total pumpage reduced to less than 5 mgd, some wells continued to exhibit rising chlorides. Any ground-water flow or solute transport model constructed should calibrate to the two equilibrium periods outlined above.

**Estimated Sustainable Yield of the Ewa Plain**

Report R-79 provided sustainable yield estimates for the Ewa Plain caprock aquifer. Unlike the methodology used to calculate sustainable yield for large basaltic aquifer systems (State Water Resource Protection Plan, Vol. II, 1992), the sustainable yield estimate for the caprock is based on an optimal amount of pumpage to achieve an acceptable water quality for irrigation (< 1,000 mg/l chloride). Essentially, sustainable yield for the caprock aquifer is defined as "net pumpage" or the difference between
basal water. Though Stearns mentioned (1935, p. 460) that much of the applied basal water had chlorides as high as 700± mg/l (and higher), Figure 4 shows that the caprock sources range between 700± mg/l to 1,000± mg/l.

Figure 5 presents the history of pumpage and chlorides for all caprock sources utilized by Ewa Plantation and Oahu Sugar Company (OSCo). Unfortunately there are missing monthly pumpage data between 1940 and 1963. The estimated average of 12 mgd is from CWRM Report R-79 (Mink, 1989). The graph does show a significant rise in chlorides for all caprock sources during the 1940's. Until the 1970's the average imported amount of Koolau basal water was 60-70 mgd. After 1981, the average amount dropped to less than 50 mgd.

CWRM Report R-88 entitled, Drought in Hawaii, indicates that the period from 1940-1954 was dry, and that "drought" was reported to be moderate to extreme. Though the data do not overlap, increased pumpage from artesian, and probably the caprock wells, contributed to the rise in chloride concentration around 1947 as seen in Figure 5. After EP Pumps 1 and 9 were abandoned and sealed, fresher basal water was used to irrigate Ewa cane lands. The result was a wholesale freshening of the caprock aquifer from the mid 1950's to the mid 1970's.

The rise in caprock chloride concentration beginning in the mid 1970's was due to several factors: 1) an increase in caprock well pumpage from 20 mgd to 30 mgd; 2) continued use of marginal quality basal water on lands near Ewa Mill and Fort Weaver Road; 3) several "extreme drought" periods throughout the 1970's reported in R-88; and 4) switching from furrow-irrigated cane to drip-irrigated cane in the mid 1970's to early 1980's (Hugh Morita, personal communication, 1996).

When OSCo took over from Ewa Plantation around 1970, they may have operated the irrigation system differently. Hugh Morita (personal communication, 1996) said that EP Pumps 3 and 7 supplied water to Field 57, which is mauka of EP Pump 23. From here the water split, some was piped to the EP 23 distribution system and the remainder was sent towards Ewa Mill. All of this water irrigated fields growing over the coral aquifer. EP Pumps 4 and 6 sent water west to a ditch system that runs at elevation 120± feet msl. EP Pump 5 supplied water to a ditch at elevation 160± feet msl. EP Pump 2 and Pumps 15 and 16 supplied water to cane in the Honouliuli area. All of this water irrigated fields growing on the alluvium. EP Pump 8 was for domestic use only.

Examination of Figures 2 and 3 will provide approximate 50-50 mixes of artesian water. For example during the last 15 years, Pumps 3 and 7 give a 50-50 mix of 500 mg/l chloride, while Pumps 4 and 6 show a mix of about 400 mg/l. The actual mix would be weighted to the pump which supplies the greatest proportion of water.
coral limestone. However, for convenience of management, Honouliuli-Puuloa is considered to be a single region as are Kapolei-BPNAS and Malakole. Though in essence, the upper aquifers are hydraulically connected, and there may be only a weak connection between this aquifer and the lower ones.

History of Ewa Caprock Aquifer Development

The Ewa Plain has been irrigated with ground water since 1890. By 1930, Ewa Plantation had drilled 70 artesian basal wells (clustered as pumping batteries) through the Ewa Plain caprock sediments to irrigate cane lands makai of Farrington Highway (Stearns and Vaksvik, 1935). From 1930-35, five shallow wells (EP Pumps 20-24) were dug into the Ewa caprock to produce more irrigation water. All of them penetrated a shallow coral aquifer and were capable of producing large quantities of irrigation water. Later, other caprock sources were brought on line (EP Pumps 26,27,28,29; EP Pump 30; and EP Pump 31). The accompanying map shows the location of Ewa Plantation basal and caprock pumps.

When the shallow caprock wells were constructed, they pumped brackish ground water that originated primarily from basal return irrigation water. Consequently, the caprock water mixed with the artesian basal water already irrigating the region.

Figures 1-3 illustrate the chloride and pumpage history of the Ewa Plantation's basal sources. Pumpage includes total draft from the Koolau Aquifer (excluding EP Pump 10-12), and well battery pumpage. For convenience, water quality from the various pump batteries are shown separately. Figure 1 presents the most saline of the sources. EP Pumps 1 and 9 probably applied all of its water in the vicinity of Ewa Mill and near the first caprock sources. These batteries had deep wells that were drilled into the upper transition zone. To improve quality some were plugged back with cement, but all were abandoned and sealed by 1950. Figures 2 and 3 shows the marginal quality and potable quality sources respectively.

The freshest source, EP Pump 15,16, was recommended by Stearns (Stearns and Vaksvik, 1935, p. 460) as a way to freshen up the limestone aquifer. He noted that chloride concentrations in the basal sources had approached high levels and that pumpage from the new caprock wells would increase chloride concentrations in the coral aquifer by recirculating irrigation water. Evapotranspiration by sugar cane concentrated the salts in the return water. Construction of EP Pump 15,16 began in 1937 and it was put on-line to irrigate cane fields around 1939 or 1940.

Figure 4 shows initial (first 10 years) conditions in the caprock when the shallow wells were first constructed. Average yearly pumpage was about 11 mgd, while seasonal variations ranged from less than 5 mgd to more than 15 mgd. Water quality varied slightly with pumpage and with the seasonal variation of applied
Description of the Caprock Aquifer

The Ewa Plain caprock is a thick wedge of interbedded marine and terrestrial sediments that were deposited on the flanks of the Koolau and Waianae volcanoes during sea level changes and isostatic subsidence of Oahu during the Pleistocene ice ages. At the coast this sequence is greater than 1,000 feet thick (Stearns and Chamberlain, 1967). Inland, the sediments thin and pinch out against weathered lava flows.

The primary caprock aquifer is the highly permeable upper coralline limestone layer (referred to as "Limestone Aquifer 1" in Report R-79). The limestone layer continues offshore, but inland contacts alluvial sediments (Mink, 1989). Ground water within the aquifer is unconfined with a water level only several feet above sea level. The general ground water gradient is toward the coast.

Below this limestone layer, and found throughout the Ewa Plain, is a ubiquitous brown clay layer that acts as a bottom (aquiclude) to the coral aquifer. The clay layer is deeper at the coast than inland. Therefore, near the coast the brackish ground water floats on saline water as a Ghyben-Herzberg lens, but inland the brown clay truncates the salt water. Below the clay are other coral, sand, and mud deposits that contain very saline water. All plantation caprock wells and all new wells exploit the upper limestone aquifer. Alluvial ground water may be available in the Honouliuli area. However, developing alluvial water is not as easy as from coral due to the generally lower permeability of alluvium.

Prior to sugar cultivation, the caprock received a steady flux of ground water from natural leakage from the Koolau and Waianae basal aquifers, intermittent recharge from rainfall, and from occasional large storms which allowed dry streams, such as Kaloi Gulch, to flow to the Ewa Plain. The amount of leakage into the mauka caprock boundary is dependent upon the height of the water table in the basalt. When the first artesian well was drilled near Honouliuli in 1879 ground water rose to an estimated height of 32 feet msl (Cox, 1981, p. 55). West of Honouliuli the original ground water level in the Waianae aquifer would have been about 10 feet less (Mink, 1980, p.37). The demise of sugar recharge into the caprock aquifer is similar to pre sugar days, except that the amount of natural leakage is much less due to the reduction of water levels in the basal aquifers.

Because of Ewa Plain's land use history, CWRM Report R-79 (Mink, 1989) divided the caprock into five broad areas: 1) Honouliuli; 2) Puuloa; 3) Kapolei; 4) BPNAS; and 5) Malakole. Honouliuli and Kapolei areas essentially overlie alluvium, while Puuloa, BPNAS, and Malakole areas are composed essentially of
5. Require applicants cooperate with the Commission's initiative in the development of the Nonpotable Water Master Plan for Central and Leeward Oahu.

6. Require that all temporary permits be subject to the standard conditions of a water use permit listed in Attachment B and the Conservation conditions listed in Attachment C.

CONSERVATION CONDITIONS

EWA CAPROCK WATER USE PERMITS

1. The permittee shall adopt self-administered water conservation programs and plans with collective monitoring to protect and maintain the caprock resource. Water conservation programs and plans shall be submitted to the Commission within 60 days from the date of Commission approval.

2. Water conservation programs and plans shall address (as applicable) but not be limited to the following:

   a. Reduce the demand for non-potable water by:
      - Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
      - Mulching planting areas with organic materials, etc., to minimize evaporation;
      - Efficiently maintaining the plants;
      - Improving land-management practices to conserve water.

   b. Improve efficiency in use and reduce losses and waste of non-potable water by:
      - Using efficiently designed landscaping and irrigation systems;
      - Monitoring irrigation requirements and controlling usage accordingly;
      - Managing irrigation scheduling to minimize water demand;
      - Eliminating opportunities for water wastage;
      - Maintaining and improving irrigation systems as necessary.

   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.

EXHIBIT 3
CONSERVATION CONDITIONS
EWA CAPROCK WATER USE PERMITS

1. The permittee shall adopt self-administered water conservation programs and plans with collective monitoring to protect and maintain the caprock resource. Water conservation programs and plans shall be submitted to the Commission within 60 days from the date of Commission approval.

2. Water conservation programs and plans shall address (as applicable) but not be limited to the following:

   a. Reduce the demand for non-potable water by:

      - Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
      - Mulching planting areas with organic materials, etc., to minimize evaporation;
      - Efficiently maintaining the plants;
      - Improving land management practices to conserve water.

   b. Improve efficiency in use and reduce losses and waste of non-potable water by:

      - Using efficiently designed landscaping and irrigation systems;
      - Monitoring irrigation requirements and controlling usage accordingly;
      - Managing irrigation scheduling to minimize water demand;
      - Eliminating opportunities for water wastage;
      - Maintaining and improving irrigation systems as necessary.

   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.

EXHIBIT 2
Chairperson and Members
Commission on Water Resource Management

April 28, 1993

Special Conditions
Ewa Caprock Temporary Water Use Permits

1. The temporary permits shall be valid for one (1) year from its approval date (April 28, 1994).

2. Quantities of allocations for each applicant are those calculated in Exhibit 3 for 1993 under the additional required allocation column. The pending applications which have no new or negative additional requirements are denied.

3. Each applicant's allocation shall be for the cumulative withdrawals from the corresponding well sources specified by each applicant in Exhibit 2, except for Gentry Pacific's well sources. Staff will be working with Gentry to associate water use permits for each well with each project individually within their total required allocation as shown in Exhibit 3.

4. Each applicant's allocation shall be used only for the corresponding uses specified by each applicant in Exhibit 3.

5. Within one (1) year, the applicants shall jointly submit a plan for the conversion to an alternative non-potable source other than the Ewa Caprock Aquifer. This plan shall include the applicant's intentions of funding the actual development of the alternative non-potable source.

6. Within sixty (60) days after approval, each applicant shall submit a water conservation plan or program according to the conditions in Attachment C.

7. The applicants shall continue to actively participate in the continuing development of the Ewa Caprock Regional Plan and its two main components which shall be coordinated by the Commission on Water Resource Management.

8. The applicants must actively participate in generating more information to show the utility of the caprock source in the absence of OSCo. recharge irrigation over the caprock and the complete absence of OSCo. irrigation in the Pearl Harbor area.

9. Temporary permits shall not be renewed if any of the above is not provided or followed.

EXHIBIT 2
Chloride and Pumpage of Ewa Plantation
Shallow Wells, Ewa Caprock, Oahu

Total imported basal water from Koolau ranged < 50-70 mgd

Average monthly pumpage (mgd)

Ref: CWRM, BWS files, R-79, & Stearns (1935, 1940)
Isochlor Map of Ewa Caprock Aquifer
June 1994

FIGURE 6
Isochlor Map of Ewa Caprock Aquifer
September 1995
Isochlor Map of Ewa Caprock Aquifer
February 1996
Chloride and Pumpage of HPGC Well 1
Ewa Caprock, Oahu

FIGURE 9

HPGC 1 (Qave = .148 mgd)
Chloride and Pumpage of HPGC Well 1
Ewa Caprock, Oahu

Total caprock average monthly pumpage (mgd)

Basal (low Cl) irrigation

OSCo caprock pumpage ceased

Total Hawaii Prince pumpage

Well 1 pumpage

FIGURE 9a

HPGC 1 (Qave = .148 mgd)

Ref: CWRM, BWS files, & R-79
Chloride and Pumpage of HPGC Well 2
Ewa Caprock, Oahu

FIGURE 10  ×  HPGC 2 (Qave=0.160 mgd)
Chloride and Pumpage of HPGC Well 2
Ewa Caprock, Oahu

Chloride Concentration (mg/l)

Total caprock average monthly pumpage (mgd)
Basal (low CI) irrigation
OSCo caprock pumpage ceased
Total Hawaii Prince pumpage
Well 2 pumpage

Year

Ref: CWRM, BWS files, & R-79

FIGURE 10a

× HPGC 2 (Qave=0.160 mgd)
Chloride and Pumpage of HPGC Well EP22
Ewa Caprock, Oahu

FIGURE 11

EP-22 (Qave=1.021 mgd)
Chloride and Pumpage of HPGC Well EP22
Ewa Caprock, Oahu

FIGURE 11a

- EP-22 (Qave=1.021 mgd)
Chloride and Pumpage of Ewa
Gentry Wells, Ewa Caprock, Oahu

FIGURE 12

* Gentry Palm Villa 1 (Qave=0.019 mgd)
Chloride and Pumpage of Ewa Gentry Wells, Ewa Caprock, Oahu

Total caprock average monthly pumpage (mgd)

Basal (low Cl) irrigation

OSCo caprock pumpage ceased

Total Ewa Gentry pumpage

Palm Villa 1 pumpage

Gentry Palm Villa 1 (Qave=0.019 mgd)
Chloride and Pumpage of Ewa
Gentry Wells, Ewa Caprock, Oahu

FIGURE 13

Gentry Palm Court (Qave = 0.025 mgd)
Chloride and Pumpage of Ewa Gentry Wells, Ewa Caprock, Oahu

Total caprock average monthly pumpage (mgd)

Basal (low Cl) irrigation

OSCo caprock pumpage ceased

Total Ewa Gentry pumpage

Palm Court pumpage

Year

Chloride Concentration (mg/l)

Average Pumpage (mgd)

FIGURE 13a

* Gentry Palm Court (Qave= .025 mgd)
Chloride and Pumpage of Ewa
Gentry Wells, Ewa Caprock, Oahu

FIGURE 14
- Gentry Palm Villa 2 (Qave=0.031 mgd)
Chloride and Pumpage of Ewa Gentry Wells, Ewa Caprock, Oahu

FIGURE 14a

- Gentry Palm Villa 2 (Qave=0.031 mgd)
Chloride and Pumpage of Honouliuli STP Wells, Ewa Caprock, Oahu

FIGURE 15

- Honouliuli STP 1902-03
- Honouliuli STP 1902-04 (Qave=0.654 mgd)
Chloride and Pumpage of Honouliuli STP Wells, Ewa Caprock, Oahu

FIGURE 15a

- Honouliuli STP 1902-03 - Honouliuli STP 1902-04 (Qave=0.654 mgd)
Monthly Water Level Measurements
Ewa Plantation Caprock Wells

FIGURE 16
Water Level @ EP-24 & Daily Rainfall
Ewa Caprock, Ewa, Oahu

FIGURE 17

Ref: Tom Nance, water level data
Chloride and Pumpage of HFDC Golf Course Well B, Ewa Caprock, Oahu

FIGURE 18

HFDC B (Qave=0.270 mgd)

Ref: CWRM, BWS files, & R-79
Chloride and Pumpage of HFDC Golf Course Well B, Ewa Caprock, Oahu

Total caprock average monthly pumpage (mgd)

Basal (low Cl) irrigation

OSCo caprock pumpage ceased

Total HFDC-Kapolei Golf Course pumpage

HFDC Well B pumpage

Year

FIGURE 18a

HFDC B (Qave=0.270 mgd)
### PUULOA AQUIFER SYSTEM

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PUULOA AQUIFER SYSTEM (mgd)</th>
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</thead>
<tbody>
<tr>
<td>Sustainable Yield Estimate</td>
<td>15.000</td>
</tr>
<tr>
<td>Less: Other Existing Permits (shown in Exhibit 8)</td>
<td>-17.170</td>
</tr>
<tr>
<td>Current Available Allocation</td>
<td>-2.170</td>
</tr>
<tr>
<td>Less: Expired Interim Permits</td>
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</tr>
<tr>
<td>Hawaii Prince Golf Club (1900-02, 17 to 20, 1901-03)</td>
<td>0.129</td>
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<tr>
<td>Gentry Co. (2001-03)</td>
<td>0.030</td>
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<td>(2001-09)</td>
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<td>(2002-15)</td>
<td>0.130</td>
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<tr>
<td>Haseko (Ewa), Inc. (1902-01)</td>
<td>1.500</td>
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<tr>
<td>Arbors Assoc. (2001-07)</td>
<td>0.063</td>
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<td>Palm Villa II Assoc. (2001-08)</td>
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<td>Palm Court Assoc. (2002-12)</td>
<td>0.066</td>
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<tr>
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<tr>
<td>Hawaii Prince Golf Club (1900-02, 17 to 20, 1901-03)</td>
<td>0.371</td>
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<tr>
<td>Gentry Development Co. (2001-11)</td>
<td>0.172</td>
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<tr>
<td>Haseko (Ewa), Inc. (Ewa Marina)</td>
<td>*</td>
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<tr>
<td>Available Allocation</td>
<td>-4.784</td>
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</table>

* Proposed marina project will result in a permanent reduction in caprock storage capacity.
### KAPOLEI AQUIFER SYSTEM

<table>
<thead>
<tr>
<th>ITEM</th>
<th>KAPOLEI AQUIFER SYSTEM (mgd)</th>
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<tbody>
<tr>
<td>Sustainable Yield Estimate</td>
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<td>Campbell Estate (1905-08,10)</td>
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<tr>
<td>(none)</td>
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March 13, 1996
### Scenario Comparisons

#### Central Oahu Development Plan Area

**Change in Resident Population**

<table>
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<tbody>
<tr>
<td>Intensive Ewa</td>
<td>130,526</td>
<td>168,950</td>
<td>38,424</td>
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<tr>
<td>Dispersed Development</td>
<td>130,526</td>
<td>184,444</td>
<td>53,918</td>
</tr>
<tr>
<td>Ewa Employment</td>
<td>130,526</td>
<td>185,091</td>
<td>54,565</td>
</tr>
<tr>
<td>Ewa &amp; Central Oahu Urban Centers</td>
<td>130,526</td>
<td>213,802</td>
<td>83,276</td>
</tr>
<tr>
<td>Current Trend</td>
<td>130,526</td>
<td>177,736</td>
<td>47,212</td>
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**Change in Non-Construction Jobs**

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<th>Scenario</th>
<th>1990 Jobs</th>
<th>2020 Jobs</th>
<th>1990-2020 Increase</th>
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</thead>
<tbody>
<tr>
<td>Intensive Ewa</td>
<td>36,262</td>
<td>53,240</td>
<td>16,978</td>
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<td>36,262</td>
<td>57,907</td>
<td>21,645</td>
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<tr>
<td>Ewa Employment</td>
<td>36,262</td>
<td>58,118</td>
<td>21,856</td>
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<tr>
<td>Ewa &amp; Central Oahu Urban Centers</td>
<td>36,262</td>
<td>68,085</td>
<td>31,823</td>
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<tr>
<td>Current Trend</td>
<td>36,262</td>
<td>55,725</td>
<td>19,464</td>
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**Development in Population**

<table>
<thead>
<tr>
<th>Development Scenario</th>
<th>1990</th>
<th>2020</th>
<th>1990-2020 Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensive Ewa</td>
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<td>38,424</td>
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<tr>
<td>Dispersed Development</td>
<td>130,526</td>
<td>184,444</td>
<td>53,918</td>
</tr>
<tr>
<td>Ewa Employment</td>
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<td>54,565</td>
</tr>
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<td>Ewa &amp; Central Oahu Urban Centers</td>
<td>130,526</td>
<td>213,802</td>
<td>83,276</td>
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<tr>
<td>Current Trend</td>
<td>130,526</td>
<td>177,736</td>
<td>47,212</td>
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</table>

**Development in Housing Units**

<table>
<thead>
<tr>
<th>Development Scenario</th>
<th>1990</th>
<th>2020</th>
<th>1990-2020 Increase</th>
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<tbody>
<tr>
<td>Intensive Ewa</td>
<td>36,262</td>
<td>53,240</td>
<td>16,978</td>
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<td>Dispersed Development</td>
<td>36,262</td>
<td>57,907</td>
<td>21,645</td>
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<tr>
<td>Ewa Employment</td>
<td>36,262</td>
<td>58,118</td>
<td>21,856</td>
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<tr>
<td>Ewa &amp; Central Oahu Urban Centers</td>
<td>36,262</td>
<td>68,085</td>
<td>31,823</td>
</tr>
<tr>
<td>Current Trend</td>
<td>36,262</td>
<td>55,725</td>
<td>19,464</td>
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</table>

**Development in Civilian Non-Construction Jobs**

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<tr>
<td>Intensive Ewa</td>
<td>23,029</td>
<td>52,384</td>
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<td>57,116</td>
<td>34,087</td>
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<td>23,029</td>
<td>69,395</td>
<td>46,366</td>
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<td>69,395</td>
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<tr>
<td>Current Trend</td>
<td>23,029</td>
<td>54,751</td>
<td>31,722</td>
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**NOTE:** Baseline forecast for 1990-2020 islandwide increase is 28%.
## ISLAND OF OAHU

### Aquifer System: PUULOA

<table>
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<tr>
<th>WUP NO</th>
<th>APPLICANT</th>
<th>WELL NO.</th>
<th>WELL NAME</th>
<th>APPROVAL</th>
<th>mgd</th>
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<tr>
<td></td>
<td>GENTRY DEVELOPMENT CORP.</td>
<td>2001-02</td>
<td>EWA GENTRY</td>
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<td>PALM VILLA I ASSOCIATION</td>
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<td>PALM VILLA 1</td>
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<td>HAWAII PRINCE GOLF CLUB</td>
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<td>SOGO HAWAII, INC.</td>
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<td>PUULOA GC IRR</td>
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</table>

18 Permits Totaling 17.170

---

**EXHIBIT 8**
To: Lenore Nakama
Commission on Water Resource Management
Department of Land and Natural Resources
Division of Water Resource Management

From: Garrick K. Iwamuro
Hawaii Prince Golf Club

Date: March 1, 1996

Re: Well Meter Installation

The flow meters for wells 1-5 and ep. 22 have been installed on 2/29/96. The flow rate for wells 1-5 are 200 gpm and the rate of ep. 22 is fluctuating between 740-750 gpm. If you have any questions please call me.
McCROMETER / DIVISION OF KETEMA INC.

CERTIFIED TEST REPORT
SERIAL NUMBER: 96-01270-4

PRINT DATE: 02-20-1996

Well #1
Installed 2/20/96
11:00 AM

MODEL: L0233-10
CUSTOMER NAME: HAWAII PRINCE GOLF COURSE
SOLD TO: KONA IRRIGATION
INVOICE:

METER SIZE: 4"
METER INSIDE DIAMETER: 4.026"
TEST FACILITY: 5000#
TEST TECHNICIAN: JH
TEST DATE: 2/20/96
TEST CONFIGURATION: Mech

# REV./GAL FEET/SEC GPM % ACCURACY
1 2.00200 13.867 550.0 100.10

CERTIFIED BY: [Signature] DATE: 2/20/96

VERSION 1.7 (APRIL 4, 1995)
McCROMETER / DIVISION OF KETEMA INC.

CERTIFIED TEST REPORT
SERIAL NUMBER: 96-01271-4

PRINT DATE: 02-20-1996

Well #2
Installed 2/28/96
10:30 AM

MODEL: L0233-10
CUSTOMER NAME: HAWAII PRINCE GOLF COURSE
SOLD TO: KONA IRRIGATION
INVOICE:

METER SIZE: 4"
METER INSIDE DIAMETER: 4.026"
TEST FACILITY: 5000# JH
TEST TECHNICIAN: 2/20/96 Mech
TEST DATE:
TEST CONFIGURATION:

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<th>REV./GAL</th>
<th>FEET/SEC</th>
<th>GPM</th>
<th>% ACCURACY</th>
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<td>99.90</td>
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</table>

CERTIFIED BY: _______________  DATE: 2/20/96

VERSION 1.7 (APRIL 4, 1995)
**McCROMETER / DIVISION OF KETEMA INC.**

**CERTIFIED TEST REPORT**

**SERIAL NUMBER:** 96-01273-4

**PRINT DATE:** 02-20-1996

**Well #3**

Installed 2/28/96

10:00 AM

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**CERTIFIED BY:**

**DATE:** 2/20/96

VERSION 1.7 (APRIL 4, 1995)
**McCROMETER / DIVISION OF KETEMA INC.**

**CERTIFIED TEST REPORT**

**SERIAL NUMBER:** 96-01272-4

**PRINT DATE:** 02-20-1996

**Well #4**

**Installed 2/28/96**

9:30 AM

**MODEL:** L0233-10

**CUSTOMER NAME:** HAWAII PRINCE GOLF COURSE

**SOLD TO:** KONA IRRIGATION

**INVOICE:**

**METER SIZE:** 4"

**METER INSIDE DIAMETER:** 4.026"

**TEST FACILITY:** 5000#

**TEST TECHNICIAN:** JH

**TEST DATE:** 2/20/96

**TEST CONFIGURATION:** Mech

<table>
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<tr>
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<th>REV./GAL</th>
<th>FEET/SEC</th>
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<tbody>
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**CERTIFIED BY:**

**DATE:** 2/20/96

**VERSION 1.7 (APRIL 4, 1995)**
**McCROMETER / DIVISION OF KETEMA INC.**

**CERTIFIED TEST REPORT**
**SERIAL NUMBER:** 96-01274-4

**PRINT DATE:** 02-20-1996

**Well # 5**
 Installed 2/28/96 9:00 AM

**MODEL:** L0233-10
**CUSTOMER NAME:** HAWAII PRINCE GOLF COURSE
**SOLD TO:** KONA IRRIGATION

**INVOICE:**

**METER SIZE:** 4"
**METER INSIDE DIAMETER:** 4.028"
**TEST FACILITY:** 5000#
**TEST TECHNICIAN:** JH
**TEST DATE:** 2/20/96
**TEST CONFIGURATION:** Mech

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<th>FEET/SEC</th>
<th>GPM</th>
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<tr>
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CERTIFIED BY: [Signature]

DATE: 2/20/96

**VERSION 1.7 (APRIL 4, 1995)**
**McCROMETER / DIVISION OF KETEMA INC.**

**CERTIFIED TEST REPORT**
SERIAL NUMBER: 96-01275-6

PRINT DATE: 02-20-1996

**Well # 22**
Installed 2/29/96
11:00 AM

MODEL: M0306
CUSTOMER NAME: HAWAI PRINCE GOLF COURSE
SOLD TO: KONA IRRIGATION
INVOICE: 5870219 P.07

METER SIZE: 6"
METER INSIDE DIAMETER: 6.065"
METER OUTSIDE DIAMETER: 6.625"
TEST FACILITY: 5000#
TEST TECHNICIAN: JH
TEST DATE: 2/20/96
TEST CONFIGURATION: Mech

<table>
<thead>
<tr>
<th>#</th>
<th>REV./GAL</th>
<th>FEET/SEC</th>
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<th>% ACCURACY</th>
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</table>

CERTIFIED BY: [Signature]
DATE: 2/20/96

VERSION 1.7 (APRIL 4, 1995)
PLEASE DELIVER THE FOLLOWING PAGES TO

<table>
<thead>
<tr>
<th>DATE</th>
<th>February 16, 1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPANY</td>
<td>Attention: Lenore Nakama</td>
</tr>
<tr>
<td>SUBJECT</td>
<td>Flow Meters</td>
</tr>
<tr>
<td>FAX NUMBER</td>
<td>587-0219</td>
</tr>
<tr>
<td>THIS FACSIMILE IS BEING SENT BY:</td>
<td>Susanne</td>
</tr>
<tr>
<td>NUMBER OF PAGES (INCLUDING COVER):</td>
<td>2</td>
</tr>
</tbody>
</table>

MESSAGE:

Hi Lenore!

Here's the letter Garrick was talking to you about. If something else is needed. Please let us know.

Have a great 3 day weekend!
Susanne

CONFIDENTIALITY- This message is intended only for the use of the individual(s) to which it is addressed, and contains information that is privileged, confidential, and exempt from disclosure under message to the intended recipient, please be advised that dissemination, distribution, or copying of this facsimile is strictly prohibited.

If you have received this communication in error, we kindly request that you notify the Hawaii Prince Golf Club immediately by telephone (808)689-2200, and return the original message and all copies to us by mail in a sealed envelope. Thank you!

91-1200 Fort Weaver Road, Ewa Beach, Hawaii 96706
February 16, 1996

Hawaii Prince Golf Club
91-1200 Fort Weaver Road
Ewa Beach, HI 96706
Attn: Garrick Iwamuro

Dear Garrick,

Thank you for placing the order for the Mc Crometer flow meters with us. They will be shipped complete, 5 four inch and 1 six inch, no latter than 2/23/96. They will be direct shipped to you via Emery Air Freight. Please contact me should you have any questions.

Sincerely,
KONA IRRIGATION SUPPLY, LIMITED

Tom Peach
Vice President Sales
Mr. Garrick K. Iwamuro  
Hawaii Prince Golf Club  
91-1200 Ft. Weaver Road  
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

We understand that you have not yet installed flowmeters in the six (6) wells (Well Nos. 1900-02, 17 to 20, & 1901-03) that are used by the Hawaii Prince Golf Club for irrigation supply. This is in violation of §13-168-7(a) Hawaii Administrative Rules. It is also a violation of standard condition 11 and a special condition of your water use permit for this source.

Accordingly, staff's recommendation to the Commission on Water Resource Management (Commission) on your request for a new interim water use permit for your wells will be to deny without prejudice your request. This recommendation will be made, tentatively, at the Commission's regular meeting of March 13, 1996. We recommend that you notify us in writing immediately if you have already installed metering devices.

Please be aware that the Commission is particularly concerned about withdrawals from the Ewa Caprock Aquifer, which is the water source for your wells. Due to the large-scale land use changes from agriculture to urban uses, the behavior and long-term viability of the aquifer are uncertain. As such, we require information on pumpage and other ground water data so that the Commission can responsibly manage the water resource and ensure that existing users can continue to rely on the aquifer for irrigation and other nonpotable uses.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

[Signature]  
RAE M. LOUI  
Deputy Director

LN:ss
July 5, 1995

Honorable Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Water Use Permit (WUP) Applications
Ewa Caprock Groundwater Management Area, Oahu

Attached for your information are comments by the Board of Water Supply on the notice of applications for water use permits for the Ewa Caprock Groundwater Management Area. Comments by the Planning Department were forwarded earlier in a letter dated June 22, 1995, a copy which is attached.

Should you have any questions, please call Randolph Hara at 523-4483.

Sincerely,

Cheryl D. Soon
Chief Planning Officer

CDS:lh
Attachments
cc: Honorable Jeremy Harris, Mayor
(Mayor’s Control No. 23037)
TO: CHERYL D. SOON, CHIEF PLANNING OFFICER  
PLANNING DEPARTMENT  

FROM: RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER  
BOARD OF WATER SUPPLY  

SUBJECT: STATE WATER COMMISSION’S LETTER DATED MAY 30, 1995 TO MAYOR JEREMY HARRIS ON THE NOTICE OF APPLICATIONS FOR WATER USE PERMITS, EWA CAPROCK GROUNDWATER MANAGEMENT AREA, OAHU  

We have no objections to the applications for permits for groundwater from the Ewa Caprock Aquifer.  

If you have any questions, please contact Herbert H. Minakami at 527-6183.
June 22, 1995

Honorable Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Water Use Permit (WUP) Applications
Ewa Caprock Groundwater
Management Area, Oahu

This is in response to your memorandum dated May 30, 1995. We have reviewed the subject applications for non-potable water in the Ewa Caprock Aquifer for irrigation uses and provide the comments below for your consideration.

- Ewa by Gentry - 265,700 gpd; Hawaii Prince Golf Club - 500,000 gpd;
  Arbors - 63,000 gpd; Palm Villas II - 48,000 gpd; Palm Court - 66,000 gpd;
  Estate of James Campbell (Kapolei) - 302,000 gpd

The projects are shown on the Ewa Development Plan Land Use Map (DPLUM). Therefore, we have no objections to these temporary water use permit requests.

- Kapolei Golf Course and Villages of Kapolei - 1,494,000 gpd

The area identified within the HFDC request is designated Agriculture on the Ewa DPLUM. Although the proposed and existing uses are not consistent with this designation, the projects does have Act 15 exemption from County planning and zoning regulations. Therefore, we have no objections to HFDC request.
Ewa Marina - 1.5 mgd

The Ewa Marina (Haseko (Ewa), Inc.) development is shown on the Ewa DPLUM. However, the allocation of water for the Ewa Marina project may be premature at this time. Use of the water will not be needed until several approvals are granted. The Haseko Corporation is in ongoing discussion regarding drainage and the permits for the marina construction are part of a Commission on Water Resource Management contested case hearing.

Construction of the project including subdivision, grading and building permits will be delayed until these issues are resolved. We are unable to provide an estimate of when the project would be ready for an allocation. Please be clear that this comment regarding timing in no way is in opposition to development of Ewa Marina. The project should not be penalized from future allocations of water to implement the Ewa Development Plan.

Please be advised that the City is preparing a policy regarding reuse of Honouliuli Sewage Treatment Plant effluent within the Ewa plains area. When this effluent is available for public use, we recommend that the Commission require non-potable water users to use the treated effluent to meet their non-potable water needs.

Should you have any questions, please call Eugene Takahashi at 527-6022.

Sincerely,

CHERYL D. SOON
Chief Planning Officer

CDS:js

cc: The Honorable Jeremy Harris, Mayor
STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT
July 5, 1995
Honokaa, Hawaii

EXTENSION – Interim Water Use Permits
Ewa Caprock Ground Water Management Area, Oahu

Applicant:  
(Well Nos. 1905-08,10)  
The Estate of James Campbell  
1001 Kamokila Blvd.  
Kapolei, HI 96707

(Well Nos. 2003-01,02,04,05,07)  
State of Hawaii,  
Housing Finance & Development Corp.  
7 Waterfront Plaza, Suite 300  
500 Ala Moana Blvd.  
Honolulu, HI 96813

(Well Nos. 1900-02,17 to 20 & 1901-03)  
Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
Ewa Beach, HI 96706

(Well Nos. 2001-03,04,05,09,10 & 2003-06)  
Gentry Development Co.  
P.O. Box 295  
Honolulu, HI 96809

(Well No. 2001-07)  
The Arbors Association  
91-920 La'aulu St., #1G  
Ewa Beach, HI 96706

Landowner:  
Same

Same

Same

Same
Staff Submittal

(Well No. 2001-08)
Palm Villas II Association
91-1119 Mikohu St., #D
Ewa Beach, HI 96706

(Well No. 2002-12)
Palm Court Association
91-1019 Puanui St., #25R
Ewa Beach, HI 96706

(Well No. 1902-01)
Haseko (Ewa), Inc.
820 Mililani St., Suite 810
Honolulu, HI 96813

Background:

At the July 13, 1994 and January 25, 1995 meetings of the Commission on Water Resource Management (Commission), interim water use permits for durations of one year or less were approved for the above groundwater sources for various nonpotable uses at new developments in Ewa, Oahu. These permits are due to expire on July 12, 1995.

Expiration dates are being specified for water use permits in the Ewa Caprock because there are uncertainties regarding the present sustainable yield of the Ewa Caprock Aquifer and the impacts of land use changes on future water availability.

Requests for new water use permits to continue current groundwater uses after the July 12, 1995 expiration date have been received from each of the applicants.

RECOMMENDATION:

Staff recommends that the Commission extend the duration of the present water use permits until such time that a decision is made at a meeting on Oahu.

Respectfully submitted,

RAE M. LOUI
Deputy Director

APPROVED FOR SUBMITTAL:

MICHAEL D. WILSON, Chairperson
Unanimously approved. (Nobriga/Giralld)

ITEM 6  
PARKER RANCH, APPLICATION FOR A STREAM CHANNEL ALTERATION PERMIT, CONSTRUCTION OF A WATERLINE CROSSING, WAIKOLOA AND WAIKOLOA IKI STREAMS, KAMUELA, HAWAII (TMK 6-5-01:01 AND 21)

STAFF PRESENTATION: David Higa

Unanimously approved. (Nobriga/Cox)

ITEM 8  
EXTENSION - INTERIM WATER USE PERMITS, EWA CAPROCK GROUND WATER MANAGEMENT AREA, OAHU

STAFF PRESENTATION: Roy Hardy

Unanimously approved. (Nobriga/Cox)

ITEM 9  
STATUS REPORT ON AFTER-THE-FACT STREAM CHANNEL ALTERATION AND STREAM DIVERSION WORKS PERMITS AND PETITION TO AMEND THE INTERIM INSTREAM FLOW STANDARD, HIILAWE AND LALAKEA STREAMS, HONOKAA, HAWAII (TMK 4-8-03:06)

STAFF PRESENTATION: David Higa

The following persons gave oral and written testimonies:

Mr. Peter Simmons, Bishop Estate
Mr. Paul Matsuo, Dept. of Agriculture
Mr. Patrick Gardner, Legal Aid Society of Hawaii
Mr. Lawrence Miller
Mr. Jeffrey Quin
Mr. Robert Shioji
Mr. Ben Mahilum
Mr. Kakalau

Ms. Catherine Allen
Ms. Clara Lakakalia
Mr. Abraham Kamakawiuuole
Mr. Christopher Rathburn
Ms. Brenda Machado Lee
Mr. Jim Cain
Mr. Burt Kauhi
Mr. Karl Foytik
Mr. Kia Fronda

Chairperson Wilson stated that the purpose of this item was to get input from the community. A decision will be made at a later date.
June 22, 1995

Honorable Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Water Use Permit (WUP) Applications
Ewa Caprock Groundwater Management Area, Oahu

This is in response to your memorandum dated May 30, 1995. We have reviewed the subject applications for non-potable water in the Ewa Caprock Aquifer for irrigation uses and provide the comments below for your consideration.

- Ewa by Gentry - 265,700 gpd; Hawaii Prince Golf Club - 500,000 gpd; Arbors - 63,000 gpd; Palm Villas II - 48,000 gpd; Palm Court - 66,000 gpd; Estate of James Campbell (Kapolei) - 302,000 gpd

The projects are shown on the Ewa Development Plan Land Use Map (DPLUM). Therefore, we have no objections to these temporary water use permit requests.

- Kapolei Golf Course and Villages of Kapolei - 1,494,000 gpd

The area identified within the HFDC request is designated Agriculture on the Ewa DPLUM. Although the proposed and existing uses are not consistent with this designation, the projects does have Act 15 exemption from County planning and zoning regulations. Therefore, we have no objections to HFDC request.
Honorable Michael D. Wilson, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
June 22, 1995
Page 2

Ewa Marina - 1.5 mgd

The Ewa Marina (Haseko (Ewa), Inc.) development is shown on the Ewa DPLUM. However, the allocation of water for the Ewa Marina project may be premature at this time. Use of the water will not be needed until several approvals are granted. The Haseko Corporation is in ongoing discussion regarding drainage and the permits for the marina construction are part of a Commission on Water Resource Management contested case hearing.

Construction of the project including subdivision, grading and building permits will be delayed until these issues are resolved. We are unable to provide an estimate of when the project would be ready for an allocation. Please be clear that this comment regarding timing in no way is in opposition to development of Ewa Marina. The project should not be penalized from future allocations of water to implement the Ewa Development Plan.

Please be advised that the City is preparing a policy regarding reuse of Honouliuli Sewage Treatment Plant effluent within the Ewa plains area. When this effluent is available for public use, we recommend that the Commission require non-potable water users to use the treated effluent to meet their non-potable water needs.

Should you have any questions, please call Eugene Takahashi at 527-6022.

Sincerely,

CHERYL D. SOON
Chief Planning Officer

cc:  The Honorable Jeremy Harris, Mayor
Mr. Michael D. Wilson, Chairperson  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Subject: Your Letter of May 30, 1995 on the Ewa Caprock Groundwater Use Permit Applications

Thank you for the opportunity to comment on these applications for permits for groundwater from the Ewa Caprock Aquifer. We have no objections to the permits and return the cover memo marked accordingly.

If you have any questions, please contact Herbert H. Minakami at 527-6183.

Very truly yours,

[Signature]

FOR RAYMOND H. SATO  
Manager and Chief Engineer

Attachment
MEMORANDUM

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

FROM: Don Hibbard, Administrator
Historic Preservation Division

SUBJECT: Application for Water Use Permit, Ewa Caprock Ground Water Management Area, O‘ahu for Well Nos. 1900-02, 17-20; 1901-03; 1902-01; 1905-08,10; 2001-03-05,07-10; 2002-12; 2003-01-07 Honouliuli, ‘Ewa, Oahu
TMK: 9-1-10:6-7,17; 9-1-12:5-7; 9-1-16:01,25,35;
9-1-70:132

Thank you for the opportunity to review this project. The applicants propose to use water from existing sources. Since an approved permit will not authorize any ground disturbing activities we believe that there will be "no effect" on historic sites.

EJ:jk
To: The Honorable Michael Wilson, Chairperson
Commission on Water Resource Management

From: Dr. Bruce Anderson
Deputy Director, Environmental Health

Subject: Water Use Permit Applications

Ewa Caprock Groundwater Management
Aiea, Oahu
TMK: 9-1-12: 05

Thank you for allowing us to review and comment on the subject

We have no objections to the use of the Ewa Caprock groundwater
for irrigation purposes in the Ewa Management Area. However,
there are plans to provide treated wastewater effluent for
non-potable purposes in the immediate area of the Ewa Caprock
Aquifer. The Department of Health recommends that Water Use
Permit from this aquifer be granted only if no other alternative
source is available, and only until the effluent is available to
the applicant. Once the effluent becomes available, we recommend
that the applicant be given a reasonable time to connect to the
effluent water system, then the Water Use Permit, should be
withdrawn. Provisions to include the proper infrastructure to
implement these conditions should be required as part of any new
construction plans.

All reuse plans must conform to applicable provisions of the
Department of Health's "Guidelines for the Treatment and Use of
Reclaimed Water." We reserve the right to review the detailed
plans for conformance to these guidelines and to the Hawaii
Administrative Rules, Chapter 11-62.

Should you have any questions, please contact Ms. Lori Kajiwara
of the Wastewater Branch at 586-4294.

c: WWB
June 2, 1995

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

Dear Mr. Wilson:

Subject: Applications for Water Use Permits - Ewa Caprock Groundwater Management Area, Oahu (Public Notice)

We have reviewed the subject document received with your memorandum dated May 30, 1995, and have the following comments to offer:

1. The following TMKs are located within the State Land Use Urban District:

   9-1-10: 17
   9-1-12: 5, 6, 7
   9-1-16: 1, 35
   9-1-70: 132

2. TMKs 9-1-10: 6 and 7 are located within the State Land Use Agricultural District.

3. According to current TMK records, TMK 9-1-61: 9 has been transferred to TMK 9-1-69: 4, which is located within the State Land Use Agricultural District.

4. TMK 9-1-16: 25 is located within the State Land Use Urban and Agricultural Districts. We would like to note that LUC Docket No. A94-708/Office of State Planning, State of Hawaii, which proposes the reclassification of portions of this parcel from the State Land Use Agricultural District to the Urban District, is tentatively scheduled for action on July 27 & 28, 1995.
5. The following areas are predominantly located within the State Land Use Urban District, however, portions of these areas may also be located within the State Land Use Agricultural District:

A) City of Kapolei  
B) Kapolei Business Park  
C) Kapolei Regional Park  
D) Kapolei Golf Course  
E) Villages of Kapolei  

We have no other comments to offer at this time.

We have enclosed your cover memorandum as requested.

Should you have any questions, please feel free to call me or Kathy Yonamine at 587-3822.

Sincerely,

ESTHER UEDA  
Executive Officer  

EU:KY:th  
enc.
TO: Mr. Kali Watson, Chairperson
    Department of Hawaiian Home Lands

    Dr. Lawrence Miike, Director
    Department of Health

    Mr. Clayton H. W. Hee, Chairperson
    Office of Hawaiian Affairs

    Ms. Esther Ueda, Executive Officer
    Land Use Commission

    Mr. Raymond Sato, Manager & Chief Engineer
    Honolulu Board of Water Supply

    Mr. Patrick Onishi, Director
    Department of Land Utilization

    Mrs. Cheryl D. Soon, Chief Planning Officer
    Planning Department

FROM: Michael D. Wilson, Chairperson
      Commission on Water Resource Management

SUBJECT: Water Use Permit Applications
         Ewa Caprock Groundwater Management Area, Oahu

Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your organization or department only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

Attachment(s)

Response:

We have no comments
We have no objections
Comments attached
Additional information requested
Extended review period requested

Contact person: Kathy Yonamine
Phone: 587-3822
Signed: ____________________________
Date: 6/05/95
PUBLIC NOTICE

Applications for Water Use Permits
Ewa Caprock Groundwater Management Area, Oahu

The following applications for new interim water use permits for the Ewa Caprock Aquifer have been received and are hereby made public in accordance with Department of Land and Natural Resources Administrative Rules 13-171, "Designation and Regulation of Water Management Areas." Each of the applicants below have been awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995.

Haseko Well No. 1 (Well No. 1902-01)
Applicant: Haseko (Ewa), Inc.
820 Mililani St., Ste. 810
Honolulu, HI 96813
Date Completed Application Received: May 22, 1995
Aquifer: Ewa Caprock Aquifer System, Oahu
Water Source: Haseko Well No. 1 (Well No. 1902-01) at Oahu Sugar Co. Field 088, Ewa, Oahu, Tax Map Key 9-1-12:5
Quantity Requested: 1,500,000 gallons per day.
Water Use: Golf course, roadway, and maintenance irrigation
Place of Water Use: Ewa Marina development, Ewa, Oahu, TMKs 9-1-12:5,6,7

Geiger Park (2001-03)
Applicant: Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809
Date Completed Application Received: May 22, 1995
Aquifer: Ewa Caprock Aquifer System, Oahu
Water Source: Geiger Park (Well No. 2001-03), located near intersection of Geiger and Ft. Weaver Rds., Ewa, Oahu, TMK 9-1-16:35
Quantity Requested: 30,000 gallons per day.
Water Use: Irrigation for 10-acre park
Place of Water Use: Ewa by Gentry development, Ewa, Oahu, TMK 9-1-16:35

Sunrise Apts. (2001-04)
Applicant: Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809
Date Completed Application Received: May 22, 1995
Aquifer: Ewa Caprock Aquifer System, Oahu
Water Source: Sunrise Apts. (Well No. 2001-04), Ewa by Gentry construction site, Ewa, Oahu, TMK 9-1-61:8
Quantity Requested: 40,000 gallons per day.
Water Use: Landscape irrigation
Place of Water Use: Ewa by Gentry development, Ewa, Oahu, TMKs 9-1-61:7,41-50
Soda Creek III (2001-05)
Applicant: Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809
Date Completed Application Received: May 22, 1995
Aquifer: Ewa Caprock Aquifer System, Oahu
Water Source: Soda Creek III (Well No. 2001-05), Ewa by Gentry development, Ewa, Oahu,
TMK 9-1-70:132
Quantity Requested: 20,000 gallons per day.
Water Use: Landscape and roadway irrigation
Place of Water Use: Ewa by Gentry development, Ewa, Oahu, TMKs 9-1-70:132

Pt. Weaver Apts. (2001-09)
Applicant: Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809
Date Completed Application Received: May 22, 1995
Aquifer: Ewa Caprock Aquifer System, Oahu
Water Source: Ft. Weaver Apts. (Well No. 2001-09), Ewa by Gentry development, Ewa, Oahu,
TMK 9-1-61:2
Quantity Requested: 23,400 gallons per day.
Water Use: Landscape and roadway irrigation
Place of Water Use: Ewa by Gentry development, Ewa, Oahu, TMKs 9-1-61:2,9

Gentry Golf Course (2003-06)
Applicant: Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809
Date Completed Application Received: May 22, 1995
Aquifer: Ewa Caprock Aquifer System, Oahu
Water Source: Gentry Golf Course (Well No. 2003-06), Ewa by Gentry development, Ewa, Oahu,
TMK 9-1-61:2
Quantity Requested: 130,200 gallons per day.
Water Use: Landscape irrigation
Place of Water Use: Ewa by Gentry development, Ewa, Oahu, TMKs 9-1-61:Lots 2 & 54

Gentry Area 24 (2001-10)
Applicant: Gentry Development Co.
P.O. Box 295
Honolulu, HI 96809
Date Completed Application Received: May 22, 1995
Aquifer: Ewa Caprock Aquifer System, Oahu
Water Source: Gentry Area 24 (Well No. 2001-10), Ewa by Gentry development, Ewa, Oahu,
TMK 9-1-10:17
Quantity Requested: 22,100 gallons per day.
Water Use: Landscape and roadway irrigation
Place of Water Use: Ewa by Gentry development, TMKs 9-1-10:17
EP 22 & Wells 1 to 5 (1900-02, 17 to 20 & 1901-03)

**Applicant:** Hawaii Prince Golf Club  
91-1200 Ft. Weaver Rd.  
Ewa Beach, HI 96706

**Date Completed Application Received:** May 22, 1995

**Aquifer:** Ewa Caprock Aquifer System, Oahu  
**Water Source:** EP 22 & Wells 1 to 5 (1900-02, 17 to 20 & 1901-03), Hawaii Prince Golf Club, Ewa, Oahu, TMKs 9-1-10:6,7

**Quantity Requested:** 500,000 gallons per day.  
**Water Use:** Golf course irrigation  
**Place of Water Use:** Hawaii Prince Club, Ewa, Oahu, TMK 9-1-10:6

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Arbors (2001-07)

**Applicant:** The Arbors Homeowners Association  
91-920 La'aulu St., #1G  
Ewa Beach, HI 96706

**Date Completed Application Received:** May 22, 1995

**Aquifer:** Ewa Caprock Aquifer System, Oahu  
**Water Source:** Arbors (2001-07), The Arbors, Ewa by Gentry, Ewa, Oahu, TMK 9-1-61:32

**Quantity Requested:** 63,000 gallons per day.  
**Water Use:** Landscape irrigation  
**Place of Water Use:** The Arbors, Ewa by Gentry, Ewa, Oahu, TMK 9-1-61:28,32,36-39

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Palm Villa II (2001-08)

**Applicant:** Palm Villas II Association  
91-1119 Mikohu St., #D  
Ewa Beach, HI 96706

**Date Completed Application Received:** May 10, 1995

**Aquifer:** Ewa Caprock Aquifer System, Oahu  
**Water Source:** Palm Villa II (2001-08), Palm Villas II, Ewa by Gentry, Ewa, Oahu, TMK 9-1-61:27

**Quantity Requested:** 48,000 gallons per day.  
**Water Use:** Landscape irrigation  
**Place of Water Use:** Palm Villas II, Ewa by Gentry, Ewa, Oahu, TMKs 9-1-61:13-15,25-27,34

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Palm Court (2002-12)

**Applicant:** Palm Court Homeowners Association  
91-1019 Puanui St., #25R  
Ewa Beach, HI 96706

**Date Completed Application Received:** May 22, 1995

**Aquifer:** Ewa Caprock Aquifer System, Oahu  
**Water Source:** Palm Court (2002-12), Palm Court, Ewa by Gentry, Ewa, Oahu, TMK 9-1-61:22

**Quantity Requested:** 66,000 gallons per day.  
**Water Use:** Landscape irrigation  
**Place of Water Use:** Palm Court, Ewa by Gentry, Ewa, Oahu, TMKs 9-1-61:17-23
Kapolei Irr (1905-08 & 10)
Applicant: The Estate of James Campbell
1001 Kamokila Blvd.
Kapolei, HI 96707
Date Completed Application Received: May 22, 1995
Aquifer: Ewa Caprock Aquifer System, Oahu
Water Source: Kapolei Irr (1905-08 & 10), Kapolei City development, TMK 9-1-16:01
Quantity Requested: 302,000 gallons per day.
Water Use: Nonpotable urban uses
Place of Water Use: City of Kapolei, Kapolei Business Park, Kapolei Regional Park, Oahu

Kapolei Irr A,B,C-1,D,E (2003-01,02,04,05,07)
Applicant: State of Hawaii
Housing Finance and Development Corp. Blvd.
7 Waterfront Plaza, Suite 300
500 Ala Moana Blvd.
Honolulu, HI 96813
Date Completed Application Received: May 23, 1995
Aquifer: Ewa Caprock Aquifer System, Oahu
Water Source: Kapolei Irr A,B,C-1,D,E (2003-01,02,04,05,2003-07), Kapolei Golf Course, TMK 9-1-16:25
Quantity Requested: 1,494,000 gallons per day.
Water Use: Golf course and urban irrigation
Place of Water Use: Kapolei Golf Course and Villages of Kapolei, Oahu

Written objections or comments on the above applications may be filed by any person who has property interest in any land within the Ewa Caprock Groundwater Management Area, any person who will be directly and immediately affected by the proposed water use(s), or any other interested person. Written objections shall: (1) state property or other interest in the matter (provide TMK information); (2) set forth questions of procedure, fact, law, or policy, to which objections are taken; and (3) state all grounds for objections to the proposed permit. Written objections must be received by June 22, 1995. Objections must be sent 1) to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809 and 2) to the applicant(s) at the above address(es).

COMMISSION ON WATER RESOURCE MANAGEMENT

EDWIN T. SAKODA for

MICHAEI D. WILSON
Chairperson

Dated: 5/30/95

Mr. Garrick Iwamura  
Hawaii Prince Golf Club  
91-1200 Ft. Weaver Rd.  
Ewa Beach, HI 96706

Dear Mr. Iwamura:

Enclosed is a copy of the public notice for your water use permit application for Well Nos. 1900-02, 17 to 20 & 1901-03 which will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

Please be aware that there may be objections to your application. If objections are made, the objector is required to file such objections with the Commission and is also required to send you a copy of the objections.

You, or any other party, may respond to objections by filing a brief in support of your application with the Commission within ten (10) days of the filing of an objection. You, or the other party, must also send a copy of the response to the objector.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director

LN:ss  
Encl.
Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your organization or department only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

Attachment(s)

Response:

1. We have no comments
2. We have no objections
3. Comments attached
4. Additional information requested
5. Extended review period requested

Contact person: JUNE HARRIGAN
Phone: 586-4337
Signed: Art Bauckham
Date: 6/16/95
To: The Honorable Michael Wilson, Chairperson Commission on Water Resource Management

From: Dr. Bruce Anderson Deputy Director, Environmental Health

Subject: Water Use Permit Applications

Ewa Caprock Groundwater Management
Aiea, Oahu
TMK: 9-1-12: 05

Thank you for allowing us to review and comment on the subject applications contained in your memorandum dated May 30, 1995.

We have no objections to the use of the Ewa Caprock groundwater for irrigation purposes in the Ewa Management Area. However, there are plans to provide treated wastewater effluent for non-potable purposes in the immediate area of the Ewa Caprock Aquifer. The Department of Health recommends that Water Use Permit from this aquifer be granted only if no other alternative source is available, and only until the effluent is available to the applicant. Once the effluent becomes available, we recommend that the applicant be given a reasonable time to connect to the effluent water system, then the Water Use Permit, should be withdrawn. Provisions to include the proper infrastructure to implement these conditions should be required as part of any new construction plans.

All reuse plans must conform to applicable provisions of the Department of Health's "Guidelines for the Treatment and Use of Reclaimed Water." We reserve the right to review the detailed plans for conformance to these guidelines and to the Hawaii Administrative Rules, Chapter 11-62.

Should you have any questions, please contact Ms. Lori Kajiwara of the Wastewater Branch at 586-4294.

c: WWB
TO: Mr. Kali Watson, Chairperson
Department of Hawaiian Home Lands

Dr. Lawrence Miike, Director
Department of Health

Mr. Clayton H. W. Hee, Chairperson
Office of Hawaiian Affairs

Ms. Esther Ueda, Executive Officer
Land Use Commission

Mr. Raymond Sato, Manager & Chief Engineer
Honolulu Board of Water Supply

Mr. Patrick Onishi, Director
Department of Land Utilization

Mrs. Cheryl D. Soon, Chief Planning Officer
Planning Department

FROM: Michael D. Wilson, Chairperson
Commission on Water Resource Management

SUBJECT: Water Use Permit Applications
Ewa Caprock Groundwater Management Area, Oahu

Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your organization or department only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

Attachment(s)

Response:

[ ] We have no comments
[ ] We have no objections
[ ] Comments attached
[ ] Additional information requested
[ ] Extended review period requested

Contact person: Luis A. Monrique
Phone: 594-1935

Signed: D. O. Kellee
Date: 06/23/95
TO:  Mr. Kali Watson, Chairperson  
Department of Hawaiian Home Lands  
Dr. Lawrence Miike, Director  
Department of Health  
Mr. Clayton H. W. Hee, Chairperson  
Office of Hawaiian Affairs  
Ms. Esther Ueda, Executive Officer  
Land Use Commission  
Mr. Raymond Sato, Manager & Chief Engineer  
Honolulu Board of Water Supply  
Mr. Patrick Onishi, Director  
Department of Land Utilization  
Mrs. Cheryl D. Soon, Chief Planning Officer  
Planning Department  

FROM:  Michael D. Wilson, Chairperson  
Commission on Water Resource Management  

SUBJECT:  Water Use Permit Applications  
Ewa Caprock Groundwater Management Area, Oahu  

Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your organization or department only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

Attachment(s)

Response:  

We have no comments  
We have no objections  
Comments attached  
Additional information requested  
Extended review period requested  

Contact person:  Herbert H. Minakami  
Phone:  527-6183  

Signed:  
Raymond H. Sato  
Manager and Chief Engineer  

Date:  06/1995
Request for Comments
Water Use Permit Applications
Ewa Caprock Groundwater Management Area, Oahu

Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

Response:
( ) We have no comments
( ) We have no objections
( ) Comments attached
( ) Additional information requested
( ) Extended review period requested

Contact person: MANABU TAGOMORI
Phone: 
Signed: 
Date: 6/3
TO: Aquatic Resources  
Forestry and Wildlife/Natural Area Reserve System  
Historic Preservation  
Land Management  
Office of Conservation and Environmental Affairs  
State Parks  
Water and Land Development

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

SUBJECT: Request for Comments  
Water Use Permit Applications  
Ewa Caprock Groundwater Management Area, Oahu

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If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:
☐ We have no comments  
☐ We have no objections  
☐ Comments attached  
☐ Additional information requested  
☐ Extended review period requested

Contact person: Cathy Ticion  
Phone: 7-0382

Signed:  
Date: 4/13/95
TO: Aquatic Resources
    Forestry and Wildlife/Natural Area Reserve System
    Historic Preservation
    Land Management
    Office of Conservation and Environmental Affairs
    State Parks
    Water and Land Development

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

SUBJECT: Request for Comments
    Water Use Permit Applications
    Ewa Caprock Groundwater Management Area, Oahu

Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response: 6/7/95
( ) We have no comments
( ) We have no objections
( ) Comments attached
( ) Additional information requested
( ) Extended review period requested

DOFAW HAS NO COMMENTS OR OBJECTIONS TO THE PROPOSED REQUEST.

Contact person: Administrator
Phone: 587-0166
Signed: __________________ Date: __________

L: %: (J)

TO: Aquatic Resources
Forestry and Wildlife/Natural Area Reserve System
Historic Preservation
Land Management
Office of Conservation and Environmental Affairs
State Parks
Water and Land Development

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

SUBJECT: Request for Comments
Water Use Permit Applications
Ewa Caprock Groundwater Management Area, Oahu

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We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

Response:

( ) We have no comments
( ) We have no objections
( ) Comments attached
( ) Additional information requested
( ) Extended review period requested

Contact person: Phone: 587-0110

Signed: Date: 6-2-95

Division of Aquatic Resources

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Commission on Water Resource Management
Honolulu, Hawaii
MAY 30 1995

TO: Aquatic Resources
    Forestry and Wildlife/Natural Area Reserve System
    Historic Preservation
    Land Management
    Office of Conservation and Environmental Affairs
    State Parks
    Water and Land Development

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

SUBJECT: Request for Comments
    Water Use Permit Applications
    Ewa Caprock Groundwater Management Area, Oahu

Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:
( ) We have no comments
( ) We have no objections
( ) Comments attached
( ) Additional information requested
( ) Extended review period requested

Contact person: Phone: 587-0290
Signed: 6/11/95
TO: Aquatic Resources
    Forestry and Wildlife/Natural Area Reserve System
    Historic Preservation
    Land Management
    Office of Conservation and Environmental Affairs
    State Parks
    Water and Land Development

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

SUBJECT: Request for Comments
    Water Use Permit Applications
    Ewa Caprock Groundwater Management Area, Oahu

Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your division only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:
( ) We have no comments
( ) We have no objections
( ) Comments attached
( ) Additional information requested
( ) Extended review period requested

Contact person: ________________________________  Phone: __________________

Signed: ________________________________  Date: __________________
TO: Other Interested Parties

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

SUBJECT: Request for Comments
Water Use Permit Applications
Ewa Caprock Groundwater Management Area, Oahu

Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or interferences with the programs, plans, and objectives of the organization or agency that you represent. Written objections should be made in accordance with Section 13-171-18 of our Administrative Rules and must be filed by the June 22, 1995 deadline.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

LN:ss
Attachment(s)

Response:

( ) We have no comments
( ) We have no objections
( ) Comments attached
( ) Additional information requested
( ) Extended review period requested

Contact person: ____________________________ Phone: ____________________________

Signed: ____________________________ Date: ____________________________
TO: Mr. Kali Watson, Chairperson  
Department of Hawaiian Home Lands  
Dr. Lawrence Miike, Director  
Department of Health  
Mr. Clayton H. W. Hee, Chairperson  
Office of Hawaiian Affairs  
Ms. Esther Ueda, Executive Officer  
Land Use Commission  
Mr. Raymond Sato, Manager & Chief Engineer  
Honolulu Board of Water Supply  
Mr. Patrick Onishi, Director  
Department of Land Utilization  
Mrs. Cheryl D. Soon, Chief Planning Officer  
Planning Department  

FROM: Michael D. Wilson, Chairperson  
Commission on Water Resource Management  

SUBJECT: Water Use Permit Applications  
Ewa Caprock Groundwater Management Area, Oahu  

Transmitted for your review and comment is a copy of the public notice for water use permit applications in the Ewa Caprock Aquifer. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995. The requests are for new water use permits to continue current or immediate nonpotable uses in the Ewa Caprock Groundwater Management Area. Public notice of the water use permit applications will be published in the Honolulu Star Bulletin issues of June 3, 1995 and June 7, 1995.

We would appreciate your review of the proposed nonpotable uses for any conflicts or inconsistencies with the programs, plans, and objectives specific to your organization or department only. Please return this cover memo form by June 22, 1995.

If you have any questions regarding these applications, please contact Lenore Nakama at 587-0218.

Attachment(s)

Response:

We have no comments  
We have no objections  
Comments attached  
Additional information requested  
Extended review period requested

Contact person: ___________________________  Phone: ______________
Signed: ___________________________  Date: ______________
Honorable Jeremy Harris, Mayor  
City & County of Honolulu  
City Hall  
Honolulu, HI 96813  

Dear Mayor Harris:  

Notice of Applications for Water Use Permits  
Ewa Caprock Groundwater Management Area, Oahu  

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-171-17(a), we are sending you a copy of the public notice for water use permit applications for the Ewa Caprock Groundwater Management Area, which will be published in the Honolulu Star Bulletin.  

These requests are for new water use permits to continue current or immediate nonpotable uses at new developments in Ewa, Oahu. The applicants were previously awarded interim water use permits for durations of one year or less, which will expire on July 12, 1995.  

In addition, Section 13-171-13(b), of our Administrative Rules, states:  

"Within sixty days after receipt of notice of a permit application, the county shall inform the commission if the proposed use is inconsistent with the county land use plans and policies."  

We would appreciate receiving your comments, within the next sixty (60) days, on whether these proposed nonpotable uses are consistent with county plans and policies.  

Aloha,  

Michael D. Wilson  
Chairperson  

Enclosures
TO: Lenore Nakama - Commission on Water Resource Management

FROM: Garrick K. Iwamuro - Hawaii Prince Golf Club

DATE: May 22, 1995

RE: PROPOSED ALLOCATION ON WATER USE - 1 YEAR INTERIM USE PERMIT

Per our conversation, best guess estimate for additional water would be 500,000 gals per day to bring total allocation to 1.4 MGD. This is just an estimation, it may be more or less, depending on the results of the test that we are doing currently. I will be forwarding the results by the 5th of June. Thank you for understanding our situation.

GI/df
To: Lenore Nakama - Commission on Water Resource Management

From: Garrick K. Iwamuro - Hawaii Prince Golf Club

Date: May 19, 1995

Re: Proposed Allocation on Water Use - 1 Year Interim Use Permit

Per our conversation we are testing the percolation rate of the brackish water through the turf and soil. Also to test different amendments such as gypsum to see if that will lower the electrical conductivity in the soil, chlorides. By doing these tests we will determine the quantity of brackish water that would be necessary to lower the E.C. and leach the chlorides through. The Bermuda grass is currently not in the best shape due to the poor water quality and poor drainage. Hopefully these tests will help determine what will be the appropriate practice for us to sustain a healthy turf. I would like to delay the request till June 5th, Monday. All the data will be ready by then since some analysis will have to be done. I would like to thank you for any cooperation in this matter. If you have any questions please give me a call at 689-2200.
Mr. Garrick Iwamuro
Hawaii Prince Golf Club
91-1200 Fort Weaver Road
Ewa Beach, Hawaii 96706

Dear Mr. Iwamuro:

Notice of Water Use Permit Expiration
Well Nos. 1900-02, 17 to 20 & 1901-03
Ewa Caprock Groundwater Management Area, Oahu

On July 13, 1994, the Commission on Water Resource Management (Commission) approved a water use permit for one-year interim use of 36,000 gallons per day of brackish groundwater for Well Nos. 1900-02, 17 to 20 & 1901-03 for augmentation of the Hawaii Prince Golf Club irrigation supply. This water use permit is due to expire on July 12, 1995.

If you require continued use of this water after the July 12, 1995 expiration date, please confirm this in writing by May 22, 1995. Please indicate any modifications to the present allocation or any other permit term that should be made at this time. All proposed modifications should be fully described and supported. In addition, please attach updated annual nonpotable demand projections to the year 2000 and 5-year demand projections to project build-out for your caprock source(s).

All timely requests for new or continued use(s) of Ewa Caprock groundwater will be submitted for Commission action, tentatively, at the meeting of June 14, 1995. Failure to respond by the May 22, 1995 date will create a presumption of abandonment of the use beginning July 13, 1995. If you wish to revive the use after July 13, 1995, you must apply for a permit pursuant to §13-171-12 Hawaii Administrative Rules.

As you are aware, the Commission hired a consultant to develop a nonpotable water master plan for Central Oahu and the Ewa Plain. On April 3, 1995, you were sent a copy of the 3-part pre-final draft report, "Water Reclamation" (February 1995), which recommends reuse of treated sewage effluent as a means of recharging the caprock aquifer. Please do not overlook the May 15, 1995 deadline for submitting your comments on the draft report. Your participation and input is essential to the development and implementation of a successful nonpotable water master plan for Ewa, Oahu.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI
Deputy Director

LN:ss
Chairperson and Members
Commission on Water Resource Management

July 13, 1994

ITEM 4  
OAHU COUNTRY CLUB, WELL MODIFICATION AND WATER USE PERMIT APPLICATIONS, OCC IRRIGATION WELL (WELL NO. 2050-01)

Unanimously approved (Giraldo/Nobriga).

ITEM 3  
APPLICATIONS FOR WATER USE PERMITS AND WELL CONSTRUCTION/PUMP INSTALLATION PERMITS, EWA CAPROCK GROUND WATER MANAGEMENT AREA, OAHU

The Estate of James Campbell (1905-08 & 10)  
State of Hawaii, Housing Finance & Development Corp. (2003-01 to 05)  
Hawaii Prince Golf Club (1900-02 & 17 to 20, 1901-03)  
Gentry Hawaii, Ltd. (2001-03 to 05, 07, 08 & 2002-12)  
Gentry Development Corp. (2001-09 & 10)  
Haseko Ewa, Inc. (1902-01)

Ms. Nakama recommended that the following be added under Recommendation 1 and presented an updated summary:

"a. Any water use permit granted for Well No. 1902-01 be effective as of October 1994, when the lease to Oahu Sugar Company expires."

The following items were brought up by the Commission members:

1. Why is it that there is not enough data on the wells as far pumping?
   
   Many of the Gentry wells have been constructed in the last couple of years, therefore not much data have been received. Although the Oahu Sugar wells are old wells, there isn't much data on chlorides. Staff is in the process of establishing a network and identifying index wells that will monitor and track response.

2. When will the Non-potable Water Master Plan be completed and available for the Commission's use for decision making?
   
   As projected, the draft recommendations will be available in about four months and the final report by December.

   
   a. Provide a means to encourage cooperation in monitoring resource and finding a feasible alternate nonpotable source.
   
   b. Immediate and long-term future viability of resource is uncertain.

4. Concern was expressed and users of the wells were asked to comply with providing data as necessary.

5. Why was July 12, 1995 chosen for the duration of the water use permits rather than when the Non-potable Master Plan is finalized?
   
   a. It would be a year from the Commission meeting where it is being heard and one year permits are being recommended.
   
   b. Although the Non-potable Master Plan would be finalized, the sources may not be immediately available.
c. There is nothing to prevent the Commission from hearing the permits again in an earlier timeframe.

d. Even if the Plan is finalized, it would still take additional time for Commission review and approval.

6. Some water should be saved for agriculture, not all should be given to development.

7. Shorten permit time period to emphasize the importance of using effluent wherever possible.

Applicants Gentry, Haseko, and Campbell Estate had no testimony. HFDC provided written testimony dated July 8 (see files).

Toni Bissen of Native Hawaiian Advisory Council (NHAC) provided written and oral testimony (see files).

Ms. Nakama clarified several questions presented by Ms. Ziegler of Sierra Club Legal Defense Fund.

Chairperson Ahue asked Mr. Thomas of HFDC to clarify Mr. Conant’s request to deviate from the guidelines relative to the issuance of interim permits, subject to annual review, because the sale of the golf course would "fall through". He felt there should be some discussion relative to the policies and guidelines in regards to the sale. Mr. Thomas said timing is critical and asked the Commission to defer HFDC’s application until the next meeting so they can consult with the Commission staff.

Ms. Bissen commented that the Commission, in applying the Water Code, should be satisfied that the water request can be accommodated with the available water. With the information and uncertainties brought up, she felt that the first criterion was not established and that the standards should be adhered to. She asked what the rush was to act on the application.

Ms. Loui stated that the permits have expired and two months ago the Commission gave the applicants a two-month stay to continuing pumping. There is no official estimate for the caprock because it is a different type of resource, it is a brackish resource. Overpumpage is self-regulating in that the applicant would regulate their pumpage if it becomes too salty for use. Therefore the concern is not the same as for a basal lens.

In regards to HFDC's permit, it would make sense to continue the temporary permit and this would not stop the Commission from revisiting the permit request next month.

In regards to the issue of compliance, Dr. Sybinsky asked if staff could report to the Commission on the figures. Chairperson Ahue stated that could be done administratively.

Unanimously approved as amended (Girald/Nakata).

ITEM 5

DEPARTMENT OF TRANSPORTATION, APPLICATION FOR STREAM CHANNEL ALTERATION PERMIT, UNNAMED STREAM, MAKAPA, OAHU

Unanimously approved (Nobriga/Girald).
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Applications for Water Use Permits and
Well Construction/Pump Installation Permits
Ewa Caprock Ground Water Management Area, Oahu

Applicant:

(Well No. 1905-08 & 10)
The Estate of James Campbell

(Well Nos. 2003-01 to 05)
State of Hawaii,
Housing Finance & Dev. Corp.

(Well Nos. 1900-02 & 17 to 20, 1901-03)
Hawaii Prince Golf Club

(Well Nos. 2001-03 to 05,07,08 & 2002-12)
Gentry Hawaii, Ltd.

(Well No. 2001-09 & 10)
Gentry Development Corp.

(Well No. 1902-01)
Haseko (Ewa), Inc.

Landowner:

Same

Same

Same

Same

Same

Background

The boundaries of the brackish Ewa Caprock Aquifer were officially adopted by the Commission on March 3, 1993, without any sustainable yield estimate. In the 1988-1992 timeframe, permits totalling 19.524 million gallons per day (mgd) were awarded mainly to existing irrigation uses (eg. Oahu Sugar Co.). Other permits totalling 39.608 mgd were for various salt water and highly brackish to saline water uses (chlorides > 1,000 MG/L) at the western end of the aquifer.

To satisfy the needs of new developments in the Kapolei and Pualoa areas of the caprock (Exhibit 1), temporary water use permits not exceeding one year were granted to the applicants listed in Exhibit 2. These temporary permits expired on April 28, 1994. At the May 18, 1994 Commission meeting, action on all pending applications were deferred to allow applicants an additional thirty (30) days to comply with the conditions of the temporary permits. These conditions were met within the specified deadline, and with the exception of the City Dept. of Housing and Community Development, all applicants...
Chairperson and Members  
Commission on Water Resource Management  
July 13, 1994

have submitted requests for renewal of the allocations described in their expired temporary permits.

In addition, three new applications for future uses of caprock water require action by the Commission. Haseko (Ewa), Inc. submitted a completed application on May 18, 1994 for a new water use from an existing caprock well. The other two applications were filed by the Gentry Development Corp. for new wells, pumps, and future water uses. One of these applications was deferred at the April 28, 1994 Commission meeting because consistency with county zoning had not been established. The second Gentry application on file was completed on June 9, 1994. Specific information regarding the sources, uses, notifications, objections, and field investigation(s) are described in Attachment A and the attached exhibits.

Analysis & Issues

The current guideline used for sustainable yield for water suitable for irrigation uses (chlorides < 1,000 MG/L) is 21 mgd. After cessation of sugarcane operations, the sustainable yield will be reduced to 16 mgd. Although Yuen & Associates, Inc. (1989) made these estimates based on three aquifer systems (Malakole, Puuloa, and Kapolei), the Commission did not officially adopt the separate aquifer systems. If the sustainable yield were divided between the three aquifer systems, the Puuloa Aquifer System may be presently over-allocated. Tables 1 & 2 show current allocations and pending applications for water use permits in relation to the unofficial sustainable yield estimates for the Puuloa and Kapolei Aquifer Systems.
### Chairperson and Members
Commission on Water Resource Management

**July 13, 1994**

#### TABLE 1. PUULOA AQUIFER SYSTEM

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PUULOA AQUIFER SYSTEM (mgd)</th>
<th>12-MAV (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Yield Estimate</td>
<td>15</td>
<td></td>
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<tr>
<td>Less: Other Existing Permits*</td>
<td>(18.670)</td>
<td>15.131</td>
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<tr>
<td>Available Allocation</td>
<td>-3.670</td>
<td></td>
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<td>Expired Temporary Permits:</td>
<td></td>
<td>1.885**</td>
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<tr>
<td>Hawaii Prince Golf Club (EP 22 &amp; Wells 1 to 5)</td>
<td>0.036</td>
<td>1.770**</td>
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<tr>
<td>Gentry Pacific, Ltd. (Geiger Park)</td>
<td>0.030</td>
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<td>(Golf Villa 1)</td>
<td>0.063</td>
<td>0.028</td>
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<td>(Palm Villa 2)</td>
<td>0.048</td>
<td>0.019</td>
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<tr>
<td>(Palm Court 3)</td>
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<td>0.022</td>
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<td>(Geiger Apartment)</td>
<td>0.400</td>
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<tr>
<td>(Soda Creek III)</td>
<td>0.200</td>
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<td>Pending Complete Applications:</td>
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<td>1.786</td>
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<tr>
<td>Gentry Development Corp. (Fort Weaver Apts.)</td>
<td>0.048</td>
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<td>(Temporary Irrigation)</td>
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<td>Haseko (Ewa), Inc. (Haseko Well No. 1)</td>
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<td>Pending Incomplete Applications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haseko (Ewa), Inc. (Ewa Marina)***</td>
<td></td>
<td></td>
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</tbody>
</table>

---

* Refer to Exhibit 4 for a listing of other existing permits.
** Includes 0.9 mgd prior permitted use for Hawaii Prince Golf Club (see Exhibit 4).
*** Proposed Ewa Marina will result in a permanent reduction in storage capacity.

---

*See Supplemental Table 1. (attached)*

---

3
### Aquifer System: PUALOA

<table>
<thead>
<tr>
<th>APPLICANT</th>
<th>WELL NO.</th>
<th>WELL NAME</th>
<th>APPROVAL</th>
<th>MGD</th>
</tr>
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<tbody>
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<td>C&amp;C OF HONOLULU DAM</td>
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<td>HONOLULU I STP 1</td>
<td>03/15/90</td>
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<td>1902-04</td>
<td>HONOLULU I STP 2</td>
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<td>GENTRY DEVELOPMENT CO.</td>
<td>2001-06</td>
<td>PALM VILLA I</td>
<td>09/15/89</td>
<td>0.000</td>
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<td>GENTRY DEVELOPMENT CORP.</td>
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<td>EAIA GENTRY</td>
<td>09/27/85</td>
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<td>HAWAI'I PRINCE GOLF CLUB</td>
<td>1900-02</td>
<td>EP 22</td>
<td>10/19/88</td>
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<td>PUALOA HOMES, LTD.</td>
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<td>PUALOA HOMES, LTD.</td>
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</tr>
<tr>
<td>PUALOA HOMES, LTD.</td>
<td>1959-08</td>
<td>PUALOA DUG WELLS</td>
<td>04/18/90</td>
<td>0.000</td>
</tr>
<tr>
<td>GOOD HAWAI'I, INC.</td>
<td>1900-21</td>
<td>PUALOA GC 1RR</td>
<td>02/13/91</td>
<td>0.100</td>
</tr>
<tr>
<td>U.S. FISH &amp; WILDLIFE</td>
<td>2101-14</td>
<td>HONOLULU UNIT</td>
<td>10/27/95</td>
<td>0.215</td>
</tr>
</tbody>
</table>

16 Permits Totaling 18.670

### Aquifer System: KAPOLEI

<table>
<thead>
<tr>
<th>APPLICANT</th>
<th>WELL NO.</th>
<th>WELL NAME</th>
<th>APPROVAL</th>
<th>MGD</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINANCE REALTY</td>
<td>1904-02</td>
<td>MAKAKILO GC</td>
<td>03/15/90</td>
<td>1.150</td>
</tr>
<tr>
<td>FINANCE REALTY CO., LTD.</td>
<td>1904-03</td>
<td>MAKAKILO GC STBY</td>
<td>04/24/91</td>
<td>0.000</td>
</tr>
</tbody>
</table>

2 Permits Totaling 1.150

STATEWIDE THERE ARE 2 PERMITS TOTALING 1.150

Exhibit 4
TABLE 1. PUULOA AQUIFER SYSTEM

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Yield Estimate:</td>
<td>15</td>
</tr>
<tr>
<td>Less: Other Existing Permits:</td>
<td>-18.67</td>
</tr>
<tr>
<td>Current Available Allocation:</td>
<td>-3.67</td>
</tr>
<tr>
<td>Less: Renewal Requests</td>
<td>-0.843</td>
</tr>
<tr>
<td>Less: Requests for new uses:</td>
<td>-1.786</td>
</tr>
<tr>
<td>Total</td>
<td>-6.299</td>
</tr>
<tr>
<td>Plus: Future revocation (1902-01)</td>
<td>4.160*</td>
</tr>
<tr>
<td>Plus: Total of other OSCO permits</td>
<td>12.034</td>
</tr>
<tr>
<td>Potential available when OSCO ceases operations</td>
<td>9.895</td>
</tr>
</tbody>
</table>

* Control of well reverts back to Haseko in October 1994 when lease to OSCO expires.
all the upslope surface runoff for recharge as well. In short, HFDC has provided for perpetual prudent resource management through conservative use and through thoughtful planning for continued replenishment of the aquifer.

HFDC seeks the reasonable ability to transfer [the State's] correlative rights with respect to continued permanent use of the caprock wells in order to accomplish it's mission.

Your thoughtful consideration and expeditious response to this request will be greatly appreciated. If there are any questions please call me at 587-0640.

Sincerely,

[Signature]

JOSEPH K. ORMANT
Executive Director
ultimate home owners and in all probability a segment of "affordable" purchasers would have been displaced. The golf course provides a viable economic, as well as technical, solution to the drainage requirements of this "affordable housing" Master Planned Community in addition to recharging the caprock aquifer with all onsite surface runoff and all offsite upslope surface runoff.

The Commission has previously established a precedent by ruling and granting preference to the HFDC in allocating potable water for the State of Hawaii's "affordable" housing projects.

2. The sale of the Kapolei Golf Course is essential to the mission of HFDC. HFDC is a State created agency whose sole existence is predicated on providing "affordable housing" for the people of the State of Hawaii. HFDC is a "collateral" agency to the Department of Land and Natural Resources (DLNR), Commission on Water Resource Management, and as such the strategic interests of the DLNR/CWRM and HFDC are somewhat common in nature and the overall interests of the State will be best served with the successful sale of the Kapolei golf Course.

The sale of the Kapolei Golf Course will replenish monies into the Homes Revolving Fund which is essential to the continued mission of HFDC in the production of "affordable housing" as it relates to the State's Comprehensive Housing Strategy.

3. Permanent "conditional" use is justifiably reasonable and prudent. Until such time as the CWRM can reasonably determine the future sustainable yield of the caprock aquifer, and as long as the continued use of HFDC's wells do not significantly diminish the calculated sustainable yield, continued use of the caprock wells should be considered as a reasonable request. As the CWRM currently permits use for salt water wells, salinity is of no concern except to the user; therefore, health, safety, or permanent environmental damage would be the normal concerns that would preclude issuance of permanent use permits. Also, and as previously mentioned, HFDC has invested literally millions of dollars into the development of a "closed loop" water resource management system which replenishes the caprock aquifer with not only the on-site generated surface runoff, but also by capturing
Mr. Keith W. Ahue
Department of Land and Natural Resources
Commission on Water Resources Management
P.O. Box 621
Honolulu, HI 96809

July 05, 1994

Dear Mr. Ahue:

Thank you for the opportunity to review the water use permit application for Hāseko (Ewa), Inc. for Well 1902-01, EP 27.

The Office of Hawaiian Affairs urges the Commission on Water Resources Management to halt the granting of this and all water use permits concerning water presently allocated to sugarcane lands. In dealing with the issue of water resources being released as the sugarcane industry phases out, the Commission must produce a comprehensive long-term plan which envisions the allocation of water reserves for groups which presently have virtually no access to existing water resources. Without that plan, there is a real danger that the present vacuum in land and water use planning could provide ripe opportunities for people and organizations seeking water use monopoly.

Sincerely yours,

Dante K. Carpenter
Administrator

LM:1m
Ms. Rae M. Loui, Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809  

Dear Ms. Loui:

Subject: Amended Request for Extension of Water Use Permits  
Ewa Caprock Water Management Area  
Kapolei Irrigation Wells A, B, C, D, & E  
(Wells Nos.: 2003-01 to 2003-05)

The Housing Finance and Development Corporation (HFDC) herewith respectfully requests that HFDC's prior request for extension of well permits dated April 15, 1994, be amended as follows:

From: A request for extension for a period of twelve months from April 27, 1994 until April 27, 1995.

To: A request for a permanent "conditional" use permit, until such time as the Commission on Water Resource Management (CWRM) considers a "viable alternative source" of non-potable water is readily available for use, or that continued use of the caprock wells presently in use by HFDC is detrimental to the long term sustainable yield of the Kapolei Caprock Aquifer.

It is presently HFDC's understanding that a "viable alternative source" of non-potable water is defined as: 1) Availability of Waiahole Ditch water within an economically obtainable distance to the user, or 2) Availability of "R-2" classified wastewater, from Honolulu WWTP, within an economically obtainable distance to the user and at an economically justifiable usage cost.
This request for an amendment to our application is precipitated by the following circumstances:

1. On June 9, 1994, HFDC'S Board of Directors preliminarily approved the Kapolei Peoples, Inc. ("KPI") as the purchaser of the Kapolei Golf Course. KPI was the only party who submitted a proposal for the purchase of the Kapolei Golf Course and is ready, willing, and able to consummate the sale.

2. On June 22, 1994 the Executive Director of HFDC and staff met with the attorney for KPI to discuss the conditions of sale as proposed by KPI. The most significant condition proposed by the prospective purchaser was for a permanent commitment for 1.0 million gallons per day of non-potable irrigation water. This condition of sale, if not overcome, will prevent any further negotiation of a sales agreement between HFDC and KPI. Simply stated, if irrigation water cannot in some form be guaranteed to the prospective purchaser, there will be no sale.

3. HFDC is currently operating the wells on annual renewable "temporary use permits" which condition is unacceptable to the purchaser, KPI.

In support of the above stated request for a "conditional" permanent permitted use, and as additional historical and general information, the following facts are submitted for your consideration:

1. The Kapolei Golf Course is an "affordable housing" related project to the Villages of Kapolei Master Planned Community. The golf course serves as an integral major component in the overall master drainage system for the Villages of Kapolei (Villages), a State of Hawaii "affordable housing" project. The housing Villages themselves could not have been developed without the construction of the golf course retention/detention basin. In addition to the unique "closed loop" aquifer recharge aspects of the drainage system, the excavation of the golf course provided 2.5 million cubic yards of free fill-material required to remove approximately 1/3 of the Villages from a flood inundation zone. An alternative drainage system could have been developed, but not without tremendous additional cost to the development of the Villages. The added costs would have been passed on to the
DATE: June 17, 1994
TO: LENORE NAKAMA
FR: GARRICK IWAMURO

I hope this information satisfies the requirements. If you need additional information, please contact me at 689-2200 x 212 or 578-3033. Thank you.

Garrick

If you experience any difficulties in transmission, please contact our office at (808) 689-2202.
June 17, 1994

Ms. Rae M. Loui
Department Of Land And Natural Resources
Commission On Water Resource management
P.O. Box 621
Honolulu, HI 96809

Dear Ms. Loui,

TEMPORARY WATER USE PERMIT
EW A CAPROCK GROUND WATER MANAGEMENT AREA, OAHU

Information in this letter are being submitted in regards to additional information that was requested.

1. Information submitted on April 13th was all the data that I could find at the time. Recently I got hold of 2 Dames and Moore Hydrological Reports for the course, prior to construction. In it there are important information in regards to the Caprock Aquifer. Because I have only 1 copy each, I will submit the Table of Contents of each, so you know what it entails. If you would like a copy of any particular section please let me know.

2. Updated annual non-potable demand projections for the 4-year period 1994 through 1997.

   1994 - 1.3 MGD/per day
   *1995 - 1.15 MGD/per day
   *1996 - 1.15 MGD/per day
   *1997 - 1.15 MGD/per day

*1995 through 1997 shows a reduction in the daily usage due to a 50% reduction in water requirements for 30 acres that will be taken out of play in conjunction with a drainage project that is currently being done. Further explanations will follow.
Hawaii Prince Golf Club

FACSIMILE TRANSMITTAL

DATE: June 17, 1994

TO: LENORE NAKANA

FR: GARRICK IWANKRO

FAX NO: (808) 587-0219

OF: DLNR - WATER COMMISSION

NO OF PAGES: 4, including cover sheet

I hope this information satisfies the requirements. If you need additional information, please contact me at 689-2200 or page at 578-3033.

Thank you

Garrick

If you experience any difficulties in transmission, please contact our office at (808) 689-2202

91-1200 Fort Weaver Road, Ewa Beach, Hawaii 96706
June 17, 1994

Ms. Rae M. Loui
Department Of Land And Natural Resources
Commission On Water Resource Management
P.O. Box 621
Honolulu, HI 96809

Dear Ms. Loui,

TEMPORARY WATER USE PERMIT
EWA CAPROCK GROUND WATER MANAGEMENT AREA, OAHU

Information in this letter are being submitted in regards to additional information that was requested.

1. Information submitted on April 13th was all the data that I could find at the time. Recently I got hold of 2 Dames and Moore Hydrological Reports for the course, prior to construction. In it there are important information in regards to the Caprock Aquifer. Because I have only 1 copy each, I will submit the Table of Contents of each, so you know what it entails. If you would like a copy of any particular section please let me know.

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   *1997 - 1.15 MGD/per day

   *1995 through 1997 shows a reduction in the daily usage due to a 50% reduction in water requirements for 30 acres that will be taken out of play in conjunction with a drainage project that is currently being done. Further explanations will follow.
3. Explanation for usage above the allocation described in the expired temporary permit.

OVERAGE ON ALLOCATED WATER USAGE

The initial allocated water usage was .9 MGD. An additional .6 MGD was requested due to the water quality. Only 36,000 GPD was allowed, for a total of 936,000 GPD.

At that rate, allowing 1.5" per week equals to 40,728.6 gal per acre per week, which equals to 5,818.37 gals per acre per day. The 936,000 GPD at the 1.5" per week will cover only 160.87 acres in a day, which is not sufficient to properly irrigate the golf course.

Currently the greens/tees receive approximately 2" per week, and fairways/roughs receive 1.5" per week. Greens/tees require more water due to the greens/tees are sand based which doesn't retain much moisture.

Calculations for water requirement goes as follows:

1 acre foot = 325,828.8 gals/acre
1" per acre = 27,152.4 gals/acre

Greens/Tees = 15.2 acres at 2.0"/week

1) \[
\frac{27,152.4 \text{ gal}}{1 \text{ inch}} = X \text{ gal} \\
\frac{20 \text{ inch}}{2 \text{ inch}}
\]

2) \[X = 27,152.4 \text{ gal} \times 2.0" \text{ inch} \]

3) \[X = 54,304.8 \text{ gals to apply 2 inches to 1 acre.}\]

4) \[54,304.8 \text{ gals} \times 15.2 \text{ acres} = 825,432.96 \text{ gals/week} = 117,918.99 \text{ gals/day}\]

Fairways/Roughs = 218 acres at 1.5 inches/week

1) \[
\frac{27,152.4 \text{ gal}}{1 \text{ inch}} = X \text{ gal} \\
\frac{1.5 \text{ inch}}{1.5 \text{ inch}}
\]

2) \[X = 27,152.4 \text{ gal} \times 1.5 \text{ inch} \]

3) \[X = 40,728.6 \text{ gals to apply 1.5 inches to 1 acre}\]

4) \[40,728.6 \text{ gals} \times 218 \text{ acres} = 8,878,834.8 \text{ gals/week} = 1,268,404.9 \text{ gals per day}\]
**Parameters to factor in:** Irrigation inefficiency and leaching. Irrigation has an inefficiency factor such as wind conditions, also leaching must be done due to the sodium chlorides in the water and soil.

Irrigation inefficiency is factored at 15% and leaching is factored at 10% for a total 25% above what is needed to sustain plant life.

<table>
<thead>
<tr>
<th></th>
<th>WEEKLY</th>
<th>DAILY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greens/Tees</td>
<td>825,432.96</td>
<td>117,918.99</td>
</tr>
<tr>
<td>Fairways/Roughs</td>
<td>8,878,834.8</td>
<td>1,268,404.9</td>
</tr>
<tr>
<td>Total</td>
<td>9,704,267.7</td>
<td>1,386,323.8</td>
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</tbody>
</table>

Currently wells 1 through 5 puts out 180 GPM and they all have meters. Well number EP-22 which is an old Oahu Sugar well does not have a meter. The gallonage that is being reported for EP-22 is an estimate. The GPM was given to us by Oahu Sugar, which was 1100 GPM, but visually looking at the flow, it does not look like 1100 GPM. Currently proposals have been submitted to various contractors to install meters so an accurate measurement can be taken. I feel the quantities that were submitted in the monthly water report is not an accurate measurement of what is actually used. I apologize for not mentioning it previously.

All water usage data that have been collected are attached to this letter. The water level data was never recorded because there is no devise attached to the wells to measure water levels. I assumed that only quantities used and chlorides levels were required. Currently proposals have been sent to various contractors to install water level devices. As soon as I receive the bids then we will proceed. The Dames and Moore reports have water levels for the 5 wells (1-5) and the draw down levels prior to construction of the course, using 300,000 GPD per well as the usage per well.

**DRAINAGE AND LANDSCAPE PROJECT**

Currently we are proceeding with a drainage and landscape project. The basis for this project initially was to correct the drainage problems throughout the course. When heavy rains occur, critical areas are inundated with water so golfers are not able to play, even after the rains has stopped. Because of this, revenue is lost and could never be recovered. By correcting the problems the course could still be open and golfers could still play. Due to the cost of the project, we had to show how we could recoup the cost. To recoup the cost we had to show a cost savings somewhere. By removing out of play areas that has turf and replacing with ornamental grasses and enlarged sump pits, these areas would require less maintenance which includes less fertilizers, chemicals, mowing, labor, and water.
The areas that will be taken out of play total to 50 acres. These areas will have a combination of sump areas for holding excess rain water, sump pits with pumps to move excess water into the lakes, and ornamental plants that can tolerate chlorides and drought conditions. We have done research on the types of plant materials that can handle the conditions. So far there are 2 types, Ice plants and Pampas grass. Both are fairly drought tolerant. We are still testing other types, such as love grass and buffle grass. Currently these areas (50 acres) require 5818.37 GPD per acre. But after the project is completed they will require only 2909.18 GPD, a 50% reduction.

I hope this information will satisfy the requirements. If you need additional information please feel free to contact me at your convenience.

Sincerely,

[Signature]

Terry K. Inamura

GI/df
Mr. Garrick Iwamuro  
Hawaii Prince Golf Course  
91-1200 Fort Weaver Road  
Ewa Beach, Hawaii  96706

Dear Mr. Iwamuro:

Temporary Water Use Permit  
Ewa Caprock Ground Water Management Area, Oahu

At the May 18, 1994 meeting of the Commission on Water Resource Management (Commission), the Commission deferred action on requests to renew expired temporary water use permits for the Ewa Caprock Aquifer and granted applicants an additional thirty (30) days to satisfy the conditions for temporary permit renewal. Usages awarded by the expired temporary permits may be continued for sixty (60) days.

To support your request and comply with the directives of the Commission, the following should be provided by June 17, 1994:

1. Any and all data from caprock wells that have been generated by your firm and that have not previously been submitted to the Commission. If there are no additional data, then you must submit a written statement that, to the best of your knowledge, all caprock well data that have been generated by your firm have been provided to the Commission.

2. Updated annual nonpotable demand projections for the 4-year period, 1994 through 1997.

3. An explanation for usage above the allocation described in the expired temporary permit.

4. Any water level or chloride data that have been collected to date. If no water level data have been collected, then please provide a statement to that effect and state the reasons for your inability to collect the data. If all available chloride data have been submitted, then please provide a statement to that effect and describe the period of record for the chloride data. Regular reports of monthly water
levels and chloride data was a standard condition of your expired temporary permit.

Regarding the third item listed above: we understand that you have plans to reduce your current irrigation requirement, which include replanting to more salt-tolerant and/or drought-resistant grass species. Please provide a description of these plans along with your updated 4-year demand projections. Also, if your projected usage is greater than 4,000 gpd, a brief explanation should be given.

Your renewal request has been tentatively scheduled for the July 13, 1994 Commission meeting. If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI
Deputy Director
MINUTES
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: May 18, 1994
TIME: 9:00 a.m.
PLACE: DLNR Board Room
Kalanikukou Building
Honolulu, Hawaii

ROLL CALL
Chairperson Ahue called the meeting of the Commission on Water Resource Management to order at 9:14 a.m.

The following were in attendance:

MEMBERS: Mr. Keith Ahue
Mr. Richard Cox
Mr. J. Douglas Ing
Dr. John L. Lewin
Mr. Robert Nakata
Mr. Robert Girald

STAFF: Ms. Rae Loui
Mr. Edwin Sakoda
Mr. David Higa
Ms. Sallie Edmunds
Ms. Lenore Nakama
Ms. Sharon Kokubun

COUNSEL: Mr. William Tam

OTHERS:
Martha Black
Toni Bissen
Karen Piltz
Tom Nance
John Reppun
Carol Wilcox
Rochelle Shim
Oswald Stender
Meredith Ching
William Devick
Jolie Yee
Dave Martin
Lawana Mendes
George Hiu
Charlie Reppun
Charley Ice
Jan Takamine
Andy Yuen
Garret Hew
Guy Fujimura
Barry Ching
Chester Lao
Donna Goth
Paul Reppun
George Hudes
Donna Wong
Scott Izuka
Marjorie Ziegler
Alan Murakami
Peter Adler

All written testimonies submitted at the meeting are filed in the Commission office and are available for review by interested parties.

Chairperson Ahue introduced Mr. Robert Girald from ILWU-Kauai, the new Commissioner replacing Mr. Fujimura.

AGENDA 1
ITEM 1 MINUTES OF THE APRIL 14, 1994 MEETING

Unanimously approved (Cox/Ing).

ITEM 2 NEW BUSINESS/ANNOUNCEMENTS

Ms. Loui announced the creation of a new task force to provide recommendations to the Commission on recommendations from the Code Review Commission. The task force will be chaired by Mr. Cox and other members are Robert Nakata, Michael Chun, and William Paty.
ITEM 3

DEFERRAL - EXTENSION OF TEMPORARY WATER USE PERMITS, WELL CONSTRUCTION/PUMP INSTALLATION AND WATER USE PERMIT APPLICATIONS, EWA CAPROCK GROUND WATER MANAGEMENT AREA, OAHU

Campbell Estate - (1905-08)
State of Hawaii, Housing Finance & Development Corp. - (2003-01 to 05)
Hawaii Prince Golf Club - (1900-02, 17 to 20, 1901-03)
Gentry Pacific, Ltd. - (2001-03, 07, 08, & 2002-12)
Gentry Development Co. - (2001-04 & 05, 2001-09)
City and County of Honolulu, Dept. of Housing & Community Development - (2002-13 & 2102-23)

Mr. Ing asked to be excused from participating on this item since his law firm represents one of the applicants.

Ms. Nakama said that currently there is no established network for collecting data to assess the current/future trends in the water availability but monitoring will be started shortly. Staff had anticipated that the applicants would on their own initiative collect additional data that would go into models that are being developed which would help to better understand the resource. To date, none of the applicants have generated additional data.

Ms. Nakama also corrected the last recommendation to read as "7" instead of another "6".

Mr. Cox expressed concern on:

1) Lack of data which he and Dr. Lewin had requested last year as part of the condition.

2) Missing information on the chlorides in the water data submitted.

Ms. Donna Goth of Campbell Estate explained that the data generation and participation was not possible because the wells are currently under construction, including the monitoring well. They are expected to be completed at the end of this year and as soon as data are generated, they will be submitted. In regards to the up-dated four-year projections, they do not anticipate an increase over their current allocation.

Mr. Tom Nance, representing Gentry, Ltd., submitted testimony (see file). He stated that the deferral was a surprise since monthly water reports (although the water levels were not submitted, that could be done), alternate source plan, conservation plan, and up-dated four-year projections have been submitted.

Mr. Nance requested that the 30-day period for submittal of information be extended to a 60-day period. Ms. Loui said that staff needs time to analyze data before the submittals are finalized and presented for Commission action. Mr. Cox agreed that the 30-day period should be kept.

Mr. Cox asked what would be done in regards to the water shortage plan. Ms. Nakama stated that staff would be approaching users for the information.

Unanimously approved 1) with the understanding that the applicants will cooperate with staff to get more information on the resource and 2) with the correction of the numbering in the conditions (Nakata/Cox).
ITEM 3

DEFERRAL - EXTENSION OF TEMPORARY WATER USE PERMITS, WELL CONSTRUCTION/PUMP INSTALLATION AND WATER USE PERMIT APPLICATIONS, EWA CAPROCK GROUND WATER MANAGEMENT AREA, OAHU

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State of Hawaii, Housing Finance & Development Corp. - (2003-01 to 05)
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Unanimously approved 1) with the understanding that the applicants will cooperate with staff to get more information on the resource and 2) with the correction of the numbering in the conditions (Nakata/Cox).
ITEM 4  KUALOA RANCH, INC., APPLICATIONS FOR WATER USE PERMITS, KAHANA GROUND WATER MANAGEMENT AREA (3251-01 & 03). OAHU

Mr. Cox recalled that the Board of Water Supply (BWS) had stated they had submitted an application for this water and asked if staff had followed up on this. Ms. Nakama replied that there was no application from BWS in the file. Mr. Chester Lao from BWS stated that he did not recall an application but would check at their office and get back to staff.

Unanimously approved (Cox/Ing).

ITEM 5  CITY AND COUNTY OF HONOLULU, DEPARTMENT OF PUBLIC WORKS APPLICATION FOR A STREAM CHANNEL ALTERATION PERMIT, CONSTRUCTION OF A REINFORCED CONCRETE LINING, KAPUNAHALA STREAM, KANEHOHE

Unanimously approved (Cox/Nakata).

ITEM 6  KAUPULEHU LAND COMPANY, APPLICATION FOR PUMP INSTALLATION PERMITS, KAUPULEHU IRRIGATION WELLS 1 & 2, WELL NOS. 4757-01 & 02, KAUPULEHU, HAWAII

Mr. Ing was excused from participation in this application since his law firm represents the landowner.

Unanimously approved (Nakata/Cox).

ITEM 7  U.S. GEOLOGICAL SURVEY, APPLICATION FOR A WELL CONSTRUCTION PERMIT, DISCOVERY HARBOR OFFSITE EXPLORATORY WELL, WELL NO. 0337-01, NAALEHU, HAWAII

ITEM 8  U.S. GEOLOGICAL SURVEY, APPLICATION FOR A WELL CONSTRUCTION PERMIT, WAIOHINU EXPLORATORY WELL, WELL NO. 0437-01, WAIOHINU, HAWAII

ITEM 9  U.S. GEOLOGICAL SURVEY, APPLICATION FOR A WELL CONSTRUCTION PERMIT, PAAUILO MAUKA EXPLORATORY WELL, WELL NO. 6226-01, PAAUILO, HAWAII

ITEM 10  U.S. GEOLOGICAL SURVEY, APPLICATION FOR A WELL CONSTRUCTION PERMIT, KAUMANA ESTATES EXPLORATORY WELL, WELL NO. 4010-01, KAUMANA, HAWAII

ITEM 11  U.S. GEOLOGICAL SURVEY, APPLICATION FOR A WELL CONSTRUCTION PERMIT, KAEIE MAUKA EXPLORATORY WELL, WELL NO. 4708-02, PAPAIKO, HAWAII

Mr. Sakoda asked the Commission to act on the USGS applications together since they were all similar exploratory wells for data gathering. Mr. Ing asked how the sites were selected. Mr. Sakoda replied that the three Counties
## CONDITIONS OF TEMPORARY CAPROCK PERMITS

<table>
<thead>
<tr>
<th>Applicant</th>
<th>Monthly Reports</th>
<th>Water Shortage Plan</th>
<th>Data Generation &amp; Participation</th>
<th>Conservation Plan</th>
<th>Ewa Caprock Regional Plan</th>
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<tr>
<td></td>
<td>Pumpage</td>
<td>Water Level</td>
<td>Chlorides</td>
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<tr>
<td>DHCD</td>
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<td>*</td>
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<td>Gentry Hawaii, Ltd.</td>
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<td>No</td>
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</tbody>
</table>

* Not in use  
Yes* Intermittent
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Hawaii

Gentlemen:

DEFERRAL - Extension of Temporary Water Use Permits, Well Construction/Pump Installation and Water Use Permit Applications Ewa Caprock Ground Water Management Area, Oahu

Applicant: Landowner:
(Well No. 1905-08) Campbell Estate Same
(Well Nos. 2003-01 to 05) State of Hawaiʻi Housing Finance & Development Corp. Same
(Well Nos. 1900-02, 17 to 20, 1901-03) Hawaii Prince Golf Club Same
(Well Nos. 2001-03,07,08 & 2002-12) Gentry Pacific, Ltd. Same
(Well Nos. 2001-04 & 05) Gentry Development Co. Same
(Well Nos. 2002-13 & 2102-23) City & County of Honolulu, Dept. of Housing & Community Development Same
(Well No. 2001-09) Gentry Development Co. Same
P.O. Box 295 Honolulu, HI 96809

Background

The boundaries of the brackish Ewa Caprock Aquifer were officially adopted by the Commission on March 3, 1993 without any sustainable yield estimate. Permits totalling 19.564 mgd were awarded in the 1988-1992 timeframe mainly to existing uses (eg. Oahu Sugar Co.). To satisfy the needs of new developments in the Kapolei and Puuloa areas of the caprock (Exhibit 1), temporary water use permits not exceeding one year were granted to the applicants listed in Exhibit 2. These temporary permits expired on April 28, 1993. All applicants have submitted a request for renewal of their temporary permits.
Gentry Development Corp. submitted a new application for a combined well construction/pump installation permit to the Commission on January 21, 1994. A completed application for a water use permit for the proposed source was submitted on February 10, 1994. Specific information regarding the source, use, notification, objections, and field investigation are described in Attachment A and the attached exhibits.

Analysis & Issues

The current guideline used for sustainable yield for water suitable for irrigation in the caprock area is 21 mgd. After cessation of sugarcane operations, the sustainable yield will be reduced to 16 mgd. Although Yuen & Associates, Inc. (1989) made these estimates based on three aquifer systems (Malakole, Puuloa, and Kapolei), the Commission did not officially adopt the separate aquifer systems. If the sustainable yield were divided between the three aquifer systems, the Puuloa Aquifer System may be presently over-allocated. Tables 1 & 2 show current allocations and pending applications for water use permits in relation to the unofficial sustainable yield estimates for the Puuloa and Kapolei Aquifer Systems.

TABLE 1. PUULOA AQUIFER SYSTEM

<table>
<thead>
<tr>
<th>Item</th>
<th>Puuloa Aquifer System (mgd)</th>
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<tr>
<td>Sustainable Yield Estimate</td>
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<td>Less: Existing Temporary Permits</td>
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<td>Hawaii Prince Golf Club (EP 22 &amp; Wells 1 to 5)</td>
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<td>Gentry Pacific, Ltd.</td>
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<td>(Geiger Park) (Golf Villa 1)</td>
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<td>(Palm Court 3)</td>
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</table>
Chairperson and Members
Commission on Water Resource Management

* Refer to Exhibit 5 for a complete listing of permitted uses.
** Includes 0.9 mgd prior permitted use (see Exhibit 5).
*** Proposed Ewa Marina will result in a permanent reduction.

### TABLE 2. KAPOLEI AQUIFER SYSTEM

<table>
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<tr>
<th>ITEM</th>
<th>KAPOLEI AQUIFER SYSTEM (mgd)</th>
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<td>Available Allocation</td>
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</table>

The City & County irrigation needs are currently being met by obtaining water from Oahu Sugar Company. This change in use is a violation of the water use permits issued to Oahu Sugar Company and a reason for revocation of the permits. The City & County is requesting renewal of their temporary permit, although no usage of their allocation was ever made. Staff is conducting field verifications of the Oahu Sugar Company uses. The results of the investigation will be available by the end of the week.

The Commission has hired a consultant to develop a nonpotable water master plan for Central Oahu, including the Ewa plain. However, the scope of the work is broad and must be supported by the individual plans and programs of the applicants.

Condition 5 of the temporary permits required a joint plan for the conversion to an alternative nonpotable source. The plans that were submitted were individually written. Without exception, the applicants' plans are to utilize caprock water for as long as possible. There did not appear to be serious attempts to develop a true plan for conversion. An important policy question is the use of reclaimed water. How much should the uncertainty in caprock water availability drive the encouragement of the use of reclaimed water?

Average use by the Hawaii Prince Golf Club has exceeded permitted use for the last seven months. Higher than average usage is attributed to regular over-watering to avoid salt build-up and large evaporative losses from ten interconnected lakes, which have a total surface area of 32 acres. One of the conditions of the temporary permit was a conservation plan, yet this inefficient use was not addressed. Important policy questions are whether the Commission on Water Resource Management should take action for the over-pumpage violation and whether these temporary permits have been adequate motivation to conserve water and to find alternatives.

The available data on water quality and the effects of pumpage is limited. A network has not yet been established, and the data from the applicants is insufficient to determine impacts, let alone predict impacts. The applicants should be motivated to collect and contribute data for this type of analysis.
None of the developers have fully complied with all conditions of the temporary permit, shown in Attachments B, C, and D. Condition 9 states: “Temporary permits shall not be renewed if any of the above is not provided or followed”.

Gentry Development Co. has submitted applications for well construction/pump installation and water use permits for a new caprock source in the Puuloa Aquifer System. However, because the parcels on which the water is to be used have not been subdivided, it cannot be established that the appropriate zoning has been obtained for the project. The County has suggested that the applicant seek a determination from the Dept. of Land Utilization. The applicant is aware of the need for a zoning determination and has indicated that the necessary steps will be taken to support their application. In addition, the applicant should also be required to comply with the special conditions and conservation conditions that have been placed on other developers for temporary permit renewal.

RECOMMENDATION

Staff recommends that the Commission:

1. Defer action on the requests for temporary permit renewal until all of the conditions for renewal have been met.
2. Give the applicants a period of thirty (30) days from the date of this submittal to meet these conditions.
3. Allow the usages awarded by the expired temporary permits to continue for sixty (60) days from the date of this submittal.
4. Require that updated land use zoning information, one of the components of the Ewa Caprock Regional Plan to which all applicants are subject, be submitted in a format similar to that shown in Exhibits 3 & 4.
5. Require the submittal of any and all hydrologic data on the caprock collected to date by the applicants to meet Condition 7 of the original temporary permits.
6. Require an explanation for any usage above or below the allocated limit.

Defer the application for the Gentry Development Co. Fort Weaver Apt. Well (Well No. 2001-09) pending establishment of appropriate zoning for the project and compliance with the applicable special conditions and conservation conditions.

Respectfully submitted,

[signature]
Deputy Director

APPROVED FOR SUBMITTAL:

[signature]
KEITH W. AHUE, Chairperson
WATER USE PERMIT DETAILED INFORMATION

Source Information

AQUIFER:
Puuloa Aquifer System, Ewa Caprock Aquifer, Oahu
Sustainable Yield: NA mgd
Existing Water Use Permits: 20.225 mgd
Available Allocation: NA mgd
Total of other pending allocations: 1.738 mgd

WELL:
Ft. Weaver Apt. Well (Well No. 2001-09)
Location: Ewa by Gentry Development, Oahu, TMK: 9-1-61:2
Year Drilled: NA
Casing Diameter: 12 in.
Elevations (msl = 0 ft.)
Water Level:
Ground: NA ft.
Bottom of Solid Casing: 34 ft.
Bottom of Perforated: -16 ft.
Bottom of Open Hole: -20 ft.
Total Depth: 54 ft.
Grouted Annulus Depth: NA ft.
Pump Capacity: 100 gpm

Use Information

Quantity Requested: 48,400 gallons per day.
Proposed Type of Water Use: Landscape and roadway irrigation
Place of Water Use: Ewa by Gentry Development, Oahu at TMK: 9-1-61:2&8

Reported Water Usage: NA gpd
Nearby Similar Water Usage: 3,000 gpd
Puuloa Aquifer System
Current 12-Month Moving Average Withdrawal: 17.016 gpd

ATTACHMENT A
Chairperson and Members
Commission on Water Resource Management
May 18, 1994

Nearby Surrounding Wells and Other Registered Ground Water Use

There are fifteen other wells within a mile of the well (Exhibit 1A). Most of these are planned for future use at the Ewa by Gentry Development. No estimate of existing withdrawals from the Puuloa Aquifer System is provided in the 1992 Draft of the Oahu Water Management Plan.

Public Notice

In accordance with HAR §13-171-17, a public notice was published in the Star­Bulletin on March 17 & 24, 1994 and copies of the notice were sent to the Mayor’s office and the Board of Water Supply. Additional notice copies were sent to the County Council and Department of Water Supply. Copies of the completed application were sent to the Department of Health, Department of Hawaiian Home Lands, Office of Hawaiian Affairs, Aquatic Resources & Historic Preservation Divisions of the Department of Land and Natural Resources, and other interested parties for comments. Written comments and objections to the proposed permit were to be submitted to the Commission by April 11, 1994.

Objections

The public notice specifies that an objector meet the following requirements: (1) state property or other interest in the matter; (2) set forth questions of procedure, fact, law, or policy, to which objections are taken; (3) state all grounds for objections to the proposed permits, (4) provide a copy of the objection letter(s) to the applicant, and (5) submit objections meeting the previous requirements to the Commission by April 11, 1994. No specific objections were filed with the Commission, however, the County has indicated that appropriate zoning for the project cannot be established at this time, and the applicant should seek a determination from the Dept. of Land Utilization.

Briefs in Support

Responses to objections, or briefs in support, regarding the application are required to be filed with the Commission ten (10) days after an objection is filed and, presumably, copies are served to the applicant. No briefs in support were filed with the Commission.

Field Investigation

The application is for a proposed water source and future water use and as such, no field investigation is warranted.

ATTACHMENT A
STANDARD WATER USE PERMIT CONDITIONS

1. The ground water described in the water use permit may only be taken from the location described, used for the reasonable-beneficial use described, and at the location described above and in the attachments. Reasonable-beneficial use means "the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is not wasteful and is both reasonable and consistent with the state and county land use plans and the public interest." (HAR §13-171-2).

2. The right to use ground water is a shared use right.

3. The water use must at all times meet the requirements set forth in HAR §13-171-13 which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in section §13-171-2;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with state and county general plans and land use designations;
   f. Is consistent with county land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and 174C-101(a), HRS.

4. The ground water use approved must not interfere with surface or ground water rights or reservations.

5. The ground water use approved must not interfere with interim or permanent instream flow standards or policies as determined by the Commission. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

6. The water use permit is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

7. The water use permit application and staff submittal approved by the Commission at its May 18, 1994 meeting are incorporated into the permit by reference.

8. Any modification of the permit terms, conditions, or uses can only be made with the express written consent of the Commission on Water Resource Management.

9. The water use permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. Protect water sources in quantity, quality, or both;
   b. Meet other legal obligations including other correlative rights;
   c. Insure adequate conservation measures;
   d. Require efficiency of water uses;
   e. Reserve water for future uses, provided that all legal existing uses of water as of June 1987, shall be protected;
   f. Meet legal obligations to the Department of Hawaiian Homes, if applicable; or
   g. Carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.

ATTACHMENT B
Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

10. If the ground water source does not presently exist, the new well shall be completed, i.e. able to withdraw water for the proposed use on a regular basis, within twenty-four (24) months from the date the water use permit is approved.

11. 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 the Commission's September 16, 1992 action on reporting requirements;

12. The water use permit shall be subject to the Commission's periodic review of the applicable aquifer's sustainable yield. The amount of ground water use authorized by the permit may be reduced by the Commission if the sustainable yield of the Ewa Caprock Aquifer System, or relevant modified aquifer, is reduced;

13. The water use permit may not be transferred or the use rights granted by this permit sold or in any other way alienated. Pursuant to HAR §13-171-25 and the requirements of Chapter 174C, the Commission has the authority to allow the transfer of the permit and the use rights granted by the permit in a manner consistent with HAR §13-171-25. Any such transfer shall only occur with the Commission's prior express written approval. Any sale, assignment, lease, alienation, or other transfer of any interest in this permit shall be void.

14. The use(s) authorized by law and by the water use permit do not constitute ownership rights.

15. The permittee shall comply with all applicable laws, rules, ordinances, and other agencies' permits and conditions pertaining to water use or the water resource.

16. The permittee shall prepare and submit a water shortage plan within 30 days of issuance of the permit to assist the Commission in fulfilling HAR §13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the Ewa Caprock Ground Water Management Area.

17. The water use permit granted shall be an interim water use permit, pursuant to HAR §13-171-21. The final determination of the water use quantity shall be made within five years of the filing of the application to continue the existing use.

18. The water use permit shall be issued only after AG review.

19. The water use permit shall be subject to the Commission's establishment of instream standards and policies to Stream Protection and Management (SPAM), as well as legislative mandates to protect stream resources.

ATTACHMENT B
CONSERVATION CONDITIONS
EWA CAPROCK WATER USE PERMITS

1. The permittee shall adopt self-administered water conservation programs and plans with collective monitoring to protect and maintain the caprock resource. Water conservation programs and plans shall be submitted to the Commission within 60 days from the date of Commission approval.

2. Water conservation programs and plans shall address (as applicable) but not be limited to the following:
   a. Reduce the demand for non-potable water by:
      • Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
      • Mulching planting areas with organic materials, etc., to minimize evaporation;
      • Efficiently maintaining the plants;
      • Improving land management practices to conserve water.
   b. Improve efficiency in use and reduce losses and waste of non-potable water by:
      • Using efficiently designed landscaping and irrigation systems;
      • Monitoring irrigation requirements and controlling usage accordingly;
      • Managing irrigation scheduling to minimize water demand;
      • Eliminating opportunities for water wastage;
      • Maintaining and improving irrigation systems as necessary.
   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.
Special Conditions
Ewa Caprock Temporary Water Use Permits

1. The temporary permits shall be valid for one (1) year from its approval date (April 28, 1994).

2. Quantities of allocations for each applicant are those calculated in Exhibit 3 for 1993 under the additional required allocation column. The pending applications which have no new or negative additional requirements are denied.

3. Each applicant’s allocation shall be for the cumulative withdrawals from the corresponding well sources specified by each applicant in Exhibit 2, except for Gentry Pacific’s well sources. Staff will be working with Gentry to associate water use permits for each well with each project individually within their total required allocation as shown in Exhibit 3.

4. Each applicant’s allocation shall be used only for the corresponding uses specified by each applicant in Exhibit 3.

5. Within one (1) year, the applicants shall jointly submit a plan for the conversion to an alternative non-potable source other than the Ewa Caprock Aquifer. This plan shall include the applicant’s intentions of funding the actual development of the alternative non-potable source.

6. Within sixty (60) days after approval, each applicant shall submit a water conservation plan or program according to the conditions in Attachment C.

7. The applicants shall continue to actively participate in the continuing development of the Ewa Caprock Regional Plan and its two main components which shall be coordinated by the Commission on Water Resource Management.

8. The applicants must actively participate in generating more information to show the utility of the caprock source in the absence of OSCo. recharge irrigation over the caprock and the complete absence of OSCo. irrigation in the Pearl Harbor area.

9. Temporary permits shall not be renewed if any of the above is not provided or followed.
WELL NO. 2001-09

EXHIBIT 1A
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<th>APPLICANT</th>
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<th>WELL NAME</th>
<th>APPROVAL</th>
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<td>CAMPBELL ESTATE</td>
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14 Permits Totaling 1.771

20 Permits Totaling 3.567
### EWA Caprock Regional Plan
#### Non-Potable Water Demand Forecast

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Exhibit 3
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### Notes:
2. 0.08 mgd formerly permitted to Aloha State Corp.
3. 0.08 mgd formerly permitted to Gentry Development Co.
4. 0.90 mgd formerly permitted to The Myers Corp.
5. 0.60 mgd formerly permitted to Puuloa Homes.
6. 0.10 mgd formerly permitted to Sago, Hawaii Inc.
7. **Not including salt water use**
8. **16.14% mgd permitted to Oahu Sugar, to be cut back to 12.030 mgd in 1995.**

---

Exhibit 3
### Kapolei Caprock Area

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<th>1995 Projected Avg Use (GPD)</th>
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**TOTAL 1994 PROJECTED DEMAND** 25.102 mgd

**TOTAL 1993 PROJECTED DEMAND** 22.172 mgd

**ADDITIONAL REQUIRED** 2.930 mgd

* not including salt water use.
### Aquifer System: **KAPOLEI**

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12 Permits Totaling 2.946

Available Allocation = 2.054

### Aquifer System: **PUULOA**

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31 Permits Totaling 20.225

Available Allocation = -5.225
April 13, 1994  
94TN-071 (94-01)

Ms. Rae M. Loui  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, HI 96809  

Dear Ms. Loui:

Temporary Water Use Permit, Alternate Source Plan and Water Conservation Plan

Information in this letter and the enclosed Alternate Source Plan are being submitted to comply with requirements of our April 28, 1993 Temporary Water Use Permit. We would also like to officially notify you of our desire to continue use of our caprock wells. We have been in discussions with other landowners and developers in the area regarding supply alternatives, but it is clear that we will have to rely on our caprock wells for at least the coming year.

Alternate Source Plan

The enclosed Alternate Source Plan was prepared by Tom Nance Water Resource Engineering. It includes a discussion on the golf course's actual supply requirements which is based on:

1) The 234-acre area that we irrigate;
2) Records of nearby rainfall and pan evaporation gaging stations;
3) The need to consider irrigation inefficiency, particularly in the windy Ewa environment; and
4) A 10 percent allowance for additional supply to leach salts and avoid their build-up in the soils.

These calculations show a need for an average of 1.74 MGD through a dry year, an amount which is close to our 1.78 MGD average use rate since July 1992. We feel that our presently permitted use of 0.936 MGD is not an adequate supply.
Water Conservation Plan

Currently, on-going research is being conducted to identify drought and salt-tolerant plant materials. We have also identified areas on the golf course where the existing turf will be replaced with ornamental grasses and ground covers. By using these types of plants, irrigation requirements will also be reduced. The replanting is being done in conjunction with our drainage project. The work was started on March 4, 1994 and hope to have it completed by August of this year.

The irrigation system that is used on the course is a Toro Network 8000 system. A central computer calculates the amount of water to apply based on data from weather sensors we have installed throughout the course. The data collected are: (1) temperature; (2) relative humidity; (3) solar radiation; (4) windspeed; and (5) wind direction. The system automatically calculates the amount of water needed on a daily and weekly basis. The calculation is also specific to areas within the course. For example, if a wet spot occurs in a given area, the water applied in that location is reduced.

If a reduction of our water use is mandated by the Commission and our current efforts are not sufficient in reducing water usage, then irrigation of roughs and other out of play area will be reduced to minimal levels. If you have any questions, please feel free to call me.

Sincerely,

Garrick Iwamuro
Golf Course Superintendent

Enclosure
Alternate Non-Potable Source Plan
for the
Hawaii Prince Golf Club
April 13, 1994

Introduction

Brackish irrigation water for the Hawaii Prince Golf Club is presently supplied by EP 22 (State No. 1900-02) and five other drilled wells (Nos. 1900-17 to -20 and 1901-03). Nominal pumping capacities are 1100 GPM for EP 22 and 200 GPM for each of the five smaller drilled wells. Locations of these wells are shown on Figure 1. EP 22 is next to an irrigation lake in the golf course. The five smaller drilled wells are located along the makai boundary of the course next to the Leeward Estates residential development. Oahu Sugar Company (OSCO) also operates wells which are located in the near vicinity. Two of them, EP 20 (1900-01) and EP 24 (1901-01), are within the course itself. Two others, EP 21 (2001-01) and EP 30 (1900-13), are alongside the course's mauka and west boundaries.

Initially, the Hawaii Prince Golf Club was granted a water use permit of 0.900 MGD for EP 22 in October 1988. When it became clear that the actual irrigation requirements for the 27-hole golf course exceeded this amount, an application was made for an additional 0.600 MGD in August 1992. On April 28, 1993, the Water Commission granted a temporary use of 0.036 MGD of the requested 0.600 MGD. The additional use amount was based on a supply of 4000 GPD per acre for 234 turf acres. Several conditions were attached to this temporary use permit. Submission of this Alternate Non-Potable Source Plan was one of the conditions.

Irrigation Supply Requirements

Pumpage by the irrigation wells has averaged 1.775 MGD since July 1992 (Table 1). The salinity of the water applied is relatively high. The weighted average chloride concentration is approximately 1,000 MG/L, primarily due to the high chloride water from EP 22 (Table 2). Estimates of the turfgrass' evapotranspiration requirements for average and dry years are compiled on Table 3. The year-round average amounts are 1.135 and 1.374 MGD, respectively. To determine the required supply from wells, allowances for irrigation inefficiency (15% for evaporation from lakes and wind loss during application) and the need to leach accumulated salts (10%) must be added to the plant's consumptive use. These put the required pumpage from well sources at 1.44 MGD as a long-term average and a 1.74 MGD average through a dry year.
Potential Alternate Sources

Possible alternate sources to blend with or replace the golf course's caprock wells are: (1) use of the underlying basalt aquifer, particularly after OSCO ceases operations in mid-1995; (ii) use of Waiahole Ditch, when and if a portion of its supply becomes available; and (iii) use of treated effluent from the City's Honouliuli WWTP. Improvements necessary to use these sources are discussed in the paragraphs following. It is recognized that regulatory constraints and easement issues would need to be resolved prior to use of any of these sources.

Use of OSCO's Honouliuli Basalt Aquifer Wells (After Mid-1995). Assuming that the appropriate easements and permits could be obtained, use of one or more of OSCO's basalt aquifer pumping stations in Lower Honouliuli after the plantation's closing in mid-1995 would be a viable option. These pump stations, known as EP 3 & 4, EP 5 & 6, and EP 7 & 8, are batteries of drilled wells which are manifolded to large capacity, end suction pumps. To supply the Hawaii Prince, smaller capacity pumps would be necessary to install. Conversion from the plantation's power to Hawaiian Electric would also be necessary. EP 3 & 4, being the geographically closest of these stations, would be the logical one to use. OSCO's 24-inch pipeline from its EP 18 booster station to EP 23 would provide most of the necessary transmission link (Figure 2). This pipeline has sufficient capacity to serve a number of prospective uses on the east side of the Ewa Plain, including Ewa by Gentry, agricultural use in the Navy's "blast zone," the Hawaii Prince Golf Club, and possibly HASEKO. A section of new transmission main from EP 23 to the Hawaii Prince Golf Club would complete the delivery system into its irrigation lakes. If this pipeline extension is sized for the golf course alone, an 8-inch pipe would suffice. A larger size would be necessary if other projects such as HASEKO were also to be served.

Use of Waiahole Ditch. When and if a portion of the Waiahole Ditch supply becomes available, OSCO's existing pipe system, a portion of which is illustrated on Figure 2, would be the logical transmission link. There are two gaps in transmission capability from the end of the Ditch at elevation 650 feet in Upper Honouliuli to the Hawaii Prince. One gap is the distance from EP 23 to the golf course which is discussed above. The other is the 5100-foot distance from elevation 400 feet down to EP 15 and 16 alongside H-1 Freeway. New pipeline installation to close these gaps would be among the requirements to use this source.

Honouliuli WWTP Effluent. To comply with Department of Health regulations for wastewater reuse, the Honouliuli WWTP's effluent would have to be treated to R-1 standards. If this quality of treatment is implemented by the City or by a consortium of private developers, its delivery to Hawaii Prince could be achieved with a new, 9100-foot long pipeline from the WWTP to the golf course's irrigation lake. The pipeline route would consist of 5100 feet within the Geiger Road ROW, 2100 feet along the east side of the Fort Weaver Road ROW, and 1900 feet within the golf course. Depending on whether this source was used to augment or entirely replace the golf course's irrigation wells, the line size would be 8- or 12-inch.
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<td>9/21 - 10/20</td>
<td>30</td>
<td>1.804</td>
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<td>87.8</td>
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<tr>
<td></td>
<td>10/21 - 11/20</td>
<td>31</td>
<td>1.665</td>
<td></td>
<td>95.1</td>
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<td></td>
<td>11/21 - 12/20</td>
<td>30</td>
<td>1.112</td>
<td></td>
<td>99.7</td>
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<td>1993</td>
<td>12/21 - 1/20</td>
<td>31</td>
<td>1.111</td>
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<tr>
<td></td>
<td>1/21 - 2/20</td>
<td>31</td>
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<td></td>
<td>2/21 - 3/22</td>
<td>30</td>
<td>1.915</td>
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<td>29</td>
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<td></td>
<td>5/22 - 6/20</td>
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<td></td>
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<td></td>
<td>6/21 - 7/20</td>
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<td>2.867</td>
<td>2.009</td>
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<tr>
<td></td>
<td>7/21 - 8/20</td>
<td>31</td>
<td>2.539</td>
<td>2.050</td>
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<td>8/21 - 9/20</td>
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<td>1.876</td>
<td>2.034</td>
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<td></td>
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<td>30</td>
<td>1.245</td>
<td>1.987</td>
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<td>1.920</td>
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<td>1994</td>
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<td>31</td>
<td>1.312</td>
<td>1.937</td>
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<td></td>
<td>1/21 - 2/20</td>
<td>31</td>
<td>1.070</td>
<td>1.873</td>
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</tr>
<tr>
<td></td>
<td>2/21 - 3/20</td>
<td>28</td>
<td>1.368</td>
<td>1.828</td>
<td>57.3</td>
</tr>
</tbody>
</table>

July 1992 through March 1994 Average | 1.775 | 66.1

Notes: All values computed from the golf course's Monthly Reports submitted to the Water Commission.
Table 2
Chloride Levels of Individual Wells and Weighted Average of All Sources

<table>
<thead>
<tr>
<th>Supply Well</th>
<th>July - August 1993</th>
<th></th>
<th>February - March 1994</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chlorides (MG/L)</td>
<td>Pumpage (MG)</td>
<td>Chlorides (MG/L)</td>
<td>Pumpage (MG)</td>
</tr>
<tr>
<td>1</td>
<td>800</td>
<td>8.2944</td>
<td>985</td>
<td>4.6656</td>
</tr>
<tr>
<td>2</td>
<td>680</td>
<td>7.8306</td>
<td>905</td>
<td>6.5160</td>
</tr>
<tr>
<td>3</td>
<td>436</td>
<td>7.4112</td>
<td>775</td>
<td>1.0368</td>
</tr>
<tr>
<td>4</td>
<td>540</td>
<td>1.6395</td>
<td>650</td>
<td>1.2877</td>
</tr>
<tr>
<td>5</td>
<td>440</td>
<td>2.8512</td>
<td>675</td>
<td>1.0368</td>
</tr>
<tr>
<td>EP 22</td>
<td>1200</td>
<td>50.6880</td>
<td>1075</td>
<td>23.7600</td>
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<tr>
<td>Weighted Average</td>
<td>993</td>
<td>78.7149</td>
<td>1002</td>
<td>.38.3029</td>
</tr>
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</table>

Notes: 1. Chlorides in August 1993 by Hawaii Prince staff.
2. Chlorides in March 1994 by TNWRE.
Table 3
Computed Rainfall Deficit to be Supplied by Irrigation at the Hawaii Prince Golf Club

<table>
<thead>
<tr>
<th>Month</th>
<th>Pan Evaporation (Inches)</th>
<th>Rainfall (Inches)</th>
<th>Deficit Inches</th>
<th>Million Gallons</th>
<th>Pan Evaporation (Inches)</th>
<th>Rainfall (Inches)</th>
<th>Deficit Inches</th>
<th>Million Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAN</td>
<td>5.10</td>
<td>4.33</td>
<td>0.87</td>
<td>5.528</td>
<td>4.94</td>
<td>0.30</td>
<td>4.64</td>
<td>29.481</td>
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<td>FEB</td>
<td>5.34</td>
<td>2.48</td>
<td>2.86</td>
<td>18.171</td>
<td>6.70</td>
<td>8.92</td>
<td>0.00</td>
<td>0.000</td>
</tr>
<tr>
<td>MAR</td>
<td>6.70</td>
<td>2.32</td>
<td>4.38</td>
<td>27.829</td>
<td>6.70</td>
<td>1.51</td>
<td>5.19</td>
<td>32.976</td>
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<td>APR</td>
<td>7.36</td>
<td>1.50</td>
<td>5.86</td>
<td>37.232</td>
<td>7.54</td>
<td>0.91</td>
<td>6.63</td>
<td>42.125</td>
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<tr>
<td>MAY</td>
<td>8.13</td>
<td>0.98</td>
<td>7.15</td>
<td>45.429</td>
<td>8.85</td>
<td>0.11</td>
<td>8.74</td>
<td>55.531</td>
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<tr>
<td>JUN</td>
<td>8.73</td>
<td>0.35</td>
<td>8.38</td>
<td>53.244</td>
<td>8.81</td>
<td>0.04</td>
<td>8.77</td>
<td>55.722</td>
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<td>JUL</td>
<td>9.44</td>
<td>0.31</td>
<td>9.13</td>
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<td>AUG</td>
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<td>0.51</td>
<td>8.73</td>
<td>55.467</td>
<td>9.92</td>
<td>0.02</td>
<td>9.90</td>
<td>62.901</td>
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<td>7.96</td>
<td>0.63</td>
<td>7.33</td>
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<td>7.83</td>
<td>0.30</td>
<td>7.53</td>
<td>-47.843</td>
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<tr>
<td>OCT</td>
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<td>1.89</td>
<td>5.14</td>
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<td>7.21</td>
<td>0.24</td>
<td>6.97</td>
<td>44.285</td>
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<td>NOV</td>
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<td>2.32</td>
<td>3.62</td>
<td>23.000</td>
<td>5.57</td>
<td>0.28</td>
<td>5.29</td>
<td>33.611</td>
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<td>3.39</td>
<td>1.73</td>
<td>10.992</td>
<td>5.68</td>
<td>0.15</td>
<td>5.53</td>
<td>35.136</td>
</tr>
<tr>
<td>Annual</td>
<td>85.97</td>
<td>21.02</td>
<td>65.18</td>
<td>414.132</td>
<td>89.62</td>
<td>12.93</td>
<td>78.91</td>
<td>501.367</td>
</tr>
</tbody>
</table>

Average MGD 1.135 1.374

Notes:
1. Rainfall is from Station 744 in OSCO's Field 74 located directly across Fort Weaver Road from the Hawaii Prince Golf Club. The mean monthly values in the table are from Report R76 of the State Department of Land and Natural Resources.

2. Pan evaporation is from Station 751.2 located a short distance east of the golf course. The data and mean values are compiled in Report R-74 of the State Department of Land and Natural Resources.

3. The deficit in inches, defined as the excess of pan evaporation over rainfall, is converted to million gallons based on 234 turf acres.
Mr. Garrick Iwamuro  
Hawaii Prince Golf Course  
91-1200 Fort Weaver Road  
Ewa Beach, Hawaii 96706  

Dear Mr. Iwamuro:

Notice of Expiration  
Temporary Water Use Permit  
Ewa Caprock Ground Water Management Area, Oahu

On April 28, 1993, the Commission on Water Resource Management (Commission) granted you a temporary water use permit for the use of 36,000 gallons per day of brackish water from the combined use of EP 22 (Well No. 1900-02) and Wells 2 to 5 (Well Nos. 1900-17 to 20) for golf course irrigation. Your temporary water use permit for these sources is due to expire on April 28, 1994.

It had been anticipated that the Ewa Caprock Regional Plan would be developed during this interim one-year period. As you may recall, the Ewa Caprock Regional Plan was to provide the following:

1. Updated land use zoning, acreage, and type of land use for projected yearly authorized planned non-potable water demands to 1996; and

2. Guidance for the production of alternative non-potable sources to supplement, replace, or enhance the caprock source in the absence of sugarcane irrigation return flow.

At this time, it is apparent that additional time will be required for full development and implementation of this plan. To address the existing non-potable needs of temporary permittees in the Ewa Caprock Aquifer, the Commission staff plans to submit a request for a one-year extension of the temporary permits at the Commission meeting tentatively scheduled for April 27, 1994.

As such, please notify the Commission in writing by April 15, 1994 if your plans for the following one-year period include continued use of these sources. If any modification in
your present allocation is needed, please indicate a new amount and provide justification based on zoning, acreage, and type of land use in accordance with Commission policy. Failure to respond by the indicated deadline will create a presumption of abandonment of the use beginning April 29, 1994. If you desire to revive the use, you must apply for a permit under section 13-171-12.

We have attached a copy of the standard conditions and special conditions of your temporary water use permit. Thank you for reporting the monthly water use for each of your five wells. These data show that the combined 12-month moving average withdrawal from your wells currently exceeds your permitted use. Please provide an explanation for your use of water above the approved limit for these wells by April 15, 1994. Failure to respond by this date may result in fines of up to $1,000 for each day that you remain in violation, as provided by §13-167-10. You should be in receipt of our letter, dated March 7, 1994, requesting chloride data for these wells; monthly reports of salinity levels is a standard condition of your water use permit. Your current permit was also conditioned on the submittal of a water conservation plan by June 28, 1993. Our records show that, to date, no plan has been submitted. We also note that you have not submitted a plan for the development of, or conversion to, an alternative non-potable source in the event that the reliability of the caprock aquifer becomes diminished. Should you submit a written request for an extension of your temporary permit by the April 15, 1994 deadline, please include your plans for water conservation and conversion to an alternative non-potable water source. Any request for an extension will be conditioned on the submittal of these two plans. Lastly, please submit any additional data that you may have regarding the current and/or projected water situation of the Ewa Caprock Aquifer.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

RAE M. LOUI
Deputy Director
Special Conditions

Ewa Caprock Temporary Water Use Permits

1. The temporary permits shall be valid for one (1) year from its approval date (April 28, 1994).

2. Quantities of allocations for each applicant are those calculated in Exhibit 3 for 1993 under the additional required allocation column. The pending applications which have no new or negative additional requirements are denied.

3. Each applicant’s allocation shall be for the cumulative withdrawals from the corresponding well sources specified by each applicant in Exhibit 2, except for Gentry Pacific’s well sources. Staff will be working with Gentry to associate water use permits for each well with each project individually within their total required allocation as shown in Exhibit 3.

4. Each applicant’s allocation shall be used only for the corresponding uses specified by each applicant in Exhibit 3.

5. Within one (1) year, the applicants shall jointly submit a plan for the conversion to an alternative non-potable source other than the Ewa Caprock Aquifer. This plan shall include the applicant’s intentions of funding the actual development of the alternative non-potable source.

6. Within sixty (60) days after approval, each applicant shall submit a water conservation plan or program according to the conditions in Attachment C.

7. The applicants shall continue to actively participate in the continuing development of the Ewa Caprock Regional Plan and its two main components which shall be coordinated by the Commission on Water Resource Management.

8. The applicants must actively participate in generating more information to show the utility of the caprock source in the absence of OSCo. recharge irrigation over the caprock and the complete absence of OSCo. Irrigation in the Pearl Harbor area.

9. Temporary permits shall not be renewed if any of the above is not provided or followed.

ATTACHMENT A
STANDARD WATER USE PERMIT CONDITIONS

1. The ground water described in the water use permit may only be taken from the location described, used for the reasonable-beneficial use described, and at the location described above and in the attachments. "Reasonable-beneficial use" means the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is not wasteful and is both reasonable and consistent with the state and county land use plans and the public interest. (HAR §13-171-2).

2. The right to use water is a shared use right.

3. The water use must at all times meet the requirements set forth in HAR §13-171-13 which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in section §13-171-2;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with state and county general plans and land use designations;
   f. Is consistent with county land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act.

4. The ground water use must not interfere with surface water rights or interim instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

5. The water use permit is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

6. The water use permit application and staff submittal approved by the Commission at its March 17, 1993 meeting are incorporated into the permit by reference.

7. Any modification of the permit terms, conditions, or uses can only be made with the express written consent of the Commission on Water Resource Management.

8. The water use permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. Protect water sources in quantity, quality, or both;
   b. Meet other legal obligations including other correlative rights;
   c. Insure adequate conservation measures;
   d. Require efficiency of water uses;
   e. Meet reserved water requirements for future uses, provided that all legal existing uses of water as of June 1987, shall be protected;
   f. Meet legal obligations to the Department of Hawaiian Homes, if applicable; or
   g. Carry out such other necessary and proper exercise of the State's and the Commissions's police powers under law as may be required.

ATTACHMENT B
Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

9. 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 exempting this quantity of use from reporting requirements.

10. The water use permit shall be subject to the Commission's periodic review of the applicable aquifer's sustainable yield. The amount of ground water use authorized by the permit may be reduced by the Commission if the sustainable yield of the Ewa Caprock Aquifer, or relevant modified aquifer, is reduced.

11. The water use permit may not be transferred or the use rights granted by this permit sold or in any other way alienated. Pursuant to HAR §13-171-25 and the requirements of Chapter 174C, the Commission has the authority to allow the transfer of the permit and the use rights granted by the permit in a manner consistent with HAR §13-171-25. Any such transfer shall only occur with the Commission's prior express written approval. Any sale, assignment, lease, alienation, or other transfer of any interest in this permit shall be void.

12. The use(s) authorized by law and by the water use permit do not constitute ownership rights.

13. The permittee shall request modification of the permit when necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use.

14. The permittee shall prepare and submit a water shortage plan within 30 days of issuance of the permit to assist the Commission in fulfilling HAR §13-171-42(c). The permittee's water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the Ewa Caprock Ground Water Management Area.

15. The water use permit granted shall be an interim water use permit, as allowed under HAR §13-171-21. The final determination of the water use quantity shall be made within five years of the filing of the application to continue the existing use.

16. The water use permit shall be issued only after AG review.

ATTACHMENT B
CONSERVATION CONDITIONS
EWA CAPROCK WATER USE PERMITS

1. The permittee shall adopt self-administered water conservation programs and plans with collective monitoring to protect and maintain the caprock resource. Water conservation programs and plans shall be submitted to the Commission within 60 days from the date of Commission approval.

2. Water conservation programs and plans shall address (as applicable) but not be limited to the following:

   a. Reduce the demand for non-potable water by:
      • Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
      • Mulching planting areas with organic materials, etc., to minimize evaporation;
      • Efficiently maintaining the plants;
      • Improving land management practices to conserve water.

   b. Improve efficiency in use and reduce losses and waste of non-potable water by:
      • Using efficiently designed landscaping and irrigation systems;
      • Monitoring irrigation requirements and controlling usage accordingly;
      • Managing irrigation scheduling to minimize water demand;
      • Eliminating opportunities for water wastage;
      • Maintaining and improving irrigation systems as necessary.

   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.

ATTACHMENT C
MINUTES
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: April 28, 1993
TIME: 9:00 a.m.
PLACE: DLNR Board Room
Kalanimoku Building
Honolulu, Hawaii

ROLL CALL
Chairperson Ahue called the meeting of the Commission on
Water Resource Management to order at 9:12 a.m.

The following were in attendance:

MEMBERS: Mr. Richard Cox
Mr. Robert Nakata
Mr. Guy Fujimura
Mr. J. Douglas Ing
Dr. John Lewin

STAFF: Ms. Rae Loui
Mr. Edwin Sakada
Mr. George Matsumoto
Mr. Dave Higa
Mr. Glenn Bauer
Mr. Roy Hardy
Mr. Eric Hirano
Mr. Yoshiaki Shiroma
Ms. Juliana Zhang
Ms. Sharon Kokubun
Ms. Faith Ching
Ms. Lenore Nakama

OTHERS:

Joyce Brown     Dave Martin     Lawana Mendes     Burt Kuioka
Gary Lee        Nelson Lee      Barry Edwards     Stephen Thomas
Samuel Keala    Edsel Yamada    Charley Ice       George Yuen
John Chang      Lola Mench      Marjorie Ziegler  Jim Anthony
Donna Goth      Alan Suwa       Creighton Mattoon Owen Matsunaga
Jason Yoshida   Marshall Lovett Darrick Iwamura Martha Black
Mel Hewett      Steve Bowles    Guido Giacometti  William Meyer
Ross Kaneko     Jim Eychaner    Orin Jackson      Robert Miyasato
Hiromi Usami    Robert Tong     Joan Scanlan      Bo Olsen
Joe Kaakua      Sydney Kelipuleole Regina Gregory  Libert O'Sullivan
Harry Wasson    Dawn Wasson    Howard Cress, Jr. Vicki Akana
Winifred Miller Witt Akana     Dawn Ramsey      Glenn Saike
Steve Hicks     Ken Melrose     Vince Bagoyo      Rick Stack
Neal Wu         Ron Jackson     Glenn Abe        Andrew Monden
Manuel Emilian  Kazu Hayashida  David Miconzyk

All written testimonies submitted at the meeting are filed in the Commission office and are
available for review by interested parties. Some items were taken out of sequence to
accommodate requests by the applicants or interested parties.
MINUTES OF THE MARCH 17, 1993 MEETING

Unanimously approved as submitted (Nakata/Cox).

Mr. Martin asked for the status of the review by the Attorney General's Office on the Stanhope Farms application regarding reasonable beneficial use.

Ms. Loui stated that the review has not yet been completed.

KOOI.AU AGRICULTURAL CO., LTD., APPLICATIONS FOR A WATER USE PERMIT AND WELL CONSTRUCTION AND PUMP INSTALLATION PERMITS FOR MAKALII I, II, & III WELLS (WELL NOS. 3452-02, 3453-12 & 13), KAHANA GROUND WATER MANAGEMENT AREA, WINDWARD, OAHU

Mr. Hardy summarized the submittal and objections received on the application. He stated that the objections revolved around other ongoing disputes in the area and a general lack of knowledge about the aquifer source.

Mr. Nakata asked Mr. Tam if reliance would be created since the 12" well could be converted immediately into a production well. Mr. Tam stated that because it is a designated ground water area there has to be:

1) a construction permit
2) a pump installation permit, and
3) a water use permit

Further, that it would be wise for the Commission to advise the applicant that the water use permit is not pre-ordained and that any expenditures made prior to obtaining the water use permit are done at their own risk so there is not a later argument that there is an obligation by the Commission to issue the water use permit.

Mr. Nakata asked:

1) If the well is permitted would it supply data to determine whether or not the Makalii Aquifer is a separate system from the Kahana System.
2) Is the area of the supposed aquifer and the conditions large enough to produce the amount of water that is being looked for within the boundaries of the smaller aquifer.
3) Would there be water coming from outside the geographical boundaries of the aquifer in order to produce the 1.5 mgd being requested.
4) Are there other property owners other than Koolau Agricultural Co. and Bishop Estate who would bring up the question of correlative uses.

Mr. Hardy replied that:

1) The pump test may or may not provide information on the separate system.
2) The applicant claims the initial pump test (done with the existing well) preliminarily indicated that the source was adequate, although staff has not received the data.
3) We don't know if the geographic boundaries match any geologic boundaries. It might be possible that the basal Makalii Aquifer is somewhat separate from a dike confined area. However, since the ocean is close and there are streams in the area, those would be more likely to be affected before water from a dike area is affected.
4) There may be other property owners claiming correlative rights.

In regards to staff’s Recommendations 1 and 2, Mr. Ing asked what would be the status of the well construction application for Well No. 1. After discussion it was clarified that Well No. 1 would not assist in assessing the potential hydrologic impacts, just Wells 2 or 3.

Mr. Ing excused himself from participation on this application because his law firm represents the Bishop Estate.

Mr. Jason Yoshida representing Koolau Agricultural Company (Koolau Ag) read into the record a letter (copy in the Commission file) on the background of the project and Koolau Ag’s concerns.

Referring to Mr. Yoshida’s testimony, Mr. Fujimura asked how binding one particular statement would be:

"Any well construction applications will be submitted with the understanding that Koolau Ag will be assuming the entire risk of well construction and that there are no assurances that a water use permit will follow."

Mr. Tam stated that if counsel represents and is the agent of the applicant as to arguments they would subsequently make in a court of law with regard to claims for reliance, he interprets it as "an assumption of a risk freely and willfully taken."

Mr. Cox asked if arrangements had been made with BWS to have the well and site dedicated to them. Mr. Yoshida replied that Koolau has been coordinating the design and infrastructure of the well with BWS to meet their specifications to allow for the easy turnover to the BWS system.

In regards to the dedication to BWS, Mr. Fujimura recalled that a strong position was taken by the applicant regarding the agricultural use of this water. He asked that the records be examined to determine what the implication was for the use of the water. He also recalled that the same subject was not clear at the Windward ground water designation hearing. A statement was made by the applicant at the hearing that it has always been their position that the water would be for agricultural purposes. Although, it may have always been the applicant's position to dedicate the system, the question of ag use vs. potable municipal was not as clear.

Mr. Yoshida added that once it is dedicated, the BWS would make a determination as to who uses that water. Mr. Fujimura said he understood that but he wanted it to be clear what implications were being made by the applicant as to what the water would be used for.

Mr. Creighton Mattoon, Chair of the Koolauloa Neighborhood Board, asked that the application be denied due to concerns that plans for water for the immediate area be determined before plans are made to transfer the water out of the area.

Dr. Jim Anthony of The Hawaii-Laieikawai Association, Inc. (HLA) provided Mr. Yoshida with his objections to Koolau’s application and also asked that all his previous submissions on this issue and noted in official records, including the Commission minutes, be reincorporated as part of his testimony. He felt there are many correlative rights issues that have not been addressed by the applicant and that the Commission "must" address before they can give an approval to this application. Dr. Anthony read into the record his testimony for the Commission’s denying the application (see Commission files) stating that the applicant’s purpose was to create a "water banking scheme."

Dr. Lewin inquired if any discussions were held with the community and BWS in regards to the water uses. Dr. Anthony stated that there has not been any discussion and he did not think any plans had been submitted. Mr. Hardy added
that he would send Dr. Anthony a copy of a letter dated February 8, which shows the BWS intention and that the applicant has coordinated all plans to drill wells and that the wells can be incorporated into the BWS system.

Dr. Anthony stated that if BWS was so interested in the water, why weren't they developing the water themselves. Mr. Nakata asked the BWS representative what their plans were for the water.

Mr. Burt Kuioka of BWS Planning Branch stated that at this time they have no firm commitments with Koolau Ag and until the capacity of the exploratory wells are known there are no definite commitments. Koolau Ag expressed an interest in incorporating the source into the BWS system. Mr. Fujimura asked if their interest was expressed by letter, phone call, or letter of intent. Mr. Kuioka said he was not involved in the meetings that were held with Koolau Ag and did not know of the details.

Mr. Nakata asked if specific development projects were identified as possible users of this water and requested that BWS inform the Commission of those possibilities. Mr. Kuioka said that would be possible.

Dr. Lewin requested that the Commission be provided with the criteria or system for allocation of water in regards to:

1) Where the water goes.  
2) How it would be used.  
3) If it is developed would it be for growth in the Windward side.  
4) Or is it first come, first served.

Mr. Kuioka said it is first come, first served to the extent that if the developer has zoning approvals, approved permits, and if water is available; they would receive a commitment. Dr. Lewin asked if that was first come, first served based on proximity to the source or first come, first served in terms on whereever on the island the water is needed. Mr. Kuioka stated that if the water can be transported to the area and can be made available to the development at the point of need, then it would be first come, first served.

Mr. Fujimura wanted it made clear that he was not against water transport or people being innovative in finding water, but if the water system was being dedicated by Koolau Ag is it free and clear that it would be going into the system or was it in consideration of a water plan for some other project. Mr. Kuioka said that response would be provided to the Commission.

Mr. Joe Kaakua of the Project Development Branch at BWS provided information on their allocation procedures. He stated that if the developer installs a well (source), BWS reserves that source for the development. If BWS installs a source, that capacity is for growth of the existing system.

Mr. Nakata asked if that meant that a landowner could have a development in one section of the island and owns property in another he could develop water at one site and move it to the development and that the water would be reserved for that development. Mr. Kaakua replied that if its possible, although it is not always possible. Ms. Loui asked how long that water would be reserved for that developer. Mr. Kaakua stated that it is reserved indefinitely.

Referring to Dr. Anthony's testimony regarding groundwater/surface water interaction, Mr. Cox asked if putting in an exploratory well would determine any connection. Dr. Anthony did not feel Koolau Ag was the right party to put in the exploratory well and that it should be a matter for BWS.

Mr. Dave Miconzyk, Vice President of the Punaluu Association, asked the Commission to proceed cautiously because he felt this was another "taking of Punaluu Stream" and that the application should be rejected.
Mr. Nakata asked Mr. Tam if there are correlative rights where the property is located if that water is to be used for another piece of property. Mr. Tam said in a non-designated area there is no water use permit, therefore there is no determination of correlative rights. In a designated area, a water use permit will be a preliminary determination of correlative rights. The water use permit itself will have a condition that provides for the reduction of that amount of water in order to satisfy the correlative rights of other landowners in that area.

Mr. Owen Matsunaga, attorney for the Wellings, requested that the Commission deny the application because his client's water has been significantly reduced due to the installation of the 18" pipeline.

Mr. Marshall Lovett also asked that the permit be denied and suggested that a meter be installed on the 18" pipe to measure that amount of water flowing into the ditch by the ocean.

Mr. Dave Martin of NHAC read his testimony for the record (copy in Commission files). He was generally in agreement with staff recommendation to deny the water use permit but was concerned about the permit processing procedural details. Further discussion followed regarding the water use permits/well drilling permits and related issues.

Mr. Cox inquired if the Commission staff could review the pump test results in terms of effects on the stream. Ms. Loui said that the staff could do it, but that she asked for the assistance of USGS and they have agreed to provide assistance. Mr. Martin then asked if USGS had commented on the Makalii aquifer theory because he felt it would be a prerequisite to determine if it was a separate aquifer. Ms. Loui said that they had not submitted comments but stated that they agree that pump test information is needed.

Mr. Bo Olsen of International Aqua Farm asked the Commission to deny the permit because he was not provided the water service that he was paying for.

Ms. Marjorie Ziegler of SCLDF agreed with staff recommendation to deny the permit. Their objections to the permit were submitted on February 1, 1993. Ms. Ziegler served Mr. Yoshida with SCLDF's May 21, 1992 letter in which issues were raised, as well as the February 1, 1993 letter. They agreed that a public hearing should be held if and when Koolau Ag reapplies for a water use permit. Ms. Ziegler stated that they have been receiving numerous calls for dispute resolution but are not able to address the disputes because they do not have enough information as well as access to the property. Regardless of the action taken on the water use permit before the Commission, Ms. Ziegler asked the Commission to initiate a formal dispute resolution process. She made a number of recommendations which were included in her written testimony. (SCLDF written testimony received on May 5, 1993 for the Commission file).

Mrs. Dawn Wasson of Hui Malama Aina O'Laie asked that the permit be denied because the water is not in the streams and is not being made available to kuleana landowners.

Mr. William Meyer of USGS commented on testimony heard earlier and based on work done by USGS in Punaluu Valley. He stated that a USGS report discusses the interaction of surface/ground water in Punaluu Valley and that one of the conclusions is that there is a connection between the surface/ground water. Mr. Meyer agreed with staff's testimony that testing could be done to decide if there is no connection. The following recommendations were suggested:

1) Test be set up properly
2) Importance of well location
3) Well closest to the stream be tested
4) Criteria for testing be established before the testing
5) Criteria should deal more with the drawdown in the well itself
Mr. Nakata inquired about:

1) BWS right to condemn land to place wells
2) The harm in the applicant's waiting for BWS to place wells at a later time.
3) The applicant being compensated for damages (should land be condemned)

Mr. Kuioka explained that it was not an unusual situation whereby the developer is allowed to drill the wells. It has been done over a number of years. He was not familiar with the condemnation process, this would be better answered by their Land Division.

Mr. Yoshida replied that their determination for placing the wells corresponds to their long-range planning to develop the Koolau Ag property for farming use. If BWS comes in with their powers of condemnation at a later date, they may choose sites which may be unfeasible for the applicant.

Mr. Fujimura recalled that sites were chosen scientifically for "optimum extraction" and asked if BWS and the applicant's consultant would have chosen different sites. Mr. Kuioka said sites were previously chosen but he had not compared them to the applicant's. He felt all three exploratory wells should be drilled to determine what the total impact would be on the stream.

Discussion followed in regards to policy adopted in regards to action taken on Molokai's Highlands wells and what would be a compelling force to change that policy. Mr. Hardy replied that the current policy is a good one, whereby in areas where not much is known hydrologically it would be prudent to have the exploratory well go in before the water use permit. Ms. Loui said the difference in the Highlands project it would be the only well relied on for the golf course, therefore it would be stronger reliance on the investment. Mr. Tam added that in the case of the Molokai application there was no surface water interaction in question.

Chairperson Ahue asked if the USGS testimony would change staff's recommendation. Ms. Loui amended Recommendation 2.

Mr. Cox asked if the Commission's budget would allow for the exploratory wells. Ms. Loui replied that it does not.

In regards to the risk statement, Mr. Fujimura interprets it as being focused on the impact on the stream but asked what would be the assumption of risk regarding the policies the Commission may make in terms of reservation, etc. Mr. Tam stated that the permit being addressed is only a well construction permit for one well and the reliance issue involved is the expense and time in doing the well. The issue about reservation with regard to DHHL and other claims does not arise here but in the water use decision, which would be taken up in the future.

Dr. Lewin asked Mr. Meyer how valuable the information regarding the interaction of ground/surface water would be. Mr. Meyer said there is a larger need to understand the relationship between ground/surface water and that it is of significant value to the State.

Motion was made to accept staff recommendation with the following modification to Recommendation 2:

"...invite the applicant to resubmit a well construction permit application for approval for Makalii III prior to July 15, 1993 for exploratory and hydrologic testing purposes only. Further, that agreement on the methodology to test for ground and surface water interaction will be required prior to approval of the well construction permit."

Mr. Nakata commented that he would support the recommendation but that he will not necessarily support the construction permit when it comes before the Commission.

- 6 -
Ms. Ziegler asked if USGS, as well as staff hydrologists would be involved in the testing protocol issues. Ms. Loui replied that they would be involved.

Approved as amended (Lewin/Cox).

ITEM 3
OAHU COUNTRY CLUB, APPLICATION FOR A WATER USE AND WELL CONSTRUCTION PERMIT, OCC IRRIGATION TEST WELL (WELL NO. 2050-01), NUUANU GROUND WATER MANAGEMENT AREA, HONOLULU, OAHU

Unanimously approved (Cox/Lewin).

ITEM 4
MCKINLEY HIGH SCHOOL, APPLICATIONS FOR WATER USE, WELL CONSTRUCTION, & PUMP INSTALLATION PERMITS, MCKINLEY AQUACULTURE WELLS I & II (WELL NOS. 1850-28 & 29), (CAPROCK) NUUANU GROUND WATER MANAGEMENT AREA, HONOLULU, OAHU

Mr. Ing asked if both wells were currently permitted. Mr. Hardy said the first well is permitted as far as construction but not for the water use permit portion. He explained that previously the caprock was not an aquifer that needed scrutiny, therefore no water use permit was required at that time. Mr. Ing asked if the condition that a monthly water use be reported was explained to the applicant and if they could do it.

Mr. Glenn Saike, the agricultural instructor at McKinley, stated that when the project was started they were not aware of the permits involved. Because the project is being regulated the water use information can be submitted to the Commission. The next well will expand their facility. Part of the program will be to have the students calculate the amount of water for each tank.

Unanimously approved (Fujimura/Ing).

ITEM 5
RESUBMITTAL: APPLICATIONS FOR WATER USE PERMITS EWA CAPROCK GROUND WATER MANAGEMENT AREA, EWA, OAHU

Mr. Hardy stated that said the following amendments be made to the Conditions:

3. ...in Exhibit 2, except for Gentry Pacific's well sources. Staff will be working with Gentry to associate water use permits for each well with each project individually within their total required allocation as shown in Exhibit 3.

5. Within one (1) year the applicants shall jointly submit a plan...

7. ...Ewa Caprock Regional Plan and its two main components which shall be coordinated by the Commission on Water Resource Management.

Mr. Cox asked how would staff know that the applicants are complying with Conditions 7 and 8. Mr. Hardy stated that because the permits are temporary for one year, at that time staff will know whether or not it has been done.

Ms. Donna Goth presented Campbell Estates concerns regarding their water needs, although they supported staff's concept of the recommendations. Ms. Goth explained that the City has requested that they redesign the regional park for the community to incorporate a larger grass area than had been originally planned. The park will be dedicated to the City and County. The park cannot be established with the current water allocation and the first year is critical in establishing the grass areas. Therefore, Ms. Goth asked that the original request of 6000 gpd be approved rather than the suggested 3000 gpd to establish the larger grass area. Salt tolerant grasses and drainage issues are being discussed with the City.
Mr. Cox sympathized with Campbell Estate but was concerned about finding a way to recharge the caprock for the one year it would take the park to be established.

Mr. Martin of NHAC submitted testimony (see Commission files) stating that because of "changing land use conditions in Ewa and the potential for return of federal lands as reparations to Native Hawaiians", the Hawaiian community as well as DHHL, OHA, and the Paheehee Ridge Hawaiian Homestead Association should also participate in the revision of the Ewa Caprock Regional Plan. Mr. Martin added that although he was not sure if DHHL or OHA were required to participate, for planning purposes he felt there should be some consistency in policy application. He added that OHA and DHHL has trust responsibility to advocate for Hawaiians but as far as he could tell they have not submitted any comments. Mr. Martin said DHHL staff stated they would be submitting "something." These issues need to be addressed and NHAC would be interested in serving in some form of liaison capacity to achieve this participation.

Mr. Cox commented that some of the Hawaiian groups have not shown any interest and may not want to participate. This study should also be coordinated with DOH, City and County Sewer Dept., etc. Mr. Hardy said he so no reason why OHA or DHHL could not participate in the planning process. The scope of the planning process is to make this wastewater use come to fruition and to see what the effects would be on the caprock. In terms of planning, Mr. Cox stated that it was not the responsibility of the Commission but that of the City and Land Use Commission. Mr. Hardy added that the Commission's planning portion is the Hawaii Water Plan, specifically, the Ewa Caprock Regional Plan would be incorporated in the Oahu Water Plan.

Chairperson Ahue stated that DHHL may be looking at land uses in that area as well as HFDC.

Mr. Douglas Ing excused himself from action on this item.

Motion was made to:

1) Amend Campbell Estates' water use from 3000 to 6000 gpd
2) Accept staff's amended recommendations as stated above

Approved as amended (Cox/Lewin).

ITEM 6  RICHARD SMART TRUST, APPLICATION FOR A WELL CONSTRUCTION PERMIT, PARKER RANCH WELL 1, KAMUELA, HAWAII

Unanimously approved (Nakata/Cox).

ITEM 7  EXTENSION - WAIKOLOA WATER COMPANY, PUMP INSTALLATION PERMIT, WAIKOLOA HIGHLANDS GOLF COURSE WELL, WAIKOLOA, SOUTH KOHALA, HAWAII

Mr. Sakoda made a correction to the title:

Extension...Well Construction/Pump Installation...

Messrs. Steve Hicks (Waikoloa Water Company) and Ken Melrose of (Waikoloa Development Company) explained the reason for the extension. There have been delays obtaining the subdivision approval for the project. Mr. Melrose requested an 18-month extension to give them until the end of the year to resolve the issues with the County. Completion date would then be December 1994.
Mr. Cox felt the applicant should be given the 18-month extension rather than having them request another extension.

Unanimously approved with the addition to the title and amending the extension to 18 months (Cox/Fujimura).

**ITEM 8**

**U.S. GEOLOGICAL SURVEY APPLICATION FOR A WELL CONSTRUCTION PERMIT, THOMPSON CORNER TEST WELL, WAIALUA, OAHU**

Mr. Sakoda said a request was made to USGS by Dole Food Company to relocate the well approximately 1800 feet south-southwest of where it is shown on the map because of sugar cane operations.

Mr. Cox suggested the drilling of all the observation wells planned be subject to Chairperson approval since they meet the criteria rather than having each well come in separately for approval.

Unanimously approved as amended (Fujimura/Cox).

**ITEM 9**

**LANAI COMPANY, INC., APPLICATION FOR A WELL MODIFICATION PERMIT, LANAI WELL 10, LANAI CITY, LANAI**

Mr. Sakoda made an addition to Condition 2 and added Condition 7 as follows:

Condition 2: ...No permanent pump ... without a pump installation permit. [the Chairperson' approval].

Condition 7: Should the use of the well be impractical, the applicant shall obtain a well construction permit to seal the well with cement grout in the manner approved by the Commission.

Unanimously approved as amended (Fujimura/Nakata).

**ITEM 10**

**HOUSING FINANCE & DEVELOPMENT CORP., APPLICATION FOR A PUMP INSTALLATION PERMIT, WAHIKULI I, LAHAINA, MAUI**

Mr. Sakoda asked that Condition 9 be added as follows:

The applicant shall coordinate the aquifer test of Wahikuli II with the Commission to determine any interference with Wahikuli I. The long-term pumping test shall be at a constant rate and shall be continuous for at least five days.

Unanimously approved as amended (Fujimura/Ing).

**ITEM 11**

**RESUBMITTED: MAUI DEPARTMENT OF WATER SUPPLY, APPLICATION FOR A PUMP INSTALLATION PERMIT, HAiku WELL, HAiku MAUl**

Mr. Cox inquired if the Commission needs to determine if there is a question of standing. Mr. Tam replied that staff consults with the Attorney General's office who in turn makes a recommendation to the Chairperson.

Mr. Fujimura asked that the second paragraph under "Background" be amended as follows to reflect Mr. Tam's explanation:

"After consulting...[we have] the Chairperson has determined that..."  

Unanimously approved as amended (Cox/Ing).
ITEM 12  CITY AND COUNTY OF HONOLULU, DEPARTMENT OF PUBLIC WORKS, APPLICATION FOR A STREAM CHANNEL ALTERATION PERMIT, MOANALUA, AND KALIHI STREAM, HONOLULU, OAHU

Unanimously approved (Fujimura/Nakata).

ITEM 13  APPROVAL TO HIRE CONTRACTORS TO FIELD-VERIFY WATER SOURCES AND USES ON KAUA‘I AND MAUI

Mr. Ing asked if this was on a bid or non-bid basis. Mr. Matsumoto said it was nonbid, interested contractors are being asked to submit a bid proposal. Ms. Loui added that it is an informal bid based on negotiations and the best qualifications.

Unanimously approved (Lewin/Ing).

ADJOURNMENT The meeting was adjourned at 1:45 p.m.

Respectfully submitted,

[Signature]

SHARON S. KOKUBUN
Secretary

Attachment

APPROVED AS SUBMITTED:

[Signature]

RAE M. LOUI
Deputy Director
Hawaii Prince Golf Club
91-1200 Ft. Weaver Road
Ewa Beach, HI 96706

Gentlemen:

Warning of Potential Water Shortages
Ewa Caprock Water Management Area

The Commission has recently approved additional temporary water use permits in the Ewa Caprock Water Management Area. As a part of these approvals, the Commission has directed staff to issue a formal warning of potential future ground water shortages in this water management area to all other existing water use permittees.

The reason for concern is that as urbanization continues to replace existing sugarcane, there is potential for the caprock water to increase beyond usable brackish limits unless the irrigation recharge supplied to the caprock by Oahu Sugar Company (OSCo.) is replaced by some other means. It is possible that by 1995, recharge from sugarcane irrigation may completely cease.

Staff is presently working on the Ewa Caprock Regional Plan which is, in part, an effort to bring about alternative sources to supply non-potable demands in the Ewa region. This effort is to supplement and provide a back-up non-potable source to the caprock aquifer. If you are interested in participating in this regional plan, please contact us.

Staff is also requesting all permittees, who have not done so already, to submit a water shortage plan. Your water shortage plan simply identifies what you are willing to do should the Commission declare a water shortage situation in the Ewa Caprock Ground Water Management Area and can be as short as a one page letter. In a water shortage situation, the Commission may require temporary reductions in pumpage from all sources. The Commission is required by law to formulate a plan to implement such area-wide reductions, which should accommodate, include, and be consistent with your plans. Therefore, your help, by submitting your water shortage plan, is greatly needed in formulating the Commission's overall Water Shortage Plan.

If you have any questions, please contact Roy Hardy at 587-0274.

Sincerely,

RAE M. LOUI
Deputy Director

RH:ko
Chairperson and Members  
Commission on Water Resource Management  
State of Hawaii  
Honolulu, Hawaii  

Gentlemen:

RESUBMITAL  
Applications for Water Use Permits  
Ewa Caprock Ground Water Management Area, Ewa, Oahu

Applicants

Refer to Exhibit 2 for the listing of the pending applicants in the Ewa Caprock.

Background

The Commission was originally presented this submittal on March 17, 1993 but deferred action on it to afford further review by the applicants and general public.

The Ewa Caprock Aquifer, formerly under Chapter 177, HRS, was officially adopted by the Commission under 174C on March 3, 1993 without any official sustainable yield estimate. Existing applicants have had pending water permit applications prior to this official adoption. Specific information regarding the source, use, notification, objections, and field investigation(s) are described in Attachment A and the attached exhibits.

Analysis & Issues

State and County general plans and policies have directed urban development to the Ewa area and that a dual water system serve the potable and non-potable water demands for this development. It was anticipated that the Ewa Caprock Aquifer was to be the major non-potable source for the non-potable needs of various developments. However, the Ewa Caprock is an aquifer in transition and may only be a temporary alternative source of water for irrigation. The reasons for this are as follows:

1. Ewa Caprock Aquifer is presently a reliable brackish source suitable for irrigation mainly because of imported recharge due to past and present irrigation practices of Oahu Sugar Co. (OSCo.)

2. As sugarcane production overlying the aquifer is replaced by urban development this man-made source’s salinity throughout the aquifer will increase due to decreasing imported recharge. Chloride concentrations may increase to pre-sugarcane levels which would make it less reliable and probably unsuitable for most types of irrigation.

3. The future of OSCO is uncertain but is vital for the importation of recharge to the caprock aquifer. Additionally, OSCO’s past irrigation practices have increased basal sustainable yields in Pearl Harbor which, in turn, may have increased leakage into the caprock from the basal aquifers. Should OSCO go out of business in 1995 the caprock will definitely be impacted.

4. There are plans for creating the Ewa Marina which would cut into the caprock and may affect the salinity levels in other areas of the caprock. Trench testing and computer modelling studies have yet to determine or quantify the marina impacts thus, the future of this marina and its impacts are uncertain.
5. Hydrologic studies to date by Mink & Nance have estimated that the potential sustainable yield for useful brackish water in the absence of OSCo. may be less than 10 mgd in the Puuloa area, less than 5 mgd in the Kapolei area, and less than 1 mgd in the Malakole area of the caprock (Exhibit 1). There are no firmer estimates than these although staff is working with the applicants to produce an updated computer model which can help to better determine the caprock’s overall sustainable yield behavior.

6. To date, no firm alternative recharge solution has been finalized to replace the anticipated loss of OSCo. recharge.

The applications pending (Exhibit 2) reflect the immediate non-potable needs of urban development in the Ewa area. Obviously, this will increased non-potable water demands from the Ewa Caprock Aquifer above current pump ages which include OSCo.’s needs.

The pending water use permit applications listed in Exhibit 2 have exceeded the normal application processing deadlines because: 1) there is uncertainty regarding the caprock’s immediate and long-term viability and sustainable yield; and 2) total pending requests (6,340 mgd) combined with existing allocations (19,604 mgd) exceed the unofficial estimates. The Commission had taken the cautious position of deferring these applications until there are further assurances of the protection and optimum development of the caprock aquifer.

On October 14, 1992, the Commission took action to provide the State Housing Finance and Development Corp. with temporary permits, valid until January 1993, for dust control and project start-up needs. Although temporary permits are not defined by the Code or Rules they are useful in this situation. In one respect, temporary water use permits are analogous to interim water use permits good for only a limited time as is provided by §13-171-20(b). Although interim permits were meant for verification of existing users staff feels that they serve a valid basis for protecting the resource while temporarily providing for immediate needs.

In the meantime, staff has been working closely with the applicants, other developers in the Ewa area, Department of Health, and the City & County of Honolulu to produce the Ewa Caprock Regional Plan. This plan provides the following:

1. Updating the land use zoning, acres, and type of land use to project yearly authorized planned non-potable water demands to 1996; and

2. Guidance for the production of alternative non-potable sources to supplement, replace, or enhance the caprock source in anticipation of sugarcane recharge disappearing.

Exhibits 3 & 4 summarize the first part of the Ewa Caprock Regional Plan by analyzing the existing applicants, and others, in regards to land use and projected non-potable water needs. Exhibit 3 shows the updated projected demands of the pending applicants for the year 1993. The updated zoning and acreage information has been supplied by the applicants and verified by staff. However, projections calculations made by the applicants were varied and lacked consistency in the gpd/acre figures. Since these applicants are competing users for ground water from an aquifer under sustainable yield transition, staff has revised the gallons per day per acre (gpd/acre) figures for type of land use to be fair, consistent, and to accommodate all the applicants while considering protection of the aquifer. Gpd/acre figures used by the staff were assessed by staff through Hawaii Water System Standards 1985, county consumption guidelines, discussions with other government agencies for dust control, and existing water use report information on golf courses in the Ewa Area (see Exhibit 5). The staff considers these estimates reasonable, consistent, and fair to all users in the Ewa Caprock area at this time.
The second part of the Ewa Caprock Regional Plan has been to find and develop a feasible alternative non-potable source to provide an immediate backup to the caprock source when sugarcane cultivation over the Ewa Plain ceases and/or when OSCo. completely stops cultivating sugarcane. Through ongoing round table meetings and correspondence, the most promising alternative source at this time is to treat approximately 13 mgd of Honouliuli wastewater to Class A quality requirements which would allow the direct application of such reuse water on irrigated land and or by reinjection. The City & County is preparing a request for proposal to construct and operate a tertiary treatment process to treat the wastewater to Class A quality. The distribution systems seriously being considered to deliver this water to users and provide recharge to the caprock are: 1) the caprock aquifer through reinjection wells, 2) the caprock aquifer through percolation basins, and 3) direct piping distribution system. Reinjection would be the most desirable distribution solution given the land area constraints but may require substantial time for DOH to approve. Percolation basin recharge is tentatively being promoted by DOH as a more immediate solution but this may require significant land area. Direct distribution is desirable because it can more effectively control and measure consumption although this alternative will most likely be the most expensive delivery system.

From the first portion of the Ewa Caprock Regional Plan, staff has updated information from the March 17, 1992 submittal and has concluded that the reasonable total additional required allocations for the next year is 2.556 mgd (See Exhibit 3, p.2). If approved, this additional allocation would bring the overall total allocations in the Ewa Caprock to 22.160 mgd. This would exceed the unofficial sustainable yield limit (16 to 21 mgd) under present field conditions by 1.160 to 6.160 mgd. The apparent overallocation average would be 3.660 mgd but, again, no sustainable yield has been officially adopted by the Commission.

If the Commission were to allocate to the applicants according to Exhibit 3, there are two (2) additional issues that provide the Commission and the caprock aquifer with a certain degree of protection and may remedy the apparent overallocation problem. First, the existing water use permit for the Makakilo Golf Course is not a real demand upon the caprock aquifer. The reason for this is that Well No. 1904-02, is presently not pumped because under the conditions of the previous application the brackish water was to be desalinized. No desalinization mechanism is in place at this time, therefore it is unlikely that the well will be pumped anytime soon. Additionally, staff has found that the operating entity which applied for the permit applicant no longer exists. No transfer of permit has been requested or submitted to the Commission. This permit may be revoked by the Commission if the source is not used by March 15, 1994 but would not preclude the Commission from seeking an earlier revocation of the permit with the consent of the permittee. The second item which provides some cushion to the Commission is the fact that the largest user of caprock water, OSCo., underpumps their caprock allocations by 4.164 mgd. Combined, these two non-utilized allocations amount to approximately 5.314 mgd. This amount of unused caprock water is in excess of the average apparent overallocation of 3.660 mgd. It would be reasonable to say that the aquifer is not endangered under current field conditions for the next, or possibly more, year(s) until land use drastically changes.

Although staff is continually updating the Ewa Caprock Regional Plan through meetings and correspondence, there are very real immediate needs which require non-potable water for construction, dust control, and the economic feasibility of affordable housing. Staff feels that these issues are in the interest of the public and that temporary permits are necessary to address these issues. As a requirement of obtaining a temporary permit the applicant must commit to the Ewa Caprock Regional Plan by participating in, abiding by, and contributing to the Ewa Caprock Regional Plan components of updating projected demands and the development of an alternative non-potable source.

RECOMMENDATION

That the Commission approve the issuance of temporary water use permits to the pending applicants listed in Exhibit 2 subject to the standard conditions listed in
Attachment B and the following special conditions:

1. The temporary permits shall be valid for one (1) year from its approval date (April 28, 1994).

2. Quantities of allocations for each applicant are those calculated in Exhibit 5 for 1993 under the additional required allocation column. The pending applications which have no new or negative additional requirements are denied.

3. Each applicant's allocation shall be for the cumulative withdrawals from the corresponding well sources specified by each applicant in Exhibit 2.

4. Each applicant's allocation shall be used only for the corresponding uses specified by each applicant in Exhibit 3.

5. Within one (1) year the applicants shall submit a plan for the conversion to an alternative non-potable source other than the Ewa Caprock Aquifer. This plan shall include the applicants' intentions of funding the actual development of the alternative non-potable source.

6. Within sixty (60) days after approval, each applicant shall submit a water conservation plan or program according to the conditions in Attachment C.

7. The applicants shall continue to actively participate in the continuing development of the Ewa Caprock Regional Plan and its two main components.

8. The applicants must actively participate in generating more information to show the utility of the caprock source in the absence of OSCo. recharge irrigation over the caprock and the complete absence of OSCo. irrigation in the Pearl Harbor area.

9. Temporary permits shall not be renewed if any of the above is not provided or followed.

Additionally, staff recommends that the Commission direct the staff to provide a warning notice to each existing caprock user advising them of expected cutbacks since OSCo. irrigated acreage over the caprock is expected to decrease in the near future. Details of this warning will be worked out by staff.

Respectfully submitted,

RAE M. LOUI
Deputy Director

APPROVED FOR SUBMITTAL:

KEITH W. AHUE, Chairperson

Except for being photographed, the attached staff report is not a part of this document. The report will be filed with the records of the Commission.
WATER USE PERMIT DETAILED INFORMATION

Source Information

AQUIFER: See Exhibit 3
WELLS: See Exhibit 1 & 2

Use Information

See Exhibit 3 to 5

Public Notices

See Exhibit 2

Objections

There were no objections filed by any person who has property interest in any land within the hydrologic unit of the source of water supply or any person who will be directly and immediately affected by the proposed water use. Other objections to the application were submitted by:

Objector

NHAC

Objection

General process of water use permit applications. No specific objections to this application.

Field Investigation

All sources have been field investigated and verified.
STANDARD WATER USE PERMIT CONDITIONS

1. The ground water described in the water use permit may only be taken from the location described, used for the reasonable-beneficial use described, and at the location described above and in the attachments. "Reasonable-beneficial use" means the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is not wasteful and is both reasonable and consistent with the state and county land use plans and the public interest. (HAR §13-171-2).

2. The right to use water is a shared use right.

3. The water use must at all times meet the requirements set forth in HAR §13-171-13 which means that it:
   a. Can be accommodated with the available water source;
   b. Is a reasonable-beneficial use as defined in section §13-171-2;
   c. Will not interfere with any existing legal use of water;
   d. Is consistent with the public interest;
   e. Is consistent with state and county general plans and land use designations;
   f. Is consistent with county land use plans and policies; and
   g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act.

4. The ground water use must not interfere with surface water rights or interim instream flow standards. If it does, then:
   a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
   b. The interim or permanent instream flow standard, as applicable, must be amended.

5. The water use permit is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.

6. The water use permit application and staff submittal approved by the Commission at its March 17, 1993 meeting are incorporated into the permit by reference.

7. Any modification of the permit terms, conditions, or uses can only be made with the express written consent of the Commission on Water Resource Management.

8. The water use permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is necessary to:
   a. Protect water sources in quantity, quality, or both;
   b. Meet other legal obligations including other correlative rights;
   c. Insure adequate conservation measures;
   d. Require efficiency of water uses;
   e. Meet reserved water requirements for future uses, provided that all legal existing uses of water as of June 1987, shall be protected;
   f. Meet legal obligations to the Department of Hawaiian Homes, if applicable; or
   g. Carry out such other necessary and proper exercise of the State's and the Commission's police powers under law as may be required.
Prior to any reduction, the Commission shall give notice of its proposed action to the permittee and provide the permittee an opportunity to be heard.

9. An approved flowmeter(s) must be installed to measure withdrawals and a monthly record of withdrawals, water-levels, salinity, and temperature need not be kept and reported to the Commission on a monthly basis in accordance with the Commission’s September 16, 1992 action exempting this quantity of use from reporting requirements;

10. The water use permit shall be subject to the Commission’s periodic review of the applicable aquifer’s sustainable yield. The amount of ground water use authorized by the permit may be reduced by the Commission if the sustainable yield of the Ewa Caprock Aquifer, or relevant modified aquifer, is reduced;

11. The water use permit may not be transferred or the use rights granted by this permit sold or in any other way alienated. Pursuant to HAR §13-171-25 and the requirements of Chapter 174C, the Commission has the authority to allow the transfer of the permit and the use rights granted by the permit in a manner consistent with HAR §13-171-25. Any such transfer shall only occur with the Commission’s prior express written approval. Any sale, assignment, lease, alienation, or other transfer of any interest in this permit shall be void.

12. The use(s) authorized by law and by the water use permit do not constitute ownership rights.

13. The permittee shall request modification of the permit when necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee’s water use.

14. The permittee shall prepare and submit a water shortage plan within 30 days of issuance of the permit to assist the Commission in fulfilling HAR §13-171-42(c). The permittee’s water shortage plan shall identify what the permittee is willing to do should the Commission declare a water shortage in the Ewa Caprock Ground Water Management Area.

15. The water use permit granted shall be an interim water use permit, as allowed under HAR §13-171-21. The final determination of the water use quantity shall be made within five years of the filing of the application to continue the existing use.

16. The water use permit shall be issued only after AG review.

ATTACHMENT B
CONSERVATION CONDITIONS
EWA CAPROCK WATER USE PERMITS

1. The permittee shall adopt self-administered water conservation programs and plans with collective monitoring to protect and maintain the caprock resource. Water conservation programs and plans shall be submitted to the Commission within 60 days from the date of Commission approval.

2. Water conservation programs and plans shall address (as applicable) but not be limited to the following:
   a. Reduce the demand for non-potable water by:
      • Identifying and utilizing water efficient plants and drought tolerant plants for landscaping and quantifying their demands (Xeriscape);
      • Mulching planting areas with organic materials, etc., to minimize evaporation;
      • Efficiently maintaining the plants;
      • Improving land management practices to conserve water.
   b. Improve efficiency in use and reduce losses and waste of non-potable water by:
      • Using efficiently designed landscaping and irrigation systems;
      • Monitoring irrigation requirements and controlling usage accordingly;
      • Managing irrigation scheduling to minimize water demand;
      • Eliminating opportunities for water wastage;
      • Maintaining and improving irrigation systems as necessary.
   c. Industrial users should employ the recirculation of cooling water and the reuse of cooling and process water.

3. The permittee shall pursue and participate in alternative non-potable water source development and use such as wastewater reuse (direct reuse and/or recharge injection).

4. In the event that water conservation programs and plans are not complied with or that a waste of water is occurring, the Commission shall proceed with the necessary actions to revoke this permit.

ATTACHMENT C
I'm not sure what you're asking, but it seems like you might be looking at a map of the Kapolei area, Hawaii. The map includes various geological features and locations such as C&C DHCD, Kapolei, Puuloa, Hawaii Prince GC, State HFDC, Campbell Estate, and Gentry. The map also shows the caprock, sector boundaries, and limits of limestone occurrence. The scale is in thousands of feet. This map likely relates to the geology or geography of the area, possibly for environmental or engineering purposes.
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Overall, there are 19 applications totaling 6.340

+ More detailed use information is found in Exhibit 3

Exhibit 2
### State of Hawai'i
#### Department of Land and Natural Resources
COMMISSION ON WATER RESOURCE MANAGEMENT

## EWA CAPROCK REGIONAL PLAN
NON-POTABLE WATER DEMAND FORECAST
WATER USE PERMIT APPLICATIONS

### KAPOLEI CAPROCK AREA

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**KAPOLEI CAPROCK AREA SUBTOTAL**

| | | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |

### Exhibit 3
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<th>Developer/Project</th>
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For Puuloa Caprock Area Subtotal:

- **C.D. Kamehameha** (KAPOLEI): 1.150
- **Malaekahatna** (MALAOLOE): 1.000
- **Puuloa** (PUULOA): 18.454

Total: 20.604

Notes:
2. 0.08 mgd formerly permitted to Aloha State Corp.
3. 0.08 mgd formerly permitted to Gentry Development Co.
4. 0.90 mgd formerly permitted to The Myers Corp.
5. 0.60 mgd formerly permitted to Puuloa Homes, and
6. 0.10 mgd formerly permitted to Sogo, Hawaii Inc.

*Not including salt water use

**16.194 mgd permitted to Oahu Sugar to be cutback to 12,030 mgd in 1995.
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<tr>
<th>Developer</th>
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<th>1995 PROJECTED AVG USE (GPD)</th>
<th>1996 PROJECTED AVG USE (GPD)</th>
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Exhibit 4
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<th>DEVELOPER</th>
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<th>1995 AVG USE (GPD)</th>
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**Exhibit 4**
<table>
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<th>DEVELOPER</th>
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<th>1994 AVG USE (GPD)</th>
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TOTAL 1994 PROJECTED DEMAND: 25,102 mgd
TOTAL 1993 PROJECTED DEMAND: 22,172 mgd
ADDITIONAL REQUIRED: 2,930 mgd

* not including salt water use.
## EVA AREA GOLF COURSES

**GROUNDWATER USE REPORTS**

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<td>Ko Olina</td>
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<td>169</td>
<td>508,570</td>
<td>3,009</td>
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</table>

* Reporting began about halfway through the growing period and, the usage includes sprinkling of areas not on the course.

** From pumping data up till 04/92.

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**Exhibit 5**
MINUTES
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: March 17, 1993
TIME: 9:00 a.m.
PLACE: DLNR Board Room
Kalanimoku Building
Honolulu, Hawaii

ROLL CALL

Acting Chairperson Cox called the meeting of the Commission on
Water Resource Management to order at 9:24 a.m.

The following were in attendance:

MEMBERS: Mr. Richard Cox
          Mr. Robert Nakata
          Mr. Guy Fujimura
          Mr. J. Douglas Ing
          Dr. John Lewin

STAFF: Ms. Rae Loui
       Mr. Edwin Sakoda
       Mr. Dave Higa
       Mr. Glenn Bauer
       Mr. Roy Hardy
       Ms. Julianna Zhang
       Ms. Lyann Mizuno
       Ms. Sharon Kokubun

OTHERS:
Joyce Brown
Lenore Nakama
Ed Bolke
Gary Lee
Joe Nose
Nelson Lee
Ron Uemura
Samuel Keala
Andrew Miyasato
George Yuen
Angela Fong
Marjorie Ziegler
Donna Goth
James Honke
Warren Iwasa
Sean Hoollhan

Dave Martin
Lawana Mendes
Brendan Harley
Journ Yee
Philip Lowe
Barry Edwards
Stephen Thomas
Edsel Yamada
Charley Ice
John Chang
Lola Mench
Jim Anthony
Alan Suwa
Karen Piltz
Martha Black

All written testimonies submitted at the meeting are filed in the Commission office and are
available for review by interested parties. Some items were taken out of sequence to
accommodate requests by the applicants or interested parties.

ITEM 1
ITEM 1  
MINUTES OF THE MARCH 3, 1993 MEETING

Clarification was made by Commissioner Ing with respect to Item 7. The motion was not to approve the staff's recommendation as amended but to adopt the proposed North, Central, Pearl Harbor, and Honolulu ground water management sectors as shown on Exhibit 2 and including the individual systems shown within those sectors. Mr. Ing explained that the last two sentences of the recommendation were not meant to be a part of the motion. Also, the numbers shown on Exhibit 2, with respect to North, Central, Pearl Harbor, and Honolulu sectors were meant to be included.

Unanimously approved as amended (Nakata/Ing).

ITEM 2  
MAUI DEPARTMENT OF WATER SUPPLY APPLICATIONS FOR PUMP INSTALLATION PERMITS, WAKIU A. MOKUHAU 2. AND WAIPUKA 2 WELLS, MAUI

Staff recommendation was unanimously approved (Ing/Nakata).

ITEM 3  
KAUAI DEPARTMENT OF WATER APPLICATIONS FOR PUMP INSTALLATION PERMITS, MACA RIDGE AND HENA WELLS, KAUAI

Mr. Sakoda added that for Items 2 and 3, because these are county municipal wells, an air line and accurate elevation will be required when the pumps are set so water levels can be tracked.

Acting Chairperson Cox asked about the chloride history in the area because the pump capacity is being increased. Although there are no problems with the chlorides, Mr. Sakoda emphasized they need to keep track of the water level so that it does not go down below the pump bowls for Haena and Maka Ridge wells.

Mr. Nakata asked if there was any data on the actual capacities and pumpage. Mr. Sakoda replied that although they did have the capacities, he was not sure if they had good data on the pumpage. Mr. Bauer added that the county does not have meters on the wells. The County estimates pumpage based on customer usage. A meter will be required as a condition of this permit.

Mr. Martin presented testimony (see Commission file) that his questions were similar for Items 2 and 3. He felt that if those questions were incorporated into the submittals it would be easier to review. Mr. Cox commented that Mr. Martin had some good questions/comments and asked staff to review his testimony and determine whether or not the format should be changed.

Staff recommendation was unanimously approved (Nakata/Ing).

ITEM 4  
STANHOPE FARMS APPLICATION FOR A WATER USE PERMIT, STANHOPE FARMS WELL (WELL NO. 3308-02) MOKULEIA GROUND WATER MANAGEMENT AREA, WAIALUA, OAHU

Acting Chairperson Cox asked if this application was for an existing use and whether or not the applicant registered his use. Mr. Hardy replied that it was an existing use that was registered by the applicant.

Mr. Martin said the issue of permitting and the procedural approach being taken in ground water management areas has been of concern to NHAC (see testimony in file). The concerns were: comprehensive evaluation of water use permits, reservations to Hawaiian Home Lands, and allocations to the County.
Dr. Lewin stated that although Mr. Martin's comments are well taken, he assumed staff recommendation was made because the use is relatively small compared to the relatively large amount of water available for use. Mr. Hardy agreed with Dr. Lewin. He stated that this area is an existing water management area as opposed to a new water management area.

Unanimously approved as submitted (Lewin/Nakata).

In regards to Mr. Martin's comments on reasonable beneficial use, Mr. Ing mentioned that under existing uses in Rule 13-171-14, there is a section that states:

"whether the existing use is a reasonable beneficial use and is allowable under common law shall be determined by the Commission after a hearing"

He asked if this was something that needed to be determined by the Commission in connection with this application. If so, he recommended that the language be added to the recommendation. Discussion followed on the amount of water being requested and its uses. It was decided that staff would consult with Mr. Tam on the question of whether or not Rule 13-171-14(b) should be added to the recommendation in regards to reasonable beneficial use.

Approved subject to review by the Attorney General's office regarding review Rule 13-171-14(b) on reasonable and beneficial use and how it applies to this application (Nakata/Ing).

RESUBMITTED, MINAMI GROUP (USA), INC. APPLICATION FOR A WATER USE PERMIT, MINAMI 1 & 2 WELLS (WELL NOS. 2347-02 & 03), KOOLAUPOKO GROUND WATER MANAGEMENT AREA, KANEHOE, OAHU

Mr. Nakata excused himself from action on this application since he sits on the Board of the Minami Foundation. Dr. Lewin stated he had to give testimony at the Legislature and since Mr. Fujimura had not arrived yet, suggested a recess be called. It was decided that discussion would be held on this application until a quorum was present for action.

Mr. Hardy reviewed updated information for this application. Mr. Hardy mentioned that representatives from DHHL and BWS were available to answer questions from the Commission.

Charley Ice from DHHL agreed that they did not have specific objections to the project and that they provided comments to the effect that many of the applications that are circulated for review do not include pertinent facts that might help them evaluate the application. In this case, it was not clear if the application was for a present use or a proposed new use. Although reluctant to suggest proper procedure because they are a sister agency, DHHL favored the idea of looking at all of the competing uses within a designated area.

Mr. Ing recalled that from information at the last meeting that the applicant was actually using the water from the well prior to the designation. Therefore, while it is a very recent use, the claim is very likely to be that it was an existing use.

Mr. Ice stated that their staff has been working with Commission staff to recommend mechanisms by which the Commission could reserve water for Hawaiian Home lands.

Mr. Hardy added that staff has been trying to develop an easier process by which other agencies and interested parties could respond more quickly.
Mr. Alwyn Morisako representing BWS stated that they are not looking at this area for any source development, therefore they did not have any objections to the permit request.

Acting Chairperson Cox asked if BWS was not interested because it is a high-level aquifer in the alluvium. Mr. Morisako said that was correct, also it was a small source of perched water which they felt they could not develop.

A recess was called at 10:12 a.m. and reconvened at 10:40 a.m.

Mr. Sean Hoolihan, golf course superintendent, reviewed the project.

Dr. Lewin requested that the DOH golf course conditions be added to the permit. Mr. Sakoda explained that those conditions are added for all wells for proposed new golf courses but since this was an existing golf course it was not added. Mr. Cox stated that it could be added.

Unanimously approved with the added DOH conditions for golf courses (Lewin/Fujimura).

ITEM 6

APPLICATIONS FOR WATER USE PERMITS, EWA CAPROCK GROUND WATER MANAGEMENT AREA, EWA, OAHU

A. STAFF UPDATE

Ms. Loui stated that the documentation of the caprock model developed by Tom Nance and Tony McNulty for a group of developers (Haseko, Campbell Estate, Gentry, and HFDC) was given to staff for review. The model was reviewed by staff, USGS, Dan Lum of Water Resource Associates, and Chester Lao of BWS. Mr. Ed Bolke of USGS, a retired USGS ground water modeling expert, is with the Commission staff on an inter-agency loan program with USGS.

Mr. Bolke gave an overview of what he thought of the model and what the Commission needs to do to use a model for decision-making in the caprock area. His written comments are attached. Further discussion followed regarding the model.

Ms. Loui explained that staff's intent was to have Mr. Bolke develop a new model or to assist with the Ewa Marina's proposal to develop models of the caprock. In discussions with the Ewa Marina group it was brought up that there would be difficulty in ascertaining the local effect without developing a model of the region. Mr. Glenn Bauer reviewed staff's opinion of the proposed marina's effects on the aquifer.

Messrs. Nelson Lee introduced Alan Suwa (also from Haseko) and Dr. Brendan Harley of Camp Dresser McKee (CDM) from Boston. Mr. Lee explained that Haseko's efforts to build the marina in that area have encouraged them to extensively examine the caprock. As a result, there is better understanding today than there was several years ago. Dr. Harley has met with the Commission staff to examine what Haseko could do to go forward and the mitigation necessary should the marina impact surrounding land uses and the future of the caprock as a resource. They are aware that there are concerns and initiated efforts first with the Nance model to examine what is going on. External reviews have shown that there are a number of shortcomings and realize that more extensive efforts will be necessary to quantify what is going on. Mr. Lee proposed the new model be done with agency input so when the process is completed they would have something that would address everyone's concerns as well as accomplishing Haseko's objective to obtain a permit.
Dr. Harley commented on developing similar models for large scale water management planning in California, the East Coast, Long Island, and Florida. In regards to the Commission's question on time frame, there are two distinct time frames:

1) local modeling around the marina area and its fine tuning (approximately six months)
2) regional modeling - two-dimensional not adequate and needs to be changed to a three-dimensional model (minimum of two years: one year to do the first draft and another year to fine tune the model and then it needs to be tested)

Mr. Lee added that the model will be used as a management tool. He wanted assurance in regards to what the objective would be, how the model would be used, and who the model would belong to/who would administer it.

In regards to reclaimed water, Ms. Loui stated staff would like to encourage participation in a reclaimed water plan. Meetings have been held with the Ewa developers and the city. She introduced Mr. James Honke from the Waste Water Management Division from the City. The City's agreement to issue an RFP for the second waste water treatment facility in the Ewa area propelled the plan. She understood that facility would treat 13 mgd by 1996 and that a private concern would receive the primary treated effluent and then market the treated water for direct reuse.

Mr. Honke presented the concerns of the city:

1) If a high level of treatment for reuse is provided, there is no mechanism for them to recover the cost from the ultimate users.
2) If a plan to inject sewage effluent into the aquifer is approved, there are nutrients in the sewage that can impact coastal waters if the sewage effluent is not balanced with the amount that is pumped.
3) It is not known what level of treatment is needed since the guidelines that are being developed for reuse are still not finalized.
4) If there is no market for the reuse they would prefer not to treat the effluent for reuse because of the cost factor.

The present daily flow from Honouliuli is 25 mgd. The City is planning to construct a 15 mgd capacity reuse plant and is currently designing a secondary process plant. They have not yet started on the design of subsequent treatment that would be required to get to reuse quality. Mr. Honke stated they are developing an RFP to see if a private entity would be willing to undertake construction of a reuse facility, water reclamation facility, and distribution system. For a private entity to come forward would depend on the available markets. The markets are determined by what other sources of water are available. Mr. Honke stated that all these factors need to be tied together before a well thought out plan can be developed.

Dr. Lewin stated that issues brought up by Mr. Honke were not so much concerns, but choices. In regards to the cost of secondary treatment to taxpayer vs. developers, Dr. Lewin stated that the Commission has the ability to transfer those costs to developers. The Commission can require people who develop golf courses or who have large expansive lands that need to be irrigated to use secondary treated water. Therefore, a market is being created. To bring water from the windward side to Ewa at a tremendous cost is "short-term thinking, not long-term thinking". Secondary treatment is not something that is an option but will be
required more and more. Dr. Lewin stated that this is a very complex issue that requires thinking in a broad rather than narrow sense and that the water needs of the entire island should be looked at to understand how the Commission's decisions will proceed.

Mr. Honke commented that the Wastewater Branch has actively been discussing reuse to see if markets could be developed. The Commission's issuing temporary permits was an indication that markets would be available. If permanent permits were to be issued there would be no markets.

**B. ACTION**

Mr. Hardy presented the staff submittal for Commission action.

Mr. Barry Edwards of Gentry Hawaii requested that action be deferred on the staff's recommendations because of the far ranging procedure being proposed. He stated he only received the submittal for review the day before the meeting and it was not enough time for review.

Ms. Donna Goth, Director of Development for the Estate of James Campbell, commented that they filed for use of non-potable water supply in 1991. Subsequent to the application they proceeded with their development and was concerned because the development will need the water allocation. Ms. Goth described their development and water needs. Ms. Goth stated that Campbell Estate needs 300,000 gpd not 171,000 gpd. This is for the planned vegetation which is more lush than the xeriscape or desert type of vegetation.

Mr. Martin expressed concerns that more comprehensive public discussions were needed before any action is taken on the staff's recommendations. He felt the Ewa Caprock Regional Plan should continue to be revised with greater participation by the DHHL, Office of Hawaiian Affairs, and the Hawaiian community because of the changing land use conditions in Ewa and the potential for return of federal lands as reparations to the Native Hawaiians.

Mr. Nakata said as water availability becomes a more pressing issue, it becomes "incumbent on the DHHL and OHA to become more active in this process". If they do not, he felt it was a dereliction of their duty.

Ms. Lola Mench representing the Sierra Club and Kahaluu Neighborhood Board, questioned the issue of temporary permits because of numerous questions that still need to be answered. She felt it may be a threat to Windward Oahu waters.

Mr. Ing asked to be excused from acting on this application because his law firm represents one of the parties.

Dr. Lewin recommended that action be deferred until the April 28th meeting. Unanimously approved (Lewin/Nakata).

Mr. Fujimura suggested that those persons suggesting other approaches come up with more concrete ideas.

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**ITEM 7**

**KOOLAU AGRICULTURAL CO., LTD. APPLICATION FOR A WATER USE PERMIT, MAKAUI I, II, & III WELLS (WELL NOS. 3452-02, 3453-12 & 13), KAHALUU GROUND WATER MANAGEMENT AREA, WINDWARD OAHU**

Acting Chairperson Cox stated that there would be no quorum and asked if the interested parties would like to present testimony for information only or wait until the April 18th meeting. Testifiers agreed to wait until the next meeting.
Dr. Anthony requested this application be placed second on the agenda after the confirmation of the minutes.

Mr. Gary Lee representing Koolau Agricultural Co. stated that they were ready to proceed but would reserve their comments.

Action deferred until the April 28th meeting due to a lack of quorum.

ADJOURNMENT The meeting was adjourned at 1:04 p.m.

Respectfully submitted,

SHARON S. KOKUBUN, Secretary

Attachment

APPROVED AS SUBMITTED:

RAE M. LOUI, Deputy Director
1993 March 17

TESTIMONY TO THE STATE OF HAWAI'I COMMISSION ON WATER RESOURCE MANAGEMENT

Item 2. Maui DWS Wells

Well Locations and Descriptions:

1. When were original pumps installed?
2. How long have they been operating?
3. How do existing uses over these periods of operation compare with proposed uses (mgd)?
4. How do static heads and chlorides over these periods of operation compare with initial heads and chlorides?

Analysis:

1. What hydrologic units are the wells located in?
2. What are the sustainable yields and existing, planned, and proposed/projected uses in these units?

Item 3. Maka Ridge and Haena Wells

Well Locations and Descriptions:

1. When were original pumps installed?
2. How long have they been operating?
3. How do existing uses over these periods of operation compare with proposed uses (mgd)? Neither are tabulated in the submitted descriptions.
4. How do static heads and chlorides over these periods of operation compare with initial heads and chlorides?

Analysis:

1. What hydrologic units are the wells located in?
2. What are the sustainable yields and existing, planned, and proposed/projected uses in these units?

Item 4. Stanhope Farms Well

Background

Did the applicant file a declaration of water use and registration of water source as required in 1988-1989? If so, what water use
(gpd) was declared at that time, and what was water level and chloride concentration?

**Analysis & Issues**

What has been the "impact on existing wells over the past 24 years"? Is this indicative of the "intermediate to long-range impacts to wells downgradient" that "may" occur?

"Concern over the approval of new water use permits in newly designated water management areas when existing uses have not yet applied" is not precisely the issue of concern. The concern is that all currently unpermitted uses, both existing and proposed, in all water management areas be evaluated equally and concurrently with regard to their 'reasonable and beneficial use," competition with existing and future legal uses, and other relevant criteria. In this particular case, the concern is that the allocation of available water in Mokuleia be comprehensively evaluated against permit applications on a regular schedule, not on a first-come, first-serve basis, and that reservations to Hawaiian Home Lands and allocations to the County be settled before any other evaluations commence.

**WATER USE PERMIT DETAILED INFORMATION**

**Source Information**

Additional lines in this table should show:

**AQUIFER:**
1. Reservations to Hawaiian Home Lands
2. Allocation to County
3. Scheduled of permit application windows and evaluation periods

**WELL:**
1. Changes in extraction rates, water levels, and chlorides over periods of operation

**Nearby Surrounding Wells and Other Registered Ground Water Use**

Field verification of 14 out of 152 declared uses does not seem to be sufficient for estimating existing ground water use, and reveals nothing about surface water uses that might also be affected. What do required monthly water use reports reveal about existing use? How many of the 152 declared groundwater uses submit monthly water use reports as required? When will field verification be completed? What information base was used to derive Oahu Water Management Plan estimates? The "Current 12-Month Moving Average withdrawal?" How can the reduction in estimated existing use between 1990 (Oahu Water Management Plan) and 1993 ("Current Average Withdrawal") be explained?

**Public Notice:**
Was direct notice of the application mailed to all declared water users in the hydrologic unit (all categories)? If not, why not?

Objections:
Without serving direct notice to potential objectors (such as all declared water users), and without field verification of declared uses, "the best of staff's knowledge" about objectors is almost no knowledge at all. Furthermore, potential objectors are not afforded required due process and opportunity to file their objections.

Field Investigation
If the water source and existing use was investigated on November 12, 1991, why is "Reported Water Usage" (Use Information) listed as "NA"?

Item 5. Minami Wells

Analysis & Issues

The fact that BWS turned over their wells to the cemetery does not indicate "that the aquifer in this area is actually a non-potable source." It only means that BWS has chosen not to operate it as municipal source because of the possibility that it may become non-potable due to overlying land uses. Water quality data is needed to conclusively indicate that the aquifer is a non-potable source. The actions of BWS unfortunately point out the persistent difficulties in effectively coordinating land and water use planning.

What has been the "Impact to other wells ... over the past four (4) years"?

The past three years have been dry. The recommended 150,000 gpd for 100 acres works out to 1500 gallons per acre per day (gad), which is equal to or greater than the diversified agriculture irrigation requirement in similar areas. The recommended allocation may be excessive and deserves closer scrutiny.

WATER USE PERMIT DETAILED INFORMATION

Source Information

Additional lines in this table should show:

AQUIFER:
1. Reservations to Hawaiian Home Lands
2. Allocation to County
3. Scheduled of permit application windows and evaluation periods

WELL:
1. Changes in extraction rates, water levels, and chlorides over
periods of operation

Nearby Surrounding Wells and Other Registered Ground Water Use

Field verification of 7 out of 43 declared uses does not seem to be sufficient for estimating existing ground water use, and reveals nothing about surface water uses that might also be affected. What do required monthly water use reports reveal about existing use? How many of the 43 declared groundwater uses submit monthly water use reports as required? When will field verification be completed? What information base was used to derive Oahu Water Management Plan estimates? What is the "Current 12-Month Moving Average Withdrawal" from the wells and the aquifer?

Public Notice:

Was direct notice of the application mailed to all declared water users in the hydrologic unit (all categories)? If not, why not?

Objections:

Without serving direct notice to potential objectors (such as all declared water users), and without field verification of declared uses, potential objectors are not afforded required due process and opportunity to file their objections.

Field Investigation

If the water source and existing use was investigated on July 20, 1990 and November 12, 1992, why isn't water usage, water levels, and chlorides from those dates reported in the "Detailed Information"?

NHAC remains concerned that all currently unpermitted uses, both existing and proposed, in all water management areas be evaluated equally and concurrently with regard to their "reasonable and beneficial use," competition with existing and future legal uses, and other relevant criteria. In this particular case, the concern is that the allocation of available water be comprehensively evaluated against permit applications on a regular schedule, not on a first-come, first-serve basis, and that reservations to Hawaiian Home Lands and allocations to the County be settled before any other evaluations commence.

Item 6. Ewa Caprock

Analysis and Issues

2. We should not assume that sugarcane production overlying the aquifer will only be replaced by urban development. There is great potential and opportunity for replacing sugarcane production with other agricultural practices that provide higher quality return water than that currently provided by sugarcane production.
We should also recognize that more brackish caprock water may be desirable for certain replacement agricultural uses and other alternative lands uses, such as aquaculture, wetland farming, and wetland bioremediation/waste treatment.

3. The future of OSCo. is not the sole criteria for the vitality of importing recharge and leakage to the caprock aquifer. Other vehicles for importing recharge and leakage exist and must be brought into the discussion.

Why is 1995 chosen as the potential date for OSCo. closing?

4. What is the Commission's current position with regard to its regulatory power over activities which "cut into the caprock?" We believe such activity should be considered groundwater extraction requiring well construction and water use permits. This is supported by the Water Code definition of "well."

5. These hydrologic studies estimate yield in the absence of recharge and leakage now provided by OSCo. operations, not in the absence of OSCo. itself.

6. NHAC would like to join the effort to develop and finalize firm alternative water source and recharge solutions. We also feel that, because of changing land use conditions in Ewa and the potential for return of federal lands as reparations to Native Hawaiians, the Ewa Caprock Regional Plan should continue to be revised with greater participation by the Hawaiian Homes Commission, Office of Hawaiian Affairs, and Hawaiian community concerns.

Item 7. Makalii Wells

RECOMMENDATION

NHAC concurs with the staff recommendation.

It is distressing that the submittal fails to report the litigation initiated by Koolau Ag against the Commission. NHAC has on several occasions asked the deputy to publish this information in the monthly bulletin, along with announcement of any other litigation or contested case requests. It is imperative that the public be made aware of all legal actions impacting its Water Commission, so that these public judicial proceedings can be tracked and evaluated by concerned water users and public interests. While the Commission need not reveal the particulars of the case, it should regularly publicize docket numbers and schedules for upcoming judicial proceedings in local and national arenas.

Mahalo

David L. Martin, Vice-President
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P. O. BOX 581
HONOLULU, HAWAII 96820

AGENDA
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: April 28, 1993
TIME: 9:00 a.m.
PLACE: Kalanikauk Building
       Board Room

1. Minutes of the March 17, 1993 meeting

WATER USE PERMITS
2. Koolau Agricultural Co., Ltd., Applications for a Water Use Permit and Well
   Construction and Pump Installation Permits for Makalii I, II & Ill Wells (Well Nos. 3452-02, 3453-12, & 13), Kahana Ground Water Management Area, Windward Oahu

3. Oahu Country Club, Application for a Water Use and Well Construction Permit, OCC
   Irrigation Test Well (Well No. 2050-01), Nuuanu Ground Water Management Area, Honolulu, Oahu

4. McKinley High School, Applications for Water Use, Well Construction, & Pump
   Installation Permits, McKinley Aquaculture Wells I & II (Well Nos. 1850-28 & 29),
   (Caprock) Nuuanu Ground Water Management Area, Honolulu, Oahu

5. Applications for Water Use Permits, Ewa Caprock Ground Water Management Area,
   Ewa, Oahu

WELL CONSTRUCTION PERMITS
6. Richard Smart Trust, Application for a Well Construction Permit, Parker Ranch Well 1, Kauai, Hawaii

7. EXTENSION - Waikoloa Water Company, Pump Installation Permit, Waikoloa Highlands
   Golf Course Well, Waikoloa, South Kohala, Hawaii

TRANSMISSION REPORT

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February 15, 1993

Rae M. Loui, Deputy Director
Department of Land and Natural Resources
Commission on Water Resource Management
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

RE: UPDATED INFORMATION ON WATER USE PERMIT APPLICATION

Dear Ms. Loui:

The following are the responses to questions from the February 4, 1993 letter that I received.

1. There are no changes or additions in the Tax Map Key areas specified in my application.

2. The county zoning codes are AG-1 & 2

3. The estimated acreage within each TMK areas are:
   - Total Acreage 270
   - Lakes: 34
   - Clubhouse: 36
   - Irrigated area: 200 acres approx.

4. The average daily consumption is approximately 6,000 gpd/acre.

5. The earliest date that the water will actually be used is as soon as possible.

6. The course is built so no water escapes the property, built like a bath tub. Also some turf will be taken out and be replaced with low maintenance landscape. This will be ongoing.
Ms. Rae M. Loui  
Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809

Dear Ms. Loui:

Subject: YOUR LETTER OF NOVEMBER 30, 1992 REGARDING THE WATER USE PERMIT APPLICATION, PUULOA GROUNDWATER MANAGEMENT AREA - HAWAII PRINCE GOLF CLUB WELL NO. 1900-02

Thank you for giving us the opportunity to review and comment on the subject water use permit application. We have no objections to the application.

The proposed use of the caprock source for golf course irrigation is in accordance with our policy of using nonpotable water for irrigating large landscaped areas. It is our understanding that due to the limited caprock supply within the ewa area, there is a recognized need for the proper management of caprock withdrawals to avoid allocating water beyond the total sustainable yield for the area.

We recommend that you consider limiting the amount of nonpotable water that will be allocated to golf courses and require them to implement conservation measures to cut down their requirement.

If you have any questions, please contact Bert Kuioka at 527-5235.

Very truly yours,

FOR KAZU HAYASHIDA  
Manager and Chief Engineer
Honorable William W. Paty, Chair  
Board of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawai‘i 96809

RE: Application for Water Use Permit  
Applicant: Hawaii Prince Golf Club  
Request: Water from pump 22-1900-02, wells 1-5  
TMK: 9-1-10-6:7 (por)  
Location: Pearl Harbor, Oahu, Hawaii

Dear Mr. Paty:

We have received a copy of the above-referenced Water Use Permit Application. Thank you for the opportunity to review this application. Our concern is that sufficient water be reserved for agricultural purposes. We also have reservations about the wisdom of using limited resources on projects with questionable value to the general public. Therefore, we suggest that these permits be effective for a specific period of time and that the applicant be required to renew the permits once expired.

If you have any questions, please contact Lynn J. Lee in our Land and Natural Resources Division at 586-3777.

Sincerely,

Richard K. Paglinawan  
Administrator

cc: Clayton Hee  
Chair, Board of Trustees
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. Box 621
HONOLULU, HAWAII 96809

MEMORANDUM FOR THE RECORD

GWMZ PERMIT APPLICANT: Hawaii Prince Golf Course for Hawaii Prince Hotels
DECLARANT (FILE REF.): SEIBU HAWAII for SEIBU RAILWAY CO, LTD. (Parent Company for Hawaii Prince Hotels)
OTHER PARTIES: Joseph Metcalfe, Project Manager, The Myers Corp. Project Developer
DATE: January 4, 1993
PRESENT: Garrick Iwamura, Golf Course Superintendent
Susan Swanson, CWRM
STATE WELL #’S: 1900-02 (EP 22), 1901-03 (Hawaii Price Well # 1), 1900-17 (Well # 2), 1900-18 (Well # 3), 1900-19 (Well # 4), 1900-20 (Well # 5)
E: Irrigation of approx. 200 acres of golf course. The other 70 acres of the 270 acre parcel are taken up by irrigation lakes, cart paths, structures and parking lots.

et Mr. Garrick Iwamura at the Hawaii Prince Golf Course at 10 am on January 4, 1993. Hawaii Prince Golf Course is owned by Seibu, Hawaii, which is owned by Seibu Railway, Ltd. The purpose of this field inspection was to inspect and document Hawaii Prince Golf Course’s use of six wells for golf course irrigation with brackish water with respect to a Ground Water Management Zone Permit application filed for these wells by Hawaii Prince Golf Course. The GWMZ application requests 1,500,000 gallons per day.

During the inspection, Mr. Iwamura related that their water use varies with the amount of rainfall on the golf course. Mr. Iwamura said that they had anticipated using 1.5 mgd during the grow-in period and reducing their usage to .9 mgd thereafter. He said that they have used as much as 1.5 mgd during the normal operation of the golf course, the heaviest irrigation months are between April and September, when they estimate a use of 1.5 mgd.
He stated that it is necessary to water heavily with the brackish water to avoid leaving a salt precipitate on the surface. At other times, there is no need to water, such as this last week when 4 inches of rain flooded parts of the golf course. The golf course was temporarily closed; flood waters were pumped into seepage pits on the golf course.

Currently, EP 22 (1900-02) is the only well being used for golf course irrigation by Hawaii Prince Golf Course due to the mechanical failures of the pumps in Wells #1 - 5. Although the irrigation lakes are all interconnected, the golf course management found the refill rate throughout the system was too slow when water from EP 22 was pumped into the lake adjacent the well. So now, the water is piped through an underground system to their primary irrigation lake (marked with a star on the attached golf course map). This distributes the water more efficiently to the sprinklers throughout the golf course.

EP 22 (State Well # 1900-02)

While Seibu Hawaii applied for a pump installation permit to convert EP 22 (1900-02) from 40 hp, 1760 gpm pump to a 10 hp submersible, 300 gpm pump; the work was never done. Currently, the golf course's primary water source, this dug well, is set beneath the ground level of the golf course, covered with heavy metal plates. At the time of this inspection, an electric 40 hp vertical shaft Worthington pump was in place over the dug well. The model # was 5K6247XH604A; the motor's serial number was CJJ314355. Mr. Iwamura said that the golf course intends to install a meter on the well when it is decided which meter would be suitable.

Hawaii Prince Wells # 1-5 (State Well #’s 1901-03, 1900-17 to 20)

A Franklin electric 5 hp submersible electric pump with a capacity of 210 gpm was installed on Wells #1-5 in late January of 1992. At the time of this inspection, the submersible pumps appeared to be in place in wells #1, 3, 4 & 5. The pump and piping had been removed from well #2. Mr. Iwamura stated that none of the five were operational. One by one, the motors for the five pumps burnt out. Mr. Iwamura stated that Doonwood Engineering had sent one of the pumps back to the manufacturer and they are in the process of deciding what the cause was and how to rectify it.

Each of the five newer wells had been fitted with a McCrometer meter. During the inspection, I recorded the serial numbers and meter readings, listed on each well's field inspection checklist.

History of EP 22

Well # 1900-02 (EP-22) was previously owned by Oahu Sugar Co., Ltd. for irrigation of sugar cane until the land the well was on was purchased by Hawaii Prince Golf Course. There are two more Oahu Sugar Co. wells (EP 20 and EP 24) on the golf course property, that continue to be used exclusively by Oahu Sugar Co. for irrigation of sugar cane fields next to the golf course. EP 20 and EP 24 were inspected in conjunction with Oahu Sugar Co.'s GWMZ permit applications.
Water Use Declarations previously filed for EP 22

"Seibu Hawaii", owner of the Hawaii Prince Hotels and Golf Course filed a water use declaration for EP 22, Well 1900-02 in 1989. Hawaii Golf Course's Wells # 1 - 5 (State Wells 1901-03, 1900-17-20) were completed in 1/90. "Oahu Sugar Co. Ltd." also had filed a water use declaration when they were using the well. A copy of this report will be included in the "Seibu Hawaii" Water Use Declaration file and in the combined well file for the Hawaii Prince Golf Course wells. A cross reference notation will be inserted into Oahu Sugar Co.'s file to refer to the combined well file for the Hawaii Prince Golf Course for information on the inspection of EP 22 (1901-02).

The location of each of the six wells is recorded on the USGS Quad map and on the Tax Key Map. Photographs of each well are also attached, with photos of the meters except for EP 22 which is not yet metered.

The inspection was completed at 11:30 am.

Attachments:

- Golf course map
- U.S.G.S. Quad Map
- Tax Key Map
- Checklist for each well
- Photographs of the golf course and each well site
EP 22 (STATE WELL # 1900-02)
PART I: USE OF WATER  
GWMZ Applicant:  
HAWAII PRINCE HOTELS

Water Use Decl. File Ref. (If any): SEIBU HAWAII (Parent Company for Hawaii Prince Hotels)

State Well # 1900-02  Name: EP 22 (Prev. used by Oahu Sugar Co.)

1. Tax Map Key where the water is used: 9-1-10:6 & part of 7
   Does the applicant own this land? YES

2. What is the water used for? IRRIGATION OF GOLF COURSE
   If for irrigation, how many acres are being irrigated? Approximately 200 acres of turf grass.
   Approximately 70 acres of the 270 acre parcel are taken up by lakes, cart paths, structures and parking lots.

3. Is the quantity of water use being measured? No. During the field inspection I was told that the Hawaii Prince Golf Course management would be installing a meter after they decide what type of meter to install.

PART II: WATER SOURCE

1. Where does the water come from/what kind of source is this? shallow brackish dug well well, estimated 8' x 8' uncased shaft. Currently, the Hawaii Prince Golf Course is using EP 22 as a primary source of water until the replacement of the pumps in the five newer wells. Mr. Iwamura stated that the pump motors burnt out.

2. Show the source location on maps, determine latitude and longitude, and document the nature of source development by measurements, sketches, and photographs.

   How is the water taken? Electric, vertical shaft, Worthington 40 hp pump, model 5K6247XH604A, serial # C JJ314355.

   What is the capacity for taking (gpm)? 1760 gpm
   How often is it taken (used)? daily as needed. Water is pumped into irrigation lakes, where it is distributed to sprinkler systems. The amounts needed depend upon rainfall. The heaviest usage is between the months of April and September. In the summer months, Mr. Iwamura estimates that they are using 1.5 mgd. He stated that because the water is brackish, it is necessary to water more heavily to prevent surface salt buildup.

   During rainier periods, no irrigation may be needed, such as last week, when localized flooding occurred on the golf course which necessitated pumping of flood waters into seepage pits on the golf course.

3. Tax Map Key at the source: 9-1-10:6  Does the applicant:
   1) Operate and maintain the source? YES
   2) Own the land at the source? YES
   3) Use the water from this source? YES
   4) Own the land where the water is being used? YES

4. Does anyone else also use water from this source? NO

Verified By: Susan Swanson  
Date of Inspection: January 4, 1993
HAWAII PRINCE WELL # 1
(STATE WELL # 1901-03)
GROUND WATER MANAGEMENT ZONE PERMIT APPLICATIONS
FIELD INSPECTION INFORMATION CHECKLIST

PART I: USE OF WATER

GWMZ Applicant: HAWAII PRINCE HOTELS

Water Use Decl. File Ref. (If any): SEIBU HAWAII (Parent Company for Hawaii Prince Hotels)

State Well # 1901-03 Name: PUMP # 1

1. Tax Map Key where the water is used: 9-1-10:6 & part of 7
   Does the applicant own this land? YES

2. What is the water used for? IRRIGATION OF GOLF COURSE
   If for irrigation, how many acres are being irrigated? 200

3. Is the quantity of water use being measured? YES, each of the five newer wells has a McCrometer meter installed. Well # 1's meter's serial # is 92-4-372; meter reading on 1/4/93: 17150200.

PART II: WATER SOURCE

1. Where does the water come from/what kind of source is this? shallow brackish well with 15" casing.

2. Show the source location on maps, determine latitude and longitude, and document the nature of source development by measurements, sketches, and photographs.
   How is the water taken? Submersible 5 hp pump
   What is the capacity for taking (gpm)? 210 gpm
   How often is it taken (used)? Mechanical problems prevent current use.

3. Tax Map Key at the source: 9-1-10:6
   Does the applicant:
   1) Operate and maintain the source? YES
   2) Own the land at the source? YES
   3) Use the water from this source? YES, although temporarily using EP 22 as primary source.
   4) Own the land where the water is being used? YES

4. Does anyone else also use water from this source? NO

Verified By: Susan Swanson Date of Inspection: January 4, 1993
HAWAII PRINCE WELL # 2
(STATE WELL # 1900-17)
GROUND WATER MANAGEMENT ZONE PERMIT APPLICATIONS
FIELD INSPECTION INFORMATION CHECKLIST

PART I: USE OF WATER

GWMZ Applicant: HAWAII PRINCE HOTELS

Water Use Decl. File Ref. (If any): SEIBU HAWAII (Parent Company for Hawaii Prince Hotels)

State Well # 1900-17 Name: Pump # 2

1. Tax Map Key where the water is used: 9-1-10:6 & part of 7
   Does the applicant own this land? YES

2. What is the water used for? IRRIGATION OF GOLF COURSE
   If for irrigation, how many acres are being irrigated? 200

3. Is the quantity of water use being measured? YES, each of the five newer wells has a McCrometer meter installed. Well # 2's meter's serial # is 90-4-944; the meter reading on 1/4/93 was: 07873000.

4. If this person takes from a multi-user pipe or ditch system? NO

PART II: WATER SOURCE

1. Where does the water come from/what kind of source is this? shallow brackish well with 15" casing.

2. Show the source location on maps, determine latitude and longitude, and document the nature of source development by measurements, sketches, and photographs.
   How is the water taken? Submersible 5 hp pump
   What is the capacity for taking (gpm)? 210 gpm
   How often is it taken (used)? Mechanical problems prevent current use.

3. Tax Map Key at the source: 9-1-10:6
   Does the applicant:
   1) Operate and maintain the source? YES
   2) Own the land at the source? YES
   3) Use the water from this source? YES, although temporarily using EP 22 as primary source.
   4) Own the land where the water is being used? YES

4. Does anyone else also use water from this source? NO

Verified By: Susan Swanson Date of Inspection: January 4, 1993
HAWAII PRINCE WELL # 3
(STATE WELL # 1900-18)
PART I: USE OF WATER

GWMZ Applicant: HAWAII PRINCE HOTELS

Water Use Decl. File Ref. (If any): SEIBU HAWAII (Parent Company for Hawaii Prince Hotels)

State Well # 1900-18 Name: Pump # 3

1. Tax Map Key where the water is used: 9-1-10:6 & part of 7 Does the applicant own this land? YES
2. What is the water used for? IRRIGATION OF GOLF COURSE If for irrigation, how many acres are being irrigated? 200
3. Is the quantity of water use being measured? YES, each of the five newer wells has a McCrometer meter installed. Well # 3's meter's serial # is 90-4-942; the meter reading on 1/4/93 was: 47271800.

PART II: WATER SOURCE

1. Where does the water come from/what kind of source is this? shallow brackish well, with 15" casing.
2. Show the source location on maps, determine latitude and longitude, and document the nature of source development by measurements, sketches, and photographs. How is the water taken? Submersible 5 hp pump What is the capacity for taking (gpm)? 210 gpm How often is it taken (used)? Mechanical problems prevent current use.
3. Tax Map Key at the source: 9-1-10:6 Does the applicant: 1) Operate and maintain the source? YES 2) Own the land at the source? YES 3) Use the water from this source? YES, although temporarily using EP 22 as primary source. 4) Own the land where the water is being used? YES
4. Does anyone else also use water from this source? NO

Verified By: Susan Swanson Date of Inspection: January 4, 1993
HAWAII PRINCE WELL # 4
(STATE WELL # 1900-19)
GROUND WATER MANAGEMENT ZONE PERMIT APPLICATIONS
FIELD INSPECTION INFORMATION CHECKLIST

PART I: USE OF WATER

GWMZ Applicant: HAWAII PRINCE HOTELS

Water Use Decl. File Ref. (If any): SEIBU HAWAII (Parent Company for Hawaii Prince Hotels)

State Well # 1900-19 Name: Pump # 4

1. Tax Map Key where the water is used: 9-1-10:6 & part of 7
   Does the applicant own this land? YES

2. What is the water used for? IRRIGATION OF GOLF COURSE
   If for irrigation, how many acres are being irrigated? 200

3. Is the quantity of water use being measured? YES Each of the five newer wells has a McCropmeter meter installed. Well # 4's meter's serial # is 90-4-943; the meter reading on 1/4/93 was: 23793500.

PART II: WATER SOURCE

1. Where does the water come from/what kind of source is this? shallow brackish well, with 15" casing.

2. Show the source location on maps, determine latitude and longitude, and document the nature of source development by measurements, sketches, and photographs.
   How is the water taken? Submersible 5 hp pump
   What is the capacity for taking (gpm)? 210 gpm
   How often is it taken (used)? Mechanical problems prevent current use.

3. Tax Map Key at the source: 9-1-10:6
   Does the applicant:
   1) Operate and maintain the source? YES
   2) Own the land at the source? YES
   3) Use the water from this source? YES, although temporarily using EP 22 as primary source.
   4) Own the land where the water is being used? YES

4. Does anyone else also use water from this source? NO

Verified By: Susan Swanson Date of Inspection: January 4, 1993
HAWAII PRINCE WELL # 5
(STATE WELL # 1900-20)
GROUND WATER MANAGEMENT ZONE PERMIT APPLICATIONS
FIELD INSPECTION INFORMATION CHECKLIST

PART I: USE OF WATER

GWMZ Applicant: HAWAII PRINCE HOTELS

Water Use Decl. File Ref. (If any): SEIBU HAWAII (Parent Company for Hawaii Prince Hotels)

State Well # 1900-20 Name: Pump # 5

1. Tax Map Key where the water is used: 9-1-10:6 & part of 7
   Does the applicant own this land? YES

2. What is the water used for? IRRIGATION OF GOLF COURSE
   If for irrigation, how many acres are being irrigated? 200

3. Is the quantity of water use being measured? YES Each of the five newer wells has a McCrometer meter installed. Well # 5's meter's serial # is 90-4-946; the meter reading on 1/4/93 was: 28290400.

PART II: WATER SOURCE

1. Where does the water come from/what kind of source is this? shallow brackish well, with 15" casing.

2. Show the source location on maps, determine latitude and longitude, and document the nature of source development by measurements, sketches, and photographs.
   How is the water taken? Submersible 5 hp pump
   What is the capacity for taking (gpm)? 210 gpm
   How often is it taken (used)? Mechanical problems prevent current use.

3. Tax Map Key at the source: 9-1-10:6
   Does the applicant:
   1) Operate and maintain the source? YES
   2) Own the land at the source? YES
   3) Use the water from this source? YES, although temporarily using EP 22 as a primary source.
   4) Own the land where the water is being used? YES

4. Does any one else also use water from this source? NO

Verified By: Susan Swanson Date of Inspection: January 4, 1993
Applications for Water Use Permits
Ground Water Management Areas

Applications for the following water use permits have been received and are hereby made public in accordance with Department of Land and Natural Resources Administrative Rules 13-171, "Designation and Regulation of Water Management Areas."

OAHU COUNTRY CLUB IRRIGATION TEST WELL (Well No. 2050-01)
Applicant: Oahu Country Club
P.O. Box O
Waipahu, HI 96797
Date Completed Application Received: December 17, 1992
Aquifer: Nuuanu System, Honolulu Sector, Oahu
Well Source: OCC Irrigation Test Well, Well No. 2050-01, at 150 Country Club Rd., Oahu
at Tax Map Key: 1-9-6:1
Quantity Requested: 250,000 gallons per day.
Proposed Water Use: Irrigation of OCC golf course
Place of Water Use: 150 Country Club Rd. at Tax Map Key: 1-9-6:1

KALIHI UKA III (Well No. 2250-03)
Applicant: Honolulu Board of Water Supply
630 S. Beretania St.
Honolulu, HI 96843
Date Completed Application Received: December 1, 1992
Aquifer: Moanalua System, Honolulu Sector, Oahu
Well Source: Kalihi Uka III Well, Well No. 2250-03, at Kalihi St., Oahu at Tax Map Key: 1-4-20:39
Quantity Requested: 200,000 gallons per day.
Proposed Water Use: Municipal use in Kalihi 640' & 597' systems
Place of Water Use: Kalihi Area

STANHOPE FARMS (Well No. 3308-02)
Applicant: Stanhope Farms
P.O. Box 546
Waialua, HI 96791
Date Completed Application Received: November 25, 1992
Aquifer: Waialua System, North Sector, Oahu
Well Source: Stanhope Farms Well, Well No. 3308-02, at Stanhope Farms, Waialua, Oahu
at Tax Map Key: 6-7-2:6
Quantity Requested: 27,000 gallons per day.
Existing Water Use: Irrigation of pasture
Place of Water Use: Stanhope Farms, Wailua at Tax Map Key: 6-7-2:6
MAKALII I, II, & III (Well Nos. 3452-02, 3453-12 & 13)
Applicant: Koolau Agriculture Co.
915 Fort St Mall, Ste 500
Honolulu, HI 96813
Date Completed Application Received: October 29, 1992
Aquifer: Kahana System, Windward Sector, Oahu
Well Source: Makalii I,II, & III Wells, Well Nos. 3452-02, 3453-12 & 13, at Makalii,
Punaluu, Oahu at Tax Map Key: 5-3-1:41, & 5-3-3:1
Quantity Requested: 1,500,000 gallons per day.
Proposed Water Use: Municipal for Board of Water Supply system
Place of Water Use: BWS System

Addendum to Hawaii Prince Golf Club EP 22 (Well No. 1900-02)
EP 22 & Wells 1-5 (Well Nos. 1900-02 and 1901-03 & 1900-17 through 20)
Applicant: Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706
Date Completed Application Received: August 31, 1992
Aquifer: Puuloa System, Ewa Caprock Sector, Oahu
Well Source: EP 22, Well No. 1900-02, at 94-1200 Fort Weaver Rd., Oahu at Tax Map Key: 9-1-10:6
Quantity Requested: Additional 600,000 gallons per day.
Proposed Water Use: Golf Course Irrigation
Place of Water Use: Hawaii Prince Golf Club, 91-1200 Fort Weaver Rd. at Tax Map Key: 9-1-10:6

Written objections or comments on the applications for water use permits may be filed by any person who has property interest in any land within the hydrologic unit of the source of water supply, any person who will be directly and immediately affected by the proposed water use, or any other interested person. Written objections shall: (1) state property or other interest in the matter; (2) set forth questions of procedure, fact, law, or policy, to which objections are taken; and (3) state all grounds for objections to the proposed permits. Send written objections by February 1, 1993 to 1) the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809 and 2) a copy of the objection letter(s) to the applicant at the above address.

COMMISSION ON WATER RESOURCE MANAGEMENT

RAE M. LOUI
Chairperson

Dated: DEC 28 1992

Publish in: Honolulu Star Bulletin issues of January 11 & 18, 1993
**STATE OF HAWAII**
**REQUISITION & PURCHASE ORDER**

**DEPARTMENT OF LAND AND NATURAL RESOURCES**

**NOTICE TO VENDORS**
Conditions of purchase are listed on the back side of this purchase order. Please read carefully. Payments may be delayed if all steps are not followed.

Hawaii Newspaper Agency
Honolulu Star Bulletin

P. O. Box 3350

Honolulu, Hawaii 96801

The State of Hawaii is an EQUAL EMPLOYMENT OPPORTUNITY and AFFIRMATIVE ACTION employer. We encourage the participation of women and minorities in all phases of employment.

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**QUAN.** | **UNIT** | **DESCRIPTION** | **OBJECT** | **UNIT PRICE** | **AMOUNT**
---|---|---|---|---|---

$600.00

**ACCOUNT UNIT PRICE**

**AMOUNT**

**OBJECT UNIT PRICE**

**AMOUNT**

PUBLIC NOTICE - Applications for Water Use Permits, Ground Water Management Areas

Publish in Honolulu Star Bulletin issues of January 11 & 18, 1993

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**REQUISITION NO.**

00138245

**FOR DEPARTMENT USE ONLY**

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**VENDOR**

**SFX**

117494  00

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**X** | **TC** | **F** | **YR** | **APP** | **D** | **OBJECT** | **CC** | **PROJ NO.** | **PH** | **ACT** | **ESTIMATED COST** | **ACTUAL COST** | **M** | **R** | **OPT DEPT DATA**
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01  621  G  93  044  C  4000  0726  000000  00  075  $600.00

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**DEPARTMENT OF LAND AND NATURAL RESOURCES**

**HAWAII PRINCE HOTEL**

**WAIKIKI**

**PRINCE HOTELS**

Hawaii Prince Hotel, 100 Holomua Street, Honolulu, Hawaii 96815
Telephone: (808) 956-1111 Fax number: (808) 956-3651

**WAIKIKI BRANCH**

FIRST HAWAIIAN BANK

HONOLULU, HAWAII 96815

58-101

1213

VOID AFTER 90 DAYS

DATE

12/10/92

CHECK NO

24557

***Twenty Five and 00/100 Dollars***

PAY TO THE ORDER OF

DEPARTMENT OF LAND AND NATURAL RESOURCES

**24557**

**AMOUNT**

25.00

**Ted McInerney**

**Two Signatures Required**
Mr. Garrick Iwamuro
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Enclosed is a copy of the public notice for your water use permit application which will be published in the Honolulu Star Bulletin, issues of December 7 & 14, 1992.

Please be aware that there may be objections to your application. If objections are made, the objector is required to file such objections with the Commission and is also required to send you a copy of the objections.

You, or any other party, may respond to objections by filing a brief in support of your application with the Commission within ten (10) days of the filing of an objection. You, or the other party, must also send a copy of the response to the objector.

Additionally, we still have yet to receive your $25.00 application fee. We will prepare your application submittal for Commission action only after we receive your application fee.

If you have any questions, please contact Roy Hardy at 587-0225.

Sincerely,

RAE M. LOUI
Deputy Director

RH:ko
Encl.
MEMORANDUM

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

FROM: Don Hibbard, Administrator
      Historic Preservation Division

SUBJECT: Water Use Permit Application, Puuloa
         Ground Water Management Area, Well No. 1900-02
         (Hawaii Prince Golf Club)
         Honouliuli, 'Ewa, O'ahu
         TMK: 9-1-10: 6

HISTORIC PRESERVATION PROGRAM CONCERNS:

Thank you for the opportunity to review this project. This application is for use of water from existing wells. Therefore we believe there will be "no effect" on historic sites.

TD: amk
MEMORANDUM

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

FROM: Henry Sakuda, Administrator
      Division of Aquatic Resources

SUBJECT: Comments on Water Use Permit Application for Puuloa Ground Water Management Area, Oahu.

The application by Hawaii Prince Golf Club for Well No. 1900-02 at Kapolei, Ewa, Oahu involves pumping up to 1.5 million gallons per day of non-potable brackish caprock water for golf course irrigation use. Much of the water will probably return to the underlying caprock aquifer.

There appears to be no potential for impact on surface waters. We therefore have no objections with reference to the potential effects on the aquatic biota.
Honorable Frank F. Fasi, Mayor  
City & County of Honolulu  
City Hall  
Honolulu, Hawaii 96813  

Attn: Mr. Jeremy Harris  

Dear Mayor Fasi:  

Notice of an Application for a Water Use Permit  
Puuloa Ground Water Management Area, Oahu  

In accordance with the Department of Land and Natural Resource Administrative Rule, Section 13-171-17(a), we are sending you a copy of the public notice for the water use permit application for the Hawaii Prince Golf Club for Well No. 1900-02, which was published in the Star Bulletin.

In addition, Section 13-171-13(b) of our Administrative Rules states:

"Within sixty days after receipt of notice of a permit application, the county shall inform the commission if the proposed use is inconsistent with the county land use plans and policies."

We have attached a copy of the application for your review and would appreciate receiving your comments, within the next sixty (60) days, on whether this water use is consistent with county plans and policies.

For your information, and at the request of the City Council, we have sent a copy of this application directly to the County Department of General Planning.

Very truly yours,

[Signature]

WILLIAM W. PATY

Enc.
Mr. Clayton H. W. Hee  
Chairman & Trustee At Large  
Office of Hawaiian Affairs  
711 Kapiolani Blvd., Suite 500  
Honolulu, Hawaii  96813-5249  

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

Dear Mr. Hee:  

Notice of an Application for a Water Use Permit  
Puuloa Ground Water Management Area, Oahu  

Transmitted for your review and comment is a copy of a water use permit application for the Hawaii Prince Golf Club for Well No. 1900-02.  

If you have any objections or comments on the above application, please submit them to us in writing by December 29, 1992.  

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

Very truly yours,  

WILLIAM W. PATY  

Enc.
Notice of an Application for a Water Use Permit
Puuloa Ground Water Management Area, Oahu

In accordance with the Department of Land and Natural Resource Administrative Rule, Section 13-171-17(a), we are sending you a copy of the public notice for the water use permit application for the Hawaii Prince Golf Club for Well No. 1900-02 which was published in the Star Bulletin.

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"Within sixty days after receipt of notice of a permit application, the county shall inform the commission if the proposed use is inconsistent with the county land use plans and policies."

We have attached a copy of the application for your review and would appreciate receiving your comments, within the next sixty (60) days, on whether this water use is consistent with county plans and policies.

For your information, and at the request of the City Council, we have sent a copy of this application directly to the County Department of General Planning.

Very truly yours,

WILLIAM W. PATY
MEMORANDUM

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

FROM: William W. Paty, Chairperson
    Commission on Water Resource Management

SUBJECT: Water Use Permit Application
         Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for the Hawaii Prince Golf Club for Well No. 1900-02.

If you have any objections or comments on the above application, please submit them to us in writing by December 29, 1992.

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

RH:ko
Enc.
Mr. Benjamin B. Lee  
Chief Planning Officer  
Department of General Planning  
City & County of Honolulu  
650 S. King St.  
Honolulu, Hawaii 96813

Dear Mr. Lee:

Notice of an Application for a Water Use Permit  
Puuloa Ground Water Management Area, Oahu

In accordance with the Department of Land and Natural Resource Administrative Rule, Section 13-171-17(a), and as directed by the City Council, we are sending you a copy of the public notice for the water use permit application for the Hawaii Prince Golf Club for Well No. 1900-02 which was published in the Star Bulletin.

In addition, Section 13-171-13(b) of our Administrative Rules states:

"Within sixty days after receipt of notice of a permit application, the county shall inform the commission if the proposed use is inconsistent with the county land use plans and policies."

We have attached a copy of the application for your review and would appreciate receiving your comments, within the next sixty (60) days, on whether this water use is consistent with county plans and policies.

Sincerely,

RAE M. LOUI  
Deputy Director

RH:ko  
Enc.  
c: Gary Gill
Mr. Kazu Hayashida  
Manager & Chief Engineer  
Board of Water Supply  
630 South Beretania Street  
Honolulu, Hawaii 96814  

Dear Mr. Hayashida:  

Notice of an Application for a Water Use Permit  
Puuloa Ground Water Management Area, Oahu  

In accordance with the Department of Land and Natural Resource Administrative Rule, Section 13-171-17(a), we are sending you a copy of the public notice for the water use permit application for the Hawaii Prince Golf Club for Well No. 1900-02 which was published in the Star Bulletin.  

In addition, Section 13-171-13(b) of our Administrative Rules states:  

"Within sixty days after receipt of notice of a permit application, the county shall inform the commission if the proposed use is inconsistent with the county land use plans and policies."  

We have attached a copy of the application for your review and would appreciate receiving your comments, within the next sixty (60) days, on whether this water use is consistent with county plans and policies.  

Sincerely,  

RAE M. LOUI  
Deputy Director  

RH:ko  
Enc.
MEMORANDUM

TO: Interested State Agencies & Other Parties

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

SUBJECT: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for the Hawaii Prince Golf Club for Well No. 1900-02.

If you have any objections or comments on the above application, please submit them to us in writing by December 29, 1992.

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

RH:ko
Enc.
Mr. William Wong
Mr. Dave Martin
Native Hawaiian Advisory Council
1088 Bishop St., Suite 1204
Honolulu, Hawaii 96813

Don Hibbard, Director
Historic Preservation Program
Ms. Marjorie Ziegler
Sierra Club Legal Defense Fund, Inc.
212 Merchant Street, Room 202
Honolulu, Hawaii 96813

Mr. Kazu Hayashida
Manager & Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843
Applications for the following water use permits have been received and are hereby made public in accordance with Department of Land and Natural Resources Administrative Rules 13-171, "Designation and Regulation of Water Management Areas."

**MANOA IV (Well No. 1848-01)**
*Applicant:* Honolulu Board of Water Supply  
630 S. Beretania St.  
Honolulu, HI 96843  

*Date Completed Application Received:* November 12, 1992  

*Aquifer:* Nuuanu System, Honolulu Sector, Oahu  

*Well Source:* MANOA IV, Well No. 1848-01, Manoa Park, Manoa Rd., Oahu at Tax Map Key: 2-9-36:3  

*Quantity Requested:* 1,000,000 gallons per day  

*Proposed Water Use:* Municipal for Board of Water Supply System  

*Place of Water Use:* Honolulu  

**EP 22 (Well No. 1900-02)**
*Applicant:* Hawaii Prince Golf Club  
91-1200 Fort Weaver Rd.  
Ewa Beach, HI 96706  

*Date Completed Application Received:* November 17, 1992  

*Aquifer:* Puuloa System, Ewa Caprock Sector, Oahu  

*Well Source:* EP 22, Well No. 1900-02, 94-1200 Fort Weaver Rd., Oahu at Tax Map Key: 9-1-10:6  

*Quantity Requested:* Additional 600,000 gallons per day  

*Proposed Water Use:* Golf Course Irrigation  

*Place of Water Use:* Hawaii Prince Golf Club, 91-1200 Fort Weaver Rd. at Tax Map Key: 9-1-10:6  

**KALAIAMANU HOU (Well No. 0602-03)**
*Applicant:* Kalaiamanu Hou Church  
P.O. Box 265  
Kaunakakai, HI 96748  

*Date Completed Application Received:* November 6, 1992  

*Aquifer:* Maunawainui System, Central Sector, Molokai  

*Well Source:* Kalaiamanu Hou, Well No. 0602-03, Molokai at Tax Map Key: 5-2-9:13  

*Quantity Requested:* 5,000 gallons per day  

*Existing Water Use:* Landscape irrigation of 1.3 acres.  

*Place of Water Use:* Kalaiamanu Hou Church at Tax Map Key: 5-2-9:13  

(more)
KAUNAKAKAI PARK (Well No. 0501-05)
Applicant: County Of Maui, Department of Parks & Recreation
1580 Kaahumanu Avenue
Wailuku, HI 96793
Date Completed Application Received: October 27, 1992
Aquifer: Kamiloloa System, Southeast Sector, Molokai
Well Source: Kaunakakai Park, Well No. 0501-05, Kolapa Place, Kaunakakai, Molokai at Tax Map Key: 5-3-2:167
Quantity Requested: 75,000 gallons per day
Existing Water Use: Irrigation of 8 acres of turf grass
Place of Water Use: Kam V Hwy, Kaunakakai at Tax Map Key: 5-3-3:1

Written objections or comments on the applications for water use may be filed by any person who has property interest in any land within the hydrologic unit of the source of water supply, any person who will be directly and immediately affected by the proposed water use, or any other interested person. Written objections shall: (1) state property or other interest in the matter; (2) set forth questions of procedure, fact, law, or policy, to which objections are taken; and (3) state all grounds for objections to the proposed permits. Send written objections by December 29, 1992 to 1) the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809, and 2) a copy of the objection letter to the applicant at the above address.

COMMISSION ON WATER RESOURCE MANAGEMENT

WILLIAM W. PATY, Chairperson

Dated: NOV 25 1992

APPLICATION FOR WATER USE PERMIT

1. (a) APPLICANT
   Firm/Name: Hawaii Prince Golf Club
   Contact Person: Garrick Iwamuro Ph.: 682-2200
   Address: 91-1200 Fort Weaver Road
   Ewa Beach, Hawaii 96706

(b) LANDOWNER
   Firm/Name: Hawaii Prince Hotel Waikiki Corp.
   Contact Person: Ted McAneeley Ph.: 689-2212
   Address: 100 Holomalu Street
   Honolulu, Hawaii 96815

2. WATER MANAGEMENT AREA: Pearl Harbor
   ISLAND: Oahu

3. (a) EXISTING SOURCE NAME AND STATE NUMBER:
   Pump 22-1900-02, Wells 1-5
   (well or stream diversion name/number)

(b) PROPOSED (NEW) SOURCE NAME:
   No new source, using existing wells.

4. SOURCE LOCATION:
   Address: 91-1200 Fort Weaver Road
   Tax Map Key: 9-1-10, A, Portion
   (Attach a USGS map, scale 1"=2000', and a property tax map showing source location referenced to established property boundaries.)

5. SOURCE TYPE (check one):
   [ ] Stream
   [ ] Dike-confined
   [ ] Perched
   [ ] Caprock

6. METHOD OF TAKING WATER (check one):
   [ ] Artesian Flow
   [ ] Diverted Surface Flow
   [ ] Well & Pump
   [ ] Other (explain)

7. LOCATION OF PROPOSED WATER USE:
   (If possible, show on same maps as source location. Otherwise, attach similar maps):
   (a) Address: 91-1200 Fort Weaver Road Ewa Beach
   Tax Map Key: 9-1-10, A
   (b) Land Use District (check one):
      [ ] Urban
      [ ] Agriculture
      [ ] Conservation
      [ ] Rural
   (c) County Zoning (describe):
      AG-1 AG-2 Etl. 10/22/86

8. QUANTITY OF WATER REQUESTED:
   From 900,000 to 1.5 Million gallons per day

9. METHOD OF MEASUREMENT:
   [ ] Flowmeter
   [ ] Open-pipe
   [ ] Weir
   [ ] Office
   [ ] Other (explain)

10. QUALITY OF WATER REQUESTED:
    [ ] Fresh
    [ ] Brackish
    [ ] Salt
    [ ] Potable
    [ ] Non-Potable

11. PROPOSED USE:
    [ ] Municipal (including hotels, stores, etc.)
    [ ] Domestic (individual, noncommercial, etc.)
    [ ] Irrigation
    [ ] Industrial
    [ ] Military
    [ ] Other (explain)

12. NUMBER AND TYPE OF UNITS TO BE SERVED (explain):
    Approx. 3,000 Turf Sprinklers

13. TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP:
    200 Approx. Hybrid Bermudas

14. PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION:
    24 hours (Indicate hours of operation)

15. APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE:
    (a) Impact on Sustainable yield (?): n/a
    (b) Permanent or Interim
    Instream Flow Standards affected (?): n/a
    (c) Hawaiian Home Land uses affected (?): n/a
    (d) Other existing legal uses affected (?): n/a
    (e) Other:

16. REMARKS, EXPLANATIONS:
    See Back

State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
REMARKS, EXPLANATIONS (cont'd): A water permit was issued on October 8, 1988.
We were allowed 1.5 Mgd. during the grow in period of the Hawaii Prince Golf Club.
After full establishment we are to cut back to .9 MGD.

After reviewing our records on water usage, we are averaging between 1 MGD. to
1.5 MGD. Because we are using brackish water, we need to actually over water just to
keep the salt down.

Currently we are using well 22 #1900-02, and 5 smaller wells to supply
brackish water to the golf course. The five smaller wells has flow meters and average
180 GPM each for a total of 900 GPM or 1.2 MGD. Well 22 doesn't have a flow meter
but we are in the process of researching a meter to be installed.
Reference:
1. Anba, Aruga & Ishizu Architects, Inc.
   Sam O. Hirota, Inc. Engineers & Surveyors
   Belt Collins & Associates Landscape Architects
   Site Plan (Dated: July 20, 1988)
   Ewa Golf Course, Oahu, Hawaii
   For: Seibu Hawaii, Inc.; The Myers Corp.
2. R.M. Towill Corp.
   Aerial Photos: No. 8525-4 & 8525-1
   Dated: February 1, 1988

AREA OF INFLUENCE FOR FIVE WELLS PUMPING AT 0.3 MGD EACH
MAP 'OF AREA

SCALE 1:24,000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

Reference:
U.S.G.S. Topographic Map
Pearl Harbor, Oahu, Hawaii
Dated 1983

PLATE 2
Applications for Water Use Permits
Ground Water Management Areas

Applications for the following water use permits have been received and are hereby made public in accordance with Department of Land and Natural Resources Administrative Rules 13-171, "Designation and Regulation of Water Management Areas."

**MANOA IV (Well No. 1848-01)**
- **Applicant:** Honolulu Board of Water Supply
- **Address:** 630 S. Beretania St., Honolulu, HI 96813
- **Date Completed Application Received:** November 12, 1992
- **Aquifer:** Nuuanu System, Honolulu Sector, Oahu
- **Well Source:** MANOA IV, Well No. 1848-01, Manoa Park, Manoa Rd., Oahu at Tax Map Key: 2-9-36:3
- **Quantity Requested:** 1,000,000 gallons per day
- **Proposed Water Use:** Municipal for Board of Water Supply System
- **Place of Water Use:** Honolulu

**EP 22 (Well No. 1900-02)**
- **Applicant:** Hawaii Prince Golf Club
- **Address:** 91-1200 Fort Weaver Rd., Ewa Beach, HI 96706
- **Date Completed Application Received:** November 17, 1992
- **Aquifer:** Paunaua System, Ewa Captop Sector, Oahu
- **Well Source:** EP 22, Well No. 1900-02, 94-1200 Fort Weaver Rd., Oahu at Tax Map Key: 9-1-10:6
- **Quantity Requested:** Additional 600,000 gallons per day
- **Proposed Water Use:** Golf Course Irrigation
- **Place of Water Use:** Hawaii Prince Golf Club, 91-1200 Fort Weaver Rd. at Tax Map Key: 9-1-10:6

**KALAIAMANU HOU (Well No. 0602-03)**
- **Applicant:** Kalaimamou Hou Church
- **Address:** P.O. Box 265, Kauimakulai, HI 96748
- **Date Completed Application Received:** November 6, 1992
- **Aquifer:** Maunawili System, Central Sector, Molokai
- **Well Source:** Kalaimamou Hou, Well No. 0602-03, Molokai at Tax Map Key: 5-2-913
- **Quantity Requested:** 5,000 gallons per day
- **Existing Water Use:** Landscape irrigation of 1.3 acres
- **Place of Water Use:** Kalaimamou Hou Church at Tax Map Key: 5-2-913

(more)
PUBLIC NOTICE

Applications for Water Use Permits
Ground Water Management Areas

Applications for the following water use permits have been received and are hereby made public in accordance with Department of Land and Natural Resources Administrative Rules 13-171, "Designation and Regulation of Water Management Areas."

MANOA IV (Well No. 1848-01)
Applicant: Honolulu Board of Water Supply
630 S. Beretania St.
Honolulu, HI 96843
Date Completed Application Received: November 12, 1992
Aquifer: Nuuanu System, Honolulu Sector, Oahu
Well Source: MANOA IV, Well No. 1848-01, Manoa Park, Manoa Rd., Oahu at Tax Map Key: 2-9-36:3
Quantity Requested: 1,000,000 gallons per day
Proposed Water Use: Municipal for Board of Water Supply System
Place of Water Use: Honolulu

EP 22 (Well No. 1900-02)
Applicant: Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706
Date Completed Application Received: November 17, 1992
Aquifer: Puuloa System, Ewa Caprock Sector, Oahu
Well Source: EP 22, Well No. 1900-02, 94-1200 Fort Weaver Rd., Oahu at Tax Map Key: 9-1-10:6
Quantity Requested: Additional 600,000 gallons per day
Proposed Water Use: Golf Course Irrigation
Place of Water Use: Hawaii Prince Golf Club, 91-1200 Fort Weaver Rd. at Tax Map Key: 9-1-10:6

KALAIAMANU HOU (Well No. 0602-03)
Applicant: Kalaiamanu Hou Church
P.O. Box 265
Kaunakakai, HI 96748
Date Completed Application Received: November 6, 1992
Aquifer: Maunawainui System, Central Sector, Molokai
Well Source: Kalaiamanu Hou, Well No. 0602-03, Molokai at Tax Map Key: 5-2-9:13
Quantity Requested: 5,000 gallons per day
Existing Water Use: Landscape irrigation of 1.3 acres.
Place of Water Use: Kalaiamanu Hou Church at Tax Map Key: 5-2-9:13
KAUNAKAKAI PARK (Well No. 0501-05)
Applicant: County Of Maui, Department of Parks & Recreation
1580 Kaahumanu Avenue
Wailuku, HI 96793
Date Completed Application Received: October 27, 1992
Aquifer: Kamiloloa System, Southeast Sector, Molokai
Well Source: Kaunakakai Park, Well No. 0501-05, Kolapa Place, Kaunakakai, Molokai at
Tax Map Key: 5-3-2:167
Quantity Requested: 75,000 gallons per day
Existing Water Use: Irrigation of 8 acres of turf grass
Place of Water Use: Kam V Hwy, Kaunakakai at Tax Map Key: 5-3-3:1

Written objections or comments on the applications for water use may be filed by any person who has property interest in any land within the hydrologic unit of the source of water supply, any person who will be directly and immediately affected by the proposed water use, or any other interested person. Written objections shall: (1) state property or other interest in the matter; (2) set forth questions of procedure, fact, law, or policy, to which objections are taken; and (3) state all grounds for objections to the proposed permits. Send written objections by December 29, 1992 to 1) the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809, and 2) a copy of the objection letter to the applicant at the above address.

COMMISSION ON WATER RESOURCE MANAGEMENT

WILLIAM W. PATY, Chairperson

Dated: NOV 25 1992

### STATE OF HAWAII
**REQUISITION & PURCHASE ORDER**

**DEPARTMENT OF LAND AND NATURAL RESOURCES**

**ORGANIZATION**

CWRM

**FUNCTION AND ACTIVITY**

C25918

**NOTICE TO VENDORS**

Conditions of purchase are listed on the back side of this purchase order. Please read carefully. Payments may be delayed if all steps are not followed.

Hawaii Newspaper Agency
Honolulu Star Bulletin

P.O. Box 3350
Honolulu, HI 96801

**BILLING ADDRESS**

P.O. Box 3350
Honolulu, HI 96801

Attn: Legal Ad

---

**DELIVERY ADDRESS**

DIVISION OF WATER RESOURCE MANAGEMENT
P.O. Box 227
1101 Punchbowl St., Room 227
Honolulu, Hawaii 96813

**DELIVERY ADDRESS**

Hawaii Newspaper Agency
Honolulu Star Bulletin

P.O. Box 3350
Honolulu, HI 96801

**BILLING ADDRESS**

P.O. Box 3350
Honolulu, HI 96801

Attn: Legal Ad

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**Date**

11/24/92

**Deliver Before**

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**DELIVERY ADDRESS**

DIVISION OF WATER RESOURCE MANAGEMENT
P.O. Box 227
1101 Punchbowl St., Room 227
Honolulu, Hawaii 96813

**BILLING ADDRESS**

P.O. Box 3350
Honolulu, HI 96801

Attn: Legal Ad

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**PUBLIC NOTICE**

Applications for Water Use Permits
Ground Water Management Areas

Publish in issues of December 7 & 14, 1992
(see attached notice)

Price List No. FL 92-66

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**QUAN. UNIT**

**DESCRIPTION**

**OBJECT UNIT PRICE AMOUNT**

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**GOODS/SERVICES RECEIVED IN GOOD ORDER AND CONDITION BY**

**DATE**

**AUTHORIZED SIGNATURE**

Roy/Kay

REQUISITIONER

587-0225

TELEPHONE

A. FURUUCHI

AUTHENTICATED BY

VENDOR NUMBER

117494

00

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**REQUISITION NO.**

00136875

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**FOR DEPARTMENT USE ONLY**

---

**COPY #1 - VENDOR**
October 22, 1992

Ms. Rae M. Loui  
Deputy Director  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Ms. Loui:

My name is Garrick Iwamuro, I am the Golf Course Superintendent for the Hawaii Prince Golf Club. I attended the meeting in regards to the Ewa Caprock Aquifer Water Management Plan.

The reason why I am touching bases with you is that I am very concerned about the water resource in this area. The conclusion I came away with from the meeting is that the private sector should solve this future problems with the help of the state and city.

It seems that since the permits are temporary, we would need to find alternative sources of water. The golf course is setup in a way that the existing wells feed all 10 lakes and then draws the water from the lakes to our irrigation system. If the source of water is changed, our piping of water must also be changed to accept the alternate source.

If my conclusion is accurate, I would need to forward this information to the parent company of Hawaii Prince to inform them of the major construction that will need to take place.

I would very much appreciate any additional information in regards to this matter.

Thank you very much for your attention and cooperation.

Sincerely,

Garrick K. Iwamuro  
Golf Course Superintendent  
Hawaii Prince Golf Club  

G P R J N C E  H C H E L S

Hawaii Prince Golf Club, 91-1200 Ft. Weaver Road, Ewa Beach, Hawaii 96706  Telephone: (808) 944-4567  Facsimile: (808) 689-4445
APPLICATION FOR WATER USE PERMIT

State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

Application for Water Use Permit

Date: Aug 31 1981

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 96808. Application must be accompanied by a non-refundable filing fee of $100.00. The Department of Land and Natural Resources. The Commission may accept incomplete applications. For assistance, call the Regulation Branch at 567-0253.

1. (a) APPLICANT
   Firm/Name: Hawaii Prince Golf Club
   Contact Person: Garrick lwamura
   Address: 91-1200 Fort Weaver Road
   Ewa Beach, Hawaii 96706

(b) LANDOWNER
   Firm/Name: Hawaii Prince Hotel Waikiki Corp
   Contact Person: Ted McAneeley
   Address: 100 Holomua Street
   Honolulu, Hawaii 96815

2. WATER MANAGEMENT AREA: Pearl Harbor
   ISLAND: Oahu

3. (a) EXISTING SOURCE NAME AND STATE NUMBER: Pump 22-1900-02, Wells 1-5
   (well or stream diversion name/number)
   (b) PROPOSED (NEW) SOURCE NAME: No new source, using existing wells.

4. SOURCE LOCATION: Address 91-1200 Fort Weaver Road
   Tax Map Key 9-1-10. 6 Portion
   (Attach a USGS map, scale 1"x2000", and a property tax map showing source location referenced to established property boundaries.)

5. SOURCE TYPE (check one): Stream □ Basal □ Dike-confined □ Perched □ Caprock

6. METHOD OF TAKING WATER (check one): Artesian Flow □ Well & Pump □ Diverted Surface Flow □ Other (explain)

7. LOCATION OF PROPOSED WATER USE: (If possible, show on same maps as source location. Otherwise, attach similar maps)
   (a) Address 91-1200 Fort Weaver Road
   (b) Land Use District (check one): Urban □ Agriculture □ Conservation □ Rural
   (c) County Zoning (describe): AC-1/AC-2 Eff. 10/22/86

8. QUANTITY OF WATER REQUESTED: From 900,000 to 1.5 Million gallons per day

9. METHOD OF MEASUREMENT: □ Flowmeter □ Open-pipe □ Weir □ Orifice □ Other (explain)

10. QUALITY OF WATER REQUESTED: □ Fresh □ Brackish □ Salt □ Potable □ Non-Potable

11. PROPOSED USE: □ Municipal (including hotels, stores, etc.) □ Domestic (individual, noncommercial, etc.) □ Irrigation □ Industrial □ Military □ Other (explain)

12. NUMBER AND TYPE OF UNITS TO BE SERVED (explain): Approx. 3,000 Turf Sprinklers

13. TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP: 200 Approx. Hybrid Bermuda (acres)

14. PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION: 24 hours (indicate hours of operation)

15. APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE:
   (a) Impact on Sustainable yield (?): n/a
   (b) Permanent or Interim Instream Flow Standards affected (?): n/a
   (c) Hawaiian Home Land uses affected (?): n/a
   (d) Other existing legal uses affected (?): n/a
   (e) Other: __________

16. REMARKS, EXPLANATIONS: See Back

(Note: If more space is needed, continue on back side)

For Official Use Only:

Applicant (print): Garrick lwamura Landowner (print): Ted McAneeley
Signature: Date 6/27/92

For Official Use Only: Date Received ___________ Hydrologic Unit No. ___________
Date Accepted ___________ Diverison Works No. ___________
Notice Dates: Public ___________ Mayor ___________ BWS ___________ Mail List ___________ Bulletin ___________
A water permit was issued on Oct. We were allowed 1.5 Mgd. during the grow in period of the Hawaii Pt. After full establishment we are to cut back to .9 MGD.

After reviewing our records on water usage, we are averaging between 1 Mgd. 1.5 MGD. Because we are using brackish water, we need to actually over water to keep the salt down.

Currently we are using well 22 #1900-02, and 5 smaller wells to supply brackish water to the golf course. The five smaller wells has flow meters and average 180 GPM each for a total of 900 GPM or 1.2 MGD. Well 22 doesn't have a flow meter but we are in the process of researching a meter to be installed.
Mr. Garrick Iwamuro
Hawaii Prince Golf Club
91-1200 Fort Weaver Rd.
Ewa Beach, HI 96706

Dear Mr. Iwamuro:

Application for a Water Use Permit
Ewa Caprock Ground Water Management Area, Oahu

We acknowledge receipt of your water use permit application for the EP 22 Well
(Well No. 1900-02) on August 31, 1992, which presently has a water use permit of
0.9 mgd on an annual basis, assuming that the golf course is fully established.

However, your application is incomplete. You must furnish the highlighted line
item(s) information before we can continue processing your application. We already have
on record the necessary map information; therefore, you do not have to submit additional
map information unless there have been changes in the source and use locations.
Additionally, we ask that you specify your specific average annual use in a single mgd figure
rather than a range. Specifying on an annual basis should account for seasonal fluctuations
in use.

Upon receipt of the requested information, we will continue to process your
application and will send you a copy of the public notice and any further information
regarding your application status.

Please take note that presently, the Commission is not approving any applications for
permanent water use permits for the Ewa Caprock Aquifer. Instead, temporary water use
permits may be granted if there is proof from the applicant that alternative sources of water
are actively being pursued should land use and recharge conditions change significantly in
the future.

If you have any questions, please contact Ed Sakoda at 587-0225.

Sincerely,

[Signature]

RAE M. LOUI
Deputy Director

RH:ko
Enc.
Reference:
1. Anbe, Aruga & Ishizu Architects, Inc.
Sam O. Hirotan, Inc. Engineers & Surveyors
Belt Collins & Associates Landscape Architects
Site Plan (Dated: July 20, 1988)
Ewa Golf Course, Oahu, Hawaii
For: Seibu Hawaii, Inc.; The Myers Corp.
2. R.M. Towill Corp.
Aerial Photos: No. 8525-4 & 8525-1
Taken: February 1988

AREA OF INFLUENCE FOR FIVE WELLS PUMPING AT 0.3 MGD EACH
APPLICATION FOR WATER USE 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 96806. Application must be accompanied by a non-refundable filing fee of $100 payable to the State of Land and Natural Resources. The Commission may not accept incomplete applications. For assistance, call the Regulation Branch at 587-0226.

1. (a) APPLICANT

Firm/Name: Hawaii Prince Golf Club
Contact Person: Garrick Iwamuro Ph: 689-2200 Address: 91-1200 Fort Weaver Road Ewa Beach, Hawaii 96706

(b) LANDOWNER

Firm/Name: Hawaii Prince Hotel Waikiki Corp. Contact Person: Ted McAneeley Ph: 956-1771 Address: 100 Makai Makena Street Honolulu, Hawaii 96815

2. WATER MANAGEMENT AREA: Pearl Harbor

3. (a) EXISTING SOURCE NAME AND STATE NUMBER:

Pump 22-1900-02, Wells 1-5 (well or stream diversion name/number)

(b) PROPOSED (NEW) SOURCE NAME: No new source, using existing wells.

4. SOURCE LOCATION: Address 91-1200 Fort Weaver Road Tax Map Key: 2-1-10.6, Portion 7

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

5. SOURCE TYPE (check one): Stream, Basal, Expok-confined, Perched, Caprock

6. METHOD OF TAKING WATER (check one): Artesian Flow, Well & Pump, Diverted Surface Flow, Other (explain)

7. LOCATION OF PROPOSED WATER USE: (If possible, show on same maps as source location. Otherwise, attach similar maps)

(a) Address 91-1200 Fort Weaver Road Ewa Beach Tax Map Key: 2-1-10.6, Portion 7

(b) Land Use District (check one): Urban, Agriculture, Conservation, Rural

(c) County Zoning (describe) Tax Map Key: 2-1-10.6, Portion 7

8. QUANTITY OF WATER REQUESTED: From 900,000 to 1,5 Million gallons per day

9. METHOD OF MEASUREMENT: Flowmeter, Open-pipe, Weir, Orifice, Other (explain)

10. QUALITY OF WATER REQUESTED: Fresh, Brackish, Salt, Potable, Non-Potable

11. PROPOSED USE: Municipal (including hotels, stores, etc.) Domestic (individual, noncommercial, etc.) Irrigation

Industrial, Military, Other (explain)

12. NUMBER AND TYPE OF UNITS TO BE SERVED (explain): Approx. 3,000 Turf Sprinklers

13. TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP: 200 Approx. Hybrid Bermuda (acres) (crop)

14. PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION: 24 hours (indicate hours of operation)

15. APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE:

(a) Impact on Sustainable yield (?): 

(b) Permanent or Interim

(c) Hawaiian Home Land uses affected (?): n/a

(d) Other existing legal uses affected (?): 

(e) Other: 

16. REMARKS, EXPLANATIONS: See Back

(If more space is needed, continue on back side)

NOTE: Signing below indicates that the applicant understands that, if a water use permit is granted by the Commission, it is subject to prior existing permitted uses, changes in sustainable yields and instream flow standards, reserved uses as defined by the Commission, and Hawaiian Home Lands future uses. In addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should the Commission require one.

Applicant (print): Goavick Iwamuro Landowner (print): Ted McAneeley
Signature: ____________ Date: ____________

Date Accepted: ____________ Hydrologic Unit No.: ____________

Diversions Works No.: ____________ Diversion Works No.: ____________

For Official Use Only:

Notice Dates: ____________ Mayor ____________ BWS ____________ Mail List ____________ Bulletin ____________ Public Hearing ____________

6/24/92 WUPA Form
A water permit was issued on October 8, 1988. We were allowed 1.5 Mgd. during the grow in period of the Hawaii Prince Golf Club. After full establishment we are to cut back to .9 MGD.

After reviewing our records on water usage, we are averaging between 1 MGD. to 1.5 MGD. Because we are using brackish water, we need to actually over water just to keep the salt down.

Currently we are using well 22 #1900-02, and 5 smaller wells to supply brackish water to the golf course. The five smaller wells has flow meters and average 180 GPM each for a total of 900 GPM or 1.2 MGD. Well 22 doesn't have a flow meter but we are in the process of researching a meter to be installed.
STATE OF HAWAII  
COMMISSION ON WATER RESOURCE MANAGEMENT  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCE MANAGEMENT  

REGISTRATION OF WELL  
AND DECLARATION OF WATER USE  

INSTRUCTIONS: Please type or print. If information is not available or not applicable, indicate as N/A. Fill out as completely as possible, sign, and file the form with the Division of Water Resource Management, P.O. Box 373, Honolulu, Hawaii 96809. Phone 548-3948 or 548-7545 for assistance.

BATTERY OF WELLS: For a battery of wells, on the surface, in a tunnel, or in a shaft, submit a registration form for each well together with a single map or plot plan showing layout of wells.

STATE WELL NO.: 1900-02  
WELL NAME OR DESIGNATION: Ewa Plantation EP22  
SOURCE OR STATION NAME (For a battery of wells): Ewa Pump 22 (EP22)

A. WELL OPERATOR  
Firm name: SEIBU HAWAII INC.  
Contact person: AKEMI KUROKAWA  
Address: 2237 KUHIO AVE., STE. 303  
HONOLULU, HAWAII  
Zip: 96815  
Phone: (808)922-0848

B. OWNER OF WELL SITE  
Firm name: SEIBU RAILWAY CO., LTD.  
Contact person: AKEMI KUROKAWA  
Address: 2237 KUHIO AVE., STE. 303  
HONOLULU, HAWAII  
Zip: 96815  
Phone: (808)922-0848

C. WELL LOCATION  
Tax Map Key: 9-1-10: 7  
Town, Place, District: Pualoa, Ewa District  
Attach USGS "Quad" map (scale 1:24,000), tax map, or other map showing the well location.

D. WELL DATA  
Vertical Shaft with Tunnel  
For Drilled Wells, submit "as-built" drawing, driller's log, and pump test results, and complete items below.  
For Tunnels and Shafts, submit construction drawings, plot plan, or sketch map.

Ground elevation (Mean sea level): 22.95 ft.  
Reference point (used to measure depth to water):  
Elevation: 22.95 ft.  
Description: Elevation at surface of shaft  
Depth to water (Below reference point): 22.75 ft.  
Maximum recorded chloride: 965 ppm  
Minimum recorded chloride: 440 ppm  
Maximum chloride in 1987: 965 ppm  
Year drilled or constructed: 1930  
Well contractor: Ewa Plantation Co.  
Casing diameter: N/A in.  
Solid casing depth (Below ground): N/A ft.  
Perforated casing depth (Below ground): N/A ft.  
Total depth of well: 28.75 ft.  
Minimum chloride in 1987: 821 ppm

INSTALLED PUMP DATA  
Pump type: Vertical shaft  
Power: Diesel, 40 HP  
Pump capacity: 1,720 gallons per minute  
Pump installation contractor: OAHU SUGAR COMPANY

For Official Use Only:  
Date received:  
Date accepted:  
Latitude: State Well No.:  
Longitude:  
Comments:  
Hydrologic Unit:  
Hydrologic Unit:  
State Well No.:  

References: Hawaii Revised Statutes, Chapter 174C,  
Hawaii Administrative Rules, Chapters 13-167 to 13-171.
F. DECLARATION OF WATER USE

NOTE: The purpose of the Declaration of Water Use is to obtain information necessary for the management of the State's water resources. The Declaration does not confer a legal right to water or its use.

Water use data are recorded: □ Daily □ Weekly □ Monthly □ Other (describe):

Method of measurement: □ Flow Meter □ Orifice □ Other (describe): Pump Run Time x Pump Capacity

Quantity of Use (Report measured or estimated monthly water use from the well described on the reverse side of this form, for the calendar years 1983 through 1987. For a battery of wells which are not individually metered, but which are connected to a single meter or other measuring device, report total use from the battery):

WATER USE, IN GALLONS x 1000

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<td>669300</td>
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Minimum daily use: 0 gallons Maximum daily use: 2,476,800 gallons

Typical times of usage: Constant usage throughout the day

Type of Use (Check all category boxes that apply and provide additional information as indicated):

□ Municipal (including resorts, hotels, businesses)
□ Domestic (systems serving 25 people or less)
□ Irrigation
□ Industrial
□ Military
□ Other

Category: Additional Information

Number of service connections:

Acres Irrigated: 188 acres

Crop(s): □ Sugar □ Pineapple □ Other (specify):
Non-Crop: □ Landscape □ Golf Course (270 ACRES) □ Other (specify):

Method: □ Drip □ Furrow □ Sprinkler

Cooling □ Manufacturing □ Mill

Specify (livestock, aquaculture, etc.):

I declare that the contents of the above Declaration of Water Use are, to the best of my knowledge and belief, true, correct, and complete.

Water User's Signature: [Signature] Date: 25 May '89

Printed Name: [Name]
Firm or Title (Well Operator, etc.): [Company Name]
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<th>REMARKS:</th>
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<td>S. Kokubun</td>
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FOR YOUR: #1-5 all completed 1/42?

WUP files
August 18, 1992

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

PROJECT: The Hawaii Prince Golf Club
SUBJECT: Pump Installation Status Report

Dear Mr. Loui:

In reference to your August 7, 1992 letter to Seibu Hawaii, Inc. (copy attached) requesting pump installation status reports for well EP22 and wells 1-5, the appropriate well completion reports were delivered to your offices the last week of January, 1992, when the wells were completed. I am responding to your letter as The Myers Corporation was the development manager for this project on behalf of Seibu Hawaii, Inc.

Yesterday I met with Bill Rozeboom at your offices and supplied him with additional copies of well completion reports for wells #1-5, as he confirmed, as your letter indicated, that you were without the necessary reports.

I also pointed out to Mr. Rozeboom that Well pump EP22 essentially was left unmodified except for upgrading of the associated electrical controls and the pump housing reconfiguration.

The pumps 1-5 are the primary supply pumps for irrigation of the Hawaii Prince Golf Club. Pump EP22 is only used as a backup pump should one or more of the five primary pumps become inoperative.

The required DLNR, Water Resource Management monthly water use reports were distributed to the Superintendent at the Hawaii Prince Golf Club and to Seibu Hawaii, Inc. offices for their use in reporting the quantity and quality of the water being used. Mr. Rozeboom confirmed that your offices to date have not received
any of the completed water use reports from HPGC. I will confirm with the Superintendent at the course that you require these reports regularly on a monthly basis.

I hope that this satisfies your department’s reporting requirements. Please contact me or Seibu Hawaii, Inc. if there are any further requirements regarding the water uses at the Hawaii Prince Golf Club.

Sincerely,

THE MYERS CORPORATION

[Signature]

Joseph A. Metcalfe
Development Manager

Enclosure

cc: Akemi Kurokawa
    Ted McAneeley
    Garrick Iwamuro
TO: Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

REQUEST FOR PUMP INSTALLATION STATUS REPORT
Ewa Golf Course Well (EP22) and
Hawaii Prince Golf Course Wells 1 to 5
(Well Nos. 1900-02, 1900-03, 1900-17 to 20)
Ewa Beach, Oahu

On July 16, 1990, the Commission on Water Resource Management issued you a permit to install a 300 gallons per minute pump in Ewa Golf Course Well (Well No. 1900-02). On August 8, 1990, the Commission issued you permits to install 300 gallons per minute pumps in five Hawaii Prince Golf Club Wells (Well Nos. 1901-03 and 1900-17 to 20. The permits were valid for two years from the date of issuance and required submission of well completion reports within 30 days after completion of the work.

As of this date, no well completion reports or other evidence have been received by the Department which indicates that the pumps were ever installed. Before concluding that the pumps were not installed within the allowable period, which has or is nearly expired, we request that you provide a status report on these wells to confirm whether any pump installation activity was performed under the permit. If pumps have been installed, please provide as-built drawings showing the installation(s) and reports of monthly water use from the wells as required by the Administrative Rules of the State Water Code.

Thank you for your time and cooperation.

Sincerely,

RAE M. LOUI
Deputy Director

BR:ky
**WELL COMPLETION REPORT**

**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 521, Honolulu, Hawaii 96823. An as-built drawing of the well and chemical analysis should also be submitted. For assistance call the Commission Regulation Branch at 547-0225.

1. **STATE WELL NO.** ISLAND
2. **LOCATION:** Address Tax Map Key
3. **DRILLING OR PUMP INSTALLATION CONTRACTOR**
4. **CONTRACTOR'S C-67 LICENSE NUMBER**
5. **NAME OF DRILLER WHO PERFORMED WORK**
6. **TYPE OF RIG/CONSTRUCTION**
7. **DATE OF WELL DRILLING COMPLETION**
   (NOTE: Report must be submitted within 30 days after the job)
8. **GROUND ELEVATION (m.a.s.l.)** ft.
    Top of Drilling Platform (m.a.s.l.) ft.
    Height of Drilling Platform above Ground surface ft.
    Bench Mark and Method Used to Determine Ground Elevation ft.
9. **DRILLER'S LOG:**

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<th>Rock Description, Remarks, Dates</th>
<th>Water Level (ft.)</th>
<th>Depth (ft.)</th>
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10. **TOTAL DEPTH OF WELL BELOW GROUND** ft.
11. **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

12. **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

13. **ANNULUS:**
    Grouted from ft. below ground to ft. below ground
    Gravel packed from ft. below ground to ft. below ground

14. **INITIAL WATER LEVEL** ft. below ground. Date and time of measurement

15. **INITIAL CHLORIDE** ppm Date and time of sampling

16. **INITIAL TEMPERATURE** °F Date and time of sampling

17. **DATE OF PUMP INSTALLATION**

18. **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 of bottom of airline ft. below which elevation is ft.
    Pumping Head is ft. below ground

19. **PUMPING TESTS:**
    Reference Point (R.P.) used; which elevation is ft.
    Date
    Start water level ft. below R.P. Start water level ft. below R.P.
    End water level ft. below R.P. End water level ft. below R.P.
    Depth of well ft. below R.P. Depth of well ft. below R.P.

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Remarks:

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**Contractor (print)**

**Signature**

**Title**

For Driller's Use:

**Job Name**
**Job No.**

For Official Use:

**Well No.**
**Longitude**
**Latitude**

***END***
TO: Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

REQUEST FOR PUMP INSTALLATION STATUS REPORT
Ewa Golf Course Well (EP22) and
Hawaii Prince Golf Course Wells 1 to 5
(Well Nos. 1900-02, 1900-03, 1900-17 to 20)
Ewa Beach, Oahu

On July 16, 1990, the Commission on Water Resource Management issued you a permit to install a 300 gallons per minute pump in Ewa Golf Course Well (Well No. 1900-02). On August 8, 1990, the Commission issued you permits to install 300 gallons per minute pumps in five Hawaii Prince Golf Club Wells (Well Nos. 1901-03 and 1900-17 to 20. The permits were valid for two years from the date of issuance and required submission of well completion reports within 30 days after completion of the work.

As of this date, no well completion reports or other evidence have been received by the Department which indicates that the pumps were ever installed. Before concluding that the pumps were not installed within the allowable period, which has or is nearly expired, we request that you provide a status report on these wells to confirm what if any pump installation activity was performed under the permit. If pumps have been installed, please provide as-built drawings showing the installation(s) and reports of monthly water use from the wells as required by the Administrative Rules of the State Water Code.

Thank you for your time and cooperation.

Sincerely,

RAE M. LOUI
Deputy Director

BR:ky
TRANSMITTAL LETTER

TO: State of Hawaii
    Commission on Water Resource Management
    Dept. of Land and Natural Resources
    Division of Water Resource Management

FROM: Joe Metcalfe, AIA

DATE: January 30, 1992

RE: THE HAWAII PRINCE GOLF CLUB

TRANSMITTED:

Copies Date Description

DLNR Well Completion Reports for
The Hawaii Prince Golf Club

( ) for your information & use ( ) for your approval
( ) for your signature & return ( ) for your review/comment
( ) for your further necessary action ( ) per your request
( ) for your signature & forwarding ( ) see remarks below
    as noted below ( ) per our conversation
( ) for your files

NOTE:
**WELL COMPLETION REPORT**

INSTRUCTIONS: Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 373, Honolulu, HI 96806. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology, Geology Section for assistance.

1. **STATE WELL NO.** S (1900-20)  
   **WELL NAME** GOLF CLUB  
   **TAX MAP KEY** 9-1-103-6  
   **ISLAND** OAHU

2. **LOCATION** Kailua  
   **DATE** 01/10/90

3. **WELL OWNER** THE HAWAII PRINCE HOTEL  
   **DRILLER & PUMP INSTALLATION CONTRACTOR** KOSA арс Co. / FOREMOST SOUTH Co.

4. **DATE OF WELL COMPLETION** 01/10/90  
   **DATE OF PUMP INSTALLATION** 01/27/92

5. **GROUND ELEVATION (m) above ground**  
   **Top of Drilling Platform (ft) (APPROX)** 30-2 m / 100 ft.  
   **Height of drilling platform above ground surface (ft)**
   **Benchmark and method used to determine ground elevation (ft)**

6. **TOTAL DEPTH OF WELL BELOW GROUND**

7. **HOLE SIZE:**
   - **Inch dia. from bottom to 20 ft. below ground**
   - **Inch dia. from bottom to 20 ft. below ground**
   - **Inch dia. from bottom to 20 ft. below ground**

8. **CASING INSTALLED:**
   - **In. I.D.**
   - **PVC.**
   - Wall solid to 17 ft. below ground  
   - **PVC.**
   - Wall perforated to 25 ft. below ground

9. **ANNUUS:**
   - **Grouted from bottom to 5 ft. below ground**
   - **Gravel packed from bottom to 3 ft. below ground**

10. **PERMANENT PUMP INSTALLATION:**
    - **Submersible Pump:**
    - **Capacity** 210 GPM
    - **Depth of pump intake setting**  
    - **Depth of bottom of sump**  
    - **which elevation is**

11. **PROPOSED USE** GOLF COURSE IRIGATION

12. **INITIAL WATER LEVEL** 19-2 ft. below ground

13. **INITIAL CHLORIDE** ppm

14. **PUMPING TESTS:** Reference point (R.P.) used:
   - **which elevation is**

15. **DRILLER'S LOG:**
    - **Depth, ft:**
    - **Rock Description & Remarks**
    - **Water Level ft.**

16. **REMARKS:**

Submitted by (print) ________________  
Signature ____________________________________________  
Title ____________________________  
Date ____________________________
**DESCRIPTION**

Date of report: Jan. 23, 1990
Person filing report: L.H. Runnels

A. OWNER: Seibu Hawaii Inc.
NAME: Hawaii Prince Golf Course #5
ISLAND: Oahu

B. GENERAL LOCATION: EWA

C. DRILLING COMPANY: ROSSCO MOSS COMPANY

D. TYPE OF RIG: DRILLING COMPLETED: 01. / 90
DRILLER: L. Moaali

E. ELEVATION, msl: Top of drilling platform approx. 20 ft.
Bench mark and method used to determine
Height of drilling platform above ground surface

F. HOLE SIZE: 24 inch dia. to 25 ft. below drilling platform.

G. CASING INSTALLED: 15 in. ID x PVC in wall solid section to 25 ft. below drilling platform.
Type of perforation: Slotted

H. ANNULUS: Grouted

I. PERMANENT PUMP INSTALLATION:
- Pump type, make, serial no: Capacity g.p.m.
Motor type, H.P., voltage, r.p.m.
Depth of pump intake setting ft. below which elevation is ft.
Depth of bottom of airline ft. below which elevation is ft.

**HYDROLOGY**

J. INITIAL WATER LEVEL: 19.3 ft. below drilling platform. Date of measurement.

K. INITIAL CHLORIDE: ppm, total depth of well ft. below drilling platform.

L. PUMPING TESTS:

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Sampling Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-17-90</td>
<td>19.3 ft. below R. P.</td>
<td>15.0 ft. below R. P.</td>
<td>17.0 ft.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Time (hours)</th>
<th>Rate (gpm)</th>
<th>Drawdown (ft)</th>
<th>Temp. (F)</th>
<th>Time (hours)</th>
<th>Rate (gpm)</th>
<th>Drawdown (ft)</th>
<th>Temp. (F)</th>
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</thead>
<tbody>
<tr>
<td>8:10am</td>
<td>210</td>
<td>6.0</td>
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<tr>
<td>24 Hours test</td>
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**SUBSURFACE FORMATION**

M. DRILLER'S LOG:

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<tr>
<th>Depth (ft.)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level (ft.)</th>
<th>Depth (ft.)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level (ft.)</th>
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</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>Soil</td>
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<td>3</td>
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<tr>
<td>3 to 25</td>
<td>Coral Hard &amp; Soft</td>
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**N. REMARKS:**

INSTRUCTIONS: Send three(3) copies to Manager-Chief Engineer, Division of Water and Land Development, P. 0. Box 373, Honolulu, Hawaii 96809.


FOR OFFICIAL USE

Latitude
Longitude
Well No.
### STATE WELL NO. 4 (1900-19)  
**WELL NAME:**  
**ISLAND NAME:**

**LOCATION:**  
**TAX MAP KEY:**

**WELL OWNER:**  
**THE HAWAII PRINCE HOTEL**

**DRILLING OR PUMP INSTALLATION CONTRACTOR:**  
**RESERVE HOLE COMPANY / HAWAII CONSTRUCTION CO.**

**DATE OF WELL COMPLETION:**  
**DATE OF PUMP INSTALLATION:**

**GROUND ELEVATION (mz):**  
**Top of Drilling Platform (mz):**

- Height of drilling platform above ground surface:

- Bench mark and method used to determine ground elevation:

**TOTAL DEPTH OF WELL BELOW GROUND:**

**HOLE SIZE:**

- 24 inch dia. from 0 ft. to 26 ft. below ground
- 16 inch dia. from 26 ft. to beneath ground
- 16 inch dia. from 10 ft. to 16 ft. below ground

**CASING INSTALLED:**

- 10 ft. x 10 in. wall solid section to 17 ft. below ground
- 10 in. I.D. x 10 in. wall perforated section to 26 ft. below ground

**ANNUAL:**

- Grouted from 0 ft. to 5 ft. below ground
- Gravel packed from 5 ft. to 26 ft. below ground

**PERMANENT PUMP INSTALLATION:**

- **Submersible Pump:**
  - Capacity: 210 gallons per minute
- **Motor type, make, serial No.:**
- **Depth of pump intake setting:**
- **Depth of bottom of airline:**
- **Which elevation is:**

**PROPOSED USE:**

**GOLF COURSE IRRIGATION**

**INITIAL WATER LEVEL:**

- Date and time of measurement:
- Date and time of sampling:

**INITIAL CHLORIDE:**

- Date:
- Start water level:
- End water level:
- Depth of well:

**PUMPING TESTS:**

- Reference point (R.P.) used:
- Date:
- Start water level:
- End water level:
- Depth of well:
- Elapsed Time (hours):
- Rate (gpm):
- Draw down (ft.):
- Cl. (ppm):
- Temp. (°F):

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<th>AM</th>
<th>to</th>
<th>PM</th>
<th>Draw down</th>
<th>Elapsed Time (hours)</th>
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<td>to</td>
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<td>to 10</td>
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<td><strong>其他测试</strong></td>
<td>to</td>
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**DRILLER’S LOG:**

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<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
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<td>to 3</td>
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<td>to</td>
<td>3 to 75</td>
<td>18-8” SOIL: SOFT</td>
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**Remarks:**

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<th>Submitted by (print)</th>
<th>Title</th>
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<th>Signature</th>
<th>Date</th>
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</table>
## DESCRIPTION

Date of report: Jan. 23, 1990  
Person filing report: L.H. Runnels

**A. OWNER** Seibu Hawaii Inc.  
**NAME** Hawaii Prince Golf Course  
**ISLAND** Oahu

**B. GENERAL LOCATION**  
**EA**

**C. DRILLING COMPANY** ROSCOE MOSS COMPANY

**D. TYPE OF RIG**  
**DRILLING COMPLETED** 01/09/90  
**DRILLER** L. Moalei

**E. ELEVATION, msl:**  
Top of drilling platform: approx. 20 ft.  
Bench mark and method used to determine height of drilling platform above ground surface: 

**F. HOLE SIZE:** 24 in. dia. to 25 ft. below drilling platform

**G. CASING INSTALLED:**  
15 in. I.D. x PVC in. wall solid section to 17 ft. below drilling platform.  
15 in. I.D. x PVC in. wall perforated section to 25 ft. below drilling platform.

**H. ANNULUS: Grouted** 0... to 5... ft. below drilling platform.

**I. PERMANENT PUMP INSTALLATION:**

- **Pump rating, H.P., voltage, r.p.m:**
- **Motor type:**
- **Type of perforation:** Slots

**J. INITIAL WATER LEVEL** 18\(\frac{1}{8}\) ft. below drilling platform.  
**Date of measurement:**

**K. INITIAL CHLORIDE:** ppm, total depth of well  
**ft. below drilling platform**

**L. PUMPING TESTS:**  
Reference point (R.P.) used: which elevation is ft.  
**Sampling Date**

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Elapsed Time (hours)</th>
<th>Rate Drawn (gpm)</th>
<th>Rate Drawn (ft.)</th>
<th>Cl. (ppm)</th>
<th>Temp. F</th>
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<tr>
<td>01-15-90</td>
<td>18(\frac{1}{8}) ft. below R. P.</td>
<td>18(\frac{1}{8}) ft. below R. P.</td>
<td>25 ft. below R. P.</td>
<td>0.50 to 210</td>
<td>18(\frac{1}{8}) in.</td>
<td>18(\frac{1}{8}) in.</td>
<td>to 450</td>
<td>to 120</td>
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**M. DRILLER’S LOG:**

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<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level</th>
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<tr>
<td>0. to 3</td>
<td>Soil</td>
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<td>3. to 25</td>
<td>Coastal Hard &amp; Soft</td>
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**N. REMARKS:**

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**FOR DRILLER’S USE**

**Job Name**  
**Job No.**

---

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


---

**FOR OFFICIAL USE**

**Latitude**  
**Longitude**  
**Well No.**
**WELL COMPLETION REPORT**

**INSTRUCTIONS:** Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 313, Honolulu, HI 96804. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology, Geology, Section for assistance.

<table>
<thead>
<tr>
<th>A. STATE WELL NO.</th>
<th>1900-18</th>
<th>B. LOCATION</th>
<th>EKOA</th>
<th>C. WELL OWNER</th>
<th>THE HAWAII HOTEL</th>
<th>D. DRILLING OR PUMP INSTALLATION CONTRACTOR</th>
<th>ROSCOE ROSS CO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. TYPE OF RIG</td>
<td></td>
<td>F. DATE OF WELL COMPLETION</td>
<td>01/10</td>
<td>G. DATE OF PUMP INSTALLATION</td>
<td>01/11/1992</td>
<td>H. TOTAL DEPTH OF WELL BELOW GROUND</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUND ELEVATION (m.s.l.)</td>
<td></td>
<td></td>
<td>30 ft.</td>
<td>I. HOLE SIZE</td>
<td>24 inch dia. from 0 ft. to 25 ft. below ground</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Top of Drilling Platform (m.s.l.)</td>
<td>30 ft.</td>
<td></td>
<td></td>
<td>J. CASING INSTALLED</td>
<td>3/4 in. I.D. x PCD in. wall solid section to 17 ft. below ground</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Height of drilling platform above ground surface</td>
<td></td>
<td></td>
<td></td>
<td>K. ANNULUS</td>
<td>Grouted from 0 ft. to 6 ft. below ground</td>
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<td></td>
<td>L. PERMANENT PUMP INSTALLATION</td>
<td>Pump type, make, serial No. SUB-RESIS GRUENSES 0700 60 VMS 0060 600000</td>
</tr>
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<td></td>
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<td>M. PROPOSED USE</td>
<td>GOLF COURSE (OBSTRUCTION)</td>
</tr>
<tr>
<td>N. INITIAL WATER LEVEL</td>
<td>ft. below ground</td>
<td>Date and time of measurement</td>
<td></td>
<td>O. INITIAL CHLORIDE</td>
<td>ppm</td>
<td>P. PUMPING TESTS</td>
<td>Reference point (R.P.) used: 100 ft. below ground</td>
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<tr>
<td>Q. DRILLER’S LOG</td>
<td>Water Level ft.</td>
<td>Depth, ft.</td>
<td>Rock Description &amp; Remarks</td>
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<td>95-100</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

Submitted by (print) ___________________________ Title ___________________________

Signature ___________________________ Date _______________
State of Hawaii
DEPARTMENT OF LAND & NATURAL RESOURCES
DIVISION OF WATER AND LAND DEVELOPMENT
DRILLER'S REPORT

DESCRIPTION

Date of report: Jan. 23, 1990
Person filing report: L. H. Runnells

A. OWNER: Seibu Hawaii Inc.
NAME: Hawaii Prince Golf Course Island: Oahu

B. GENERAL LOCATION: Ewa

C. DRILLING COMPANY: ROSCOR MOSS COMPANY

D. TYPE OF RIG: DRILLING COMPLETED: 01/90 DRILLER: L. Moaali

E. ELEVATION, msl: Top of drilling platform: approx. 20 ft. Bench mark and method used to determine
Height of drilling platform above ground surface: elevation:

F. HOLE SIZE: 24 inch dia. to 28 ft. below drilling platform.
28 inch dia. to 6 ft. below drilling platform.

G. CASING INSTALLED: 15 in. I.D. x PVC in. wall solid section to 17 ft. below drilling platform.
15 in. I.D. x PVC in. wall perforated section to 25 ft. below drilling platform.

H. ANNULUS: Grouted 0 ft. to 5 ft. below drilling platform.
Gravel packed ft. to ft. below drilling platform.

I. PERMANENT PUMP INSTALLATION:
- Pump type, make, serial no.
- Capacity g.p.m.
- Motor type, H.P., voltage, r.p.m.
- Depth of pump intake setting ft. below which elevation is ft.
- Depth of bottom of airline ft. below which elevation is ft.

HYDROLOGY

J. INITIAL WATER LEVEL ft. below drilling platform. Date of measurement.

K. INITIAL CHLORIDE: ppm, total depth of well ft. below drilling platform.

L. PUMPING TESTS:
- Reference point (R.P.) used: each which elevation is ft.
- Sampling Date

M. DRILLER'S LOG:

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. to 2.</td>
<td>Soil</td>
<td></td>
<td>2. to 25.</td>
<td>Coral Hard &amp; Soft</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

N. REMARKS:

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

**WELL COMPLETION REPORT**

**INSTRUCTIONS:** Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 373, Honolulu, HI 96829. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology, Geology Section for assistance.

A. **STATE WELL NO.** 2 (1900-17)  **WELL NAME** HAWAI’I Prince  **TAX MAP KEY** ISLAND OAHU

B. **LOCATION** Eulala

C. **WELL OWNER** THE HAWAI’I Prince HOTEL

D. **DRILLING OR PUMP INSTALLATION CONTRACTOR** RIcon & Co.

E. **TYPE OF RIG** DRILLER

F. **DATE OF WELL COMPLETION** 01/14  **DATE OF PUMP INSTALLATION** Jan 22, 1992

G. **GROUND ELEVATION** (msl) 32 ft.  **Top of Drilling Platform** (msl) 72 ft. (Approx)  **Height of drilling platform above ground surface** 0 ft.  **Bench mark and method used to determine ground elevation** ft.

H. **TOTAL DEPTH OF WELL BELOW GROUND**

<table>
<thead>
<tr>
<th>Depth of well</th>
<th>Glass to</th>
<th>ft. below ground</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>18</td>
</tr>
</tbody>
</table>

I. **HOLE SIZE:** 24 inch dia. from 0 ft. to 12 ft. below ground

J. **CASING INSTALLED:** 18 in. i.d. x PVC

K. **ANNULUS:** 18 in. i.d. x PVC

L. **PERMANENT PUMP INSTALLATION:**

<table>
<thead>
<tr>
<th>Pump type, make, serial No.</th>
<th>Capacity</th>
<th>ft. below ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBMERSIBLE GEOXOS</td>
<td>210 gpm</td>
<td>18</td>
</tr>
</tbody>
</table>

M. **PROPOSED USE** GOLF COURSE IRRIGATION

N. **INITIAL WATER LEVEL** 19.8 ft. below ground  **Date and time of measurement**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/1/87</td>
<td>9:14 A.M.</td>
</tr>
</tbody>
</table>

O. **INITIAL CHLORIDE** ppm  **Date and time of sampling**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/1/87</td>
<td>9:14 A.M.</td>
</tr>
</tbody>
</table>

P. **FUMPING TESTS:** Reference point (R.P.) used: 18 ft. below ground

<table>
<thead>
<tr>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Elapsed Time (hours)</th>
<th>Rate Draw- Cl. Temp. °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.8 ft. below R.P.</td>
<td>19.8 ft. below R.P.</td>
<td>18 ft. below R.P.</td>
<td>10</td>
<td>0.60</td>
</tr>
</tbody>
</table>

Q. **DRILLER’S LOG:**

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 18</td>
<td>240 ft.</td>
<td>19.8 ft. below R.P.</td>
</tr>
<tr>
<td>18 to 24</td>
<td>240 ft.</td>
<td>19.8 ft. below R.P.</td>
</tr>
<tr>
<td>24 to 40</td>
<td>240 ft.</td>
<td>19.8 ft. below R.P.</td>
</tr>
<tr>
<td>40 to 60</td>
<td>240 ft.</td>
<td>19.8 ft. below R.P.</td>
</tr>
<tr>
<td>60 to 80</td>
<td>240 ft.</td>
<td>19.8 ft. below R.P.</td>
</tr>
<tr>
<td>80 to 100</td>
<td>240 ft.</td>
<td>19.8 ft. below R.P.</td>
</tr>
<tr>
<td>100 to 120</td>
<td>240 ft.</td>
<td>19.8 ft. below R.P.</td>
</tr>
</tbody>
</table>

R. **REMARKS:**

Latitude 21° 19' 38"  **Longitude 158° 00' 56"**

**WELL No 1900-17**

Submitted by (print)  **Title**

Signature  **Date**
STATE OF HAWAII
DEPARTMENT OF LAND & NATURAL RESOURCES
DIVISION OF WATER AND LAND DEVELOPMENT

DRILLER'S REPORT

DESCRIPTION

Date of report: Jan 23, 1990
Person filing report: I.H. Runnells

A. OWNER: Seibu Hawaii Inc. NAME: Hawaii Prince Golf Course #2 ISLAND: Oahu

B. GENERAL LOCATION: Ewa

C. DRILLING COMPANY: ROSCOE MOSS COMPANY

D. TYPE OF RIG: DRILLING COMPLETED: 01/09/90 DRILLER: Moaali

E. ELEVATION: Top of drilling platform approx. 20 ft. Height of drilling platform above ground surface

F. HOLE SIZE: 24" inch dia. to 26" ft. below drilling platform.

G. CASING INSTALLED: 15 in. I.D. PVC, in wall solid section to 18 ft. below drilling platform.

H. ANNULUS: Grouted

I. PERMANENT PUMP INSTALLATION:

- Pump type, make, serial no.
- Motor type, H.P., voltage, r.p.m.
- Depth of pump intake setting
- Depth of bottom of airliner

J. INITIAL WATER LEVEL: 19.8 ft. below drilling platform.

K. INITIAL CHLORIDE: ppm, total depth of well

L. PUMPING TESTS:

- Start water level
- End water level
- Depth of well
- Elapsed Time (hours)
- Rate (gpm)
- Drawdown (ft.)
- CI (ppm)
- Temp.
- Sampling Date

M. DRILLER'S LOG:

- Depth, ft.
- Rock Description & Remarks
- Water Level

N. REMARKS:

HYDROLOGY

SUBSURFACE FORMATION

FOR DRILLER'S USE

Job Name

Job No.

FOR OFFICIAL USE

Latitude

Longitude

Well No.

INSTRUCTIONS: Send three (3) copies to Manager-Chief Engineer, Division of Water and Land Development, P.O. Box 372, Honolulu, Hawaii 96809.

APPLICATION FOR

WELL CONSTRUCTION PERMIT

PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 372, Honolulu, Hawaii 96828. Applications must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 388-7443, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Well No. 1 (1901-03)

Island OAHU Tax Map Key 9-1-10: 7 & Portion 6

Address NO ADDRESS

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

2. WELL OWNER

Firm Name SEIBU HAWAII, INC.

Contact Person MR. AKEMI KUROKI

Address 2237 Kuhio Avenue, Suite 303

Honolulu, Hawaii 96815

Phone (808) 922-0848

3. PROPOSED CONTRACTOR FOR: C)Well Drilling E)Pump Installation

Name ROSCOE BOSS COMPANY

Address 830 Alua Street

Honolulu, Hawaii 96819

4. PROPOSED WORK

C) Drill New Well D) Deepen

D) Alter D) Seal

C) Install New Pump D) Replace Pump

C) Redrill D) Abandon

C) Seal D) Modify Pump

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

5. PROPOSED USE

C) Municipal (including hotels, stores, etc.) D) Military

C) Domestic (individual, noncommercial water systems) D) Industrial

C) Irrigation (specify) GOLF COURSE D) Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL 300,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: C) Vertical Turbine D) Centrifugal

Motor: C) Diesel D) Gas D) Electric

Rated Pump Capacity gallons per minute (gpm)

Well Owner (print) Seibu Hawaii Inc. Landowner (print) Seibu Hawaii Inc.

Signature

Date

For Official Use Only:

Latitude

Longitude

Hydrologic Unit

State Well No. 1901-03
Briefly describe the proposed work:

1. Installation of pump

2. 

3. 

4. 

PROPOSED SECTION OF WELL

Elevation at top of casing __________ ft., msl.

Ground Elev. __________ ft., msl*

Cement Grout 4 ft.

Hole Dia. 24 in.

Total Depth 25 ft.

Rock Packing 0 ft.

Solid Casing:

- Material: PVC
- Length: 17 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.

Casing: /Perforated /x/Screen

- Material: PVC
- Length: 8 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.
- Openings: 134.4 sq. in./L.F.

Open Hole:

- Length: NONE
- Diameter: __________ in.

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

WELL CONSTRUCTION PERMIT

PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 375, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $50.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 946-7445, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island OAHU Tax Map Key 9-1-10: 7 & Portion 6
Address

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

2. WELL OWNER

Firm Name SEIBU HAWAII, INC.
Contact Person MR. AKEMI KUROKAWA
Address 2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815
Phone (808) 922-0848

3. PROPOSED CONTRACTOR FOR:

Name ROSEC OSS COMPANY
Address 830 Alua Street
Honolulu, Hawaii 96819

4. PROPOSED WORK

□ Drill New Well □ Deepen
□ Alter □ Seal □ Redrill
□ Install New Pump □ Replace Pump □ Modify Pump

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

5. PROPOSED USE

□ Municipal (including hotels, stores, etc.) □ Military
□ Domestic (individual, noncommercial water systems) □ Industrial
□ Irrigation (specify) GOLF COURSE □ Other (specify) ______

6. PROPOSED AMOUNT OF WITHDRAWAL 300,000 gallons per day

7. PROPOSED PUMP INFORMATION

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

For Official Use Only:

Field Checked By ________ Latitude ________ Hydrologic Unit ________
Date ________ Longitude ________ State Well No. 1900-17
Briefly describe the proposed work:

1. Installation of pump

2.

3.

4.

**PROPOSED SECTION OF WELL**

<table>
<thead>
<tr>
<th>Elevation at top of casing</th>
<th>21 ft., msl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement Grout</td>
<td>4 ft.</td>
</tr>
<tr>
<td>Hole Dia.</td>
<td>24 in.</td>
</tr>
<tr>
<td>Total Depth</td>
<td>25 ft.</td>
</tr>
<tr>
<td>Rock Packing</td>
<td>0 ft.</td>
</tr>
<tr>
<td>Ground Elev.</td>
<td>+20 ft., msl*</td>
</tr>
</tbody>
</table>

**Solid Casing:**

- **Material:** PVC
- **Length:** 17 ft.
- **Diameter:** 15 in.
- **Wall thickness:** 0.471 in.

**Open Hole:**

- **Length:** NONE
- **Diameter:** in.

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

DIV. OF WATER
LAND DEVELOPMENT

WELL CONSTRUCTION PERMIT
PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $15.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-1945, Hydrology/Geology Section for assistance.

1. WELL LOCATION
   Well No. 3
   Island OAHU Tax Map Key 9-1-10: 7 & Portion 6
   Address NO ADDRESS
   (Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER
   Firm Name SEIBU HAWAII, INC.
   Contact Person MR. AKEMI KUROKAWA
   Address 2237 Kuhio Avenue, Suite 303
   Honolulu, Hawaii 96815
   Phone (808) 922-0848
   LANDOWNER
   Firm Name SEIBU RAILWAY CO., LTD.
   Contact Person MR. AKEMI KUROKAWA
   Address 2237 Kuhio Avenue, Suite 303
   Honolulu, Hawaii 96815
   Phone (808) 922-0848

3. PROPOSED CONTRACTOR FOR:
   ☐ Well Drilling ☐ Pump Installation
   Name ROSCOE MOSS COMPANY
   Address 830 Ahua Street
   Honolulu, Hawaii 96819
   Contractor's License No. AC-2101
   Phone 839-6888

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

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

6. PROPOSED AMOUNT OF WITHDRAWAL 300,000 gallons per day

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

Well Owner (print) Seibu Hawaii Inc.  Landowner (print) Seibu Hawaii Inc.
Signature  3 April 90  Signature  3 April 90
Date

For Official Use Only:
Field Checked By ___________________ Latitude ___________________ Hydrologic Unit ___________________
Date ___________________ Longitude ___________________ State Well No. 1900-18
Briefly describe the proposed work:

1. Installation of pump
2. 
3. 
4. 

PROPOSED SECTION OF WELL

Elevation at top of casing +21 ft., msl.

Cement Grout 4 ft.

Hole Dia. 24 in.

Total Depth 25 ft.

Rock Packing 0 ft.

Ground Elev. +20 ft., msl*

Solid Casing:
- Material: PVC
- Length: 17 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.

Casing: / Perforated /x Screen
- Material: PVC
- Length: 8 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.
- Openings 134.4 sq. in./L.F.

Open Hole:
- Length: NONE
- Diameter: 

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

**DIV. OF WATER & LAND DEVELOPMENT**

**APPLICATION FOR**  
**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 273, Honolulu, Hawaii 96819. Application must be accompanied by a non-refundable filing fee of $15.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 348-7342, Hydrology/Geology Section for assistance.

## 1. WELL LOCATION

**Well No. 4**

- **Island:** OAHU  
- **Tax Map Key:** 9-1-10: 7 & Portion 6

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

## 2. WELL OWNER

**Firm Name:** SEIBU HAWAII, INC.  
**Contact Person:** MR. AKEMI KUROKAWA  
**Address:** 2237 Kuhio Avenue, Suite 303, Honolulu, Hawaii 96815  
**Phone:** (808) 922-0848

**LANDOWNER:**

**Firm Name:** SEIBU RAILWAY CO., LTD.  
**Contact Person:** MR. AKEMI KUROKAWA  
**Address:** 2237 Kuhio Avenue, Suite 303, Honolulu, Hawaii 96815  
**Phone:** (808) 922-0848

## 3. PROPOSED CONTRACTOR FOR:

- **Well Drilling**
- **Pump Installation**

**Name:** ROSCOE MOSS COMPANY  
**Address:** 830 Ahihi Street, Honolulu, Hawaii 96819  
**Phone:** 839-6888

**Contractor's License No.:** AC-2101

## 4. PROPOSED WORK

- [ ] Drill New Well  
- [ ] Deepen  
- [ ] Redrill  
- [ ] Alter  
- [ ] Seal  
- [ ] Abandon  
- [ ] Install New Pump  
- [ ] Replace Pump  
- [ ] Modify Pump  
- [ ] Replace Pump  
- [ ] Modify Pump

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

## 5. PROPOSED USE

- [ ] Municipal (including hotels, stores, etc.)  
- [ ] Military  
- [ ] Domestic (individual, noncommercial water systems)  
- [ ] Industrial  
- [ ] Irrigation (specify)  
- [ ] Golf Course  
- [ ] Other (specify)

## 6. PROPOSED AMOUNT OF WITHDRAWAL

300,000 gallons per day

## 7. PROPOSED PUMP INFORMATION

- **Pump Type:** [ ] Vertical Turbine  
- [ ] Submersible  
- [ ] Centrifugal  
- [ ] Diesel  
- [ ] Gas  
- [ ] Electric

**Rated Pump Capacity:** gallons per minute (gpm)

---

**Well Owner (print):** Seibu Hawaii Inc.  
**Landowner (print):** Seibu Hawaii Inc.

**Signature:**  
**Date:**

For Official Use Only:

**Field Checked By:**  
**Latitude:**  
**Hydrologic Unit:**  
**Longitude:**  
**State Well No.:** 1900-19
Briefly describe the proposed work:

1. Installation of pump

2.

3.

4.

PROPOSED SECTION OF WELL

Elevation at top of casing
+21 ft., msl.

Cement Grout 4 ft.

Hole Dia. 24 in.

Total Depth 25 ft.

Rock Packing 0 ft.

Ground Elev. +20 ft., msl*

Solid Casing:
- Material: PVC
- Length: 17 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.

Casing: / Perforated / Screen
- Material: PVC
- Length: 8 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.
- Openings: 134.4 sq. in./L.F.

Open Hole:
- Length: NONE
- Diameter: ____________ in.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
APPLICATION FOR
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 372, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 348-1942, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Well No. 5
Island OAHU Tax Map Key 9-1-10: 7 & Portion 6
Address NO ADDRESS
(Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER

Firm Name SEIBU HAWAII, INC. LANDOWNER
Contact Person MR. AKEMI KUROKAWA Firm Name SEIBU RAILWAY CO., LTD.
Address 2237 Kuhio Avenue, Suite 303 Contact Person MR. AKEMI KUROKAWA
Honolulu, Hawaii 96815 Address 2237 Kuhio Avenue, Suite 303
Phone (808) 922-0848 Honolulu, Hawaii 96815

3. PROPOSED CONTRACTOR FOR: [ ] Well Drilling [ ] Pump Installation

Name ROSCOE MOSS COMPANY Phone 839-6888
Address 830 Alua Street Contractor's License No. AC-2101
Honolulu, Hawaii 96819

4. PROPOSED WORK

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

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

5. PROPOSED USE

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

6. PROPOSED AMOUNT OF WITHDRAWAL 300,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: [ ] Vertical Turbine [ ] Submersible [ ] Centrifugal
Motor: [ ] Diesel [ ] Gas [ ] Electric: _______ Rated Horsepower
Rated Pump Capacity _______ gallons per minute (gpm)

Well Owner (print) Seibu Hawaii Inc. Landowner (print) Seibu Hawaii Inc.
Signature [ ] Date 3 April 90

For Official Use Only:
Latitude _______ Hydrologic Unit
Longitude _______ State Well No. 1900-20
Briefly describe the proposed work:

1. Installation of pump

2. 

3. 

4. 

**PROPOSED SECTION OF WELL**

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
<th>Length</th>
<th>Diameter</th>
<th>Wall thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC</td>
<td>Solid Casing</td>
<td>17 ft.</td>
<td>15 in.</td>
<td>0.471 in.</td>
</tr>
<tr>
<td>PVC</td>
<td>Casing</td>
<td>8 ft.</td>
<td>15 in.</td>
<td>0.471 in.</td>
</tr>
<tr>
<td>PVC</td>
<td>Screen</td>
<td>134.4 sq. in./L.F.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td>Openings</td>
<td>NONE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td>Diameter</td>
<td>NONE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
<table>
<thead>
<tr>
<th>EXPLANATION</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>190 Dept. of Land &amp; Natural Resources HPEC Well #1 (Well No. 190-01-03)</td>
<td>2,768</td>
</tr>
</tbody>
</table>

FIRST HAWAIIAN BANK - WAIKIKI BRANCH
2181 KALAKAUA AVE., HONOLULU, HI 96815

<table>
<thead>
<tr>
<th>EXPLANATION</th>
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<tbody>
<tr>
<td>190 Dept. of Land &amp; Natural Resources HPEC Well #2 (Well No. 190-00-17)</td>
<td>2,769</td>
</tr>
</tbody>
</table>

FIRST HAWAIIAN BANK - WAIKIKI BRANCH
2181 KALAKAUA AVE., HONOLULU, HI 96815

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>190 Dept. of Land &amp; Natural Resources HPEC Well #3 (Well No. 190-00-18)</td>
<td>2,770</td>
</tr>
</tbody>
</table>

FIRST HAWAIIAN BANK - WAIKIKI BRANCH
2181 KALAKAUA AVE., HONOLULU, HI 96815
THE MYERS CORPORATION
CLIENT TRUST ACCOUNT
745 FORT ST., SUITE 1500
HONOLULU, HI 96813

EXPLANATION | AMOUNT
-------------|--------

2771
59-101-1213

JNT Twenty Five 4 1/20

TO THE ORDER OF

First Hawaiian Bank - Waikiki Branch
2181 Kalakaua Ave., Honolulu, HI 96815

DOLLARS:

$ 25.00

EXPLANATION | AMOUNT
-------------|--------

2772
59-101-1213

JNT Twenty Five 4 1/20

TO THE ORDER OF

First Hawaiian Bank - Waikiki Branch
2181 Kalakaua Ave., Honolulu, HI 96815

DOLLARS:

$ 25.00

EXPLANATION | AMOUNT
-------------|--------

2773
59-101-1213

JNT Twenty Five 4 1/20

TO THE ORDER OF

First Hawaiian Bank - Waikiki Branch
2181 Kalakaua Ave., Honolulu, HI 96815

DOLLARS:

$ 25.00

EXPLANATION | AMOUNT
-------------|--------

2774
59-101-1213

JNT Twenty Five 4 1/20

TO THE ORDER OF

First Hawaiian Bank - Waikiki Branch
2181 Kalakaua Ave., Honolulu, HI 96815

DOLLARS:

$ 25.00
The Honorable William W. Paty, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Paty:

SUBJECT: WELL CONSTRUCTION PERMIT APPLICATIONS
EWA GOLF COURSE IRRIGATION WELL NOS. 1 TO 5
STATE WELL NOS. 1901-03 AND 1900-17, 18, 19, AND 20
EWA, OAHU

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

1. The applications indicate that the proposed wells will only be used for golf course irrigation. Thus, the Department's Administrative Rules, Title 11, Chapter 20, "Potable Water Systems," will not be applicable. However, in the event that the proposed uses were to change, please inform the Safe Drinking Water Branch.

2. The proposed wells are situated above the Underground Injection Control (UIC) line. Land areas above the UIC line are considered to contain underground sources of drinking water. Thus, it is essential that the wells be designed and constructed to prevent the possibility of groundwater contamination. For example, each well should have a concrete well pad and full grouting to prevent seepage or floodwaters from migrating down the well shaft.

3. It appears that the golf course may be located above the Underground Injection Control (UIC) line. Land areas above the UIC line are considered to contain underground sources of drinking water. Various activities associated with golf courses should not be allowed to contaminate groundwater. Activities of concern include:
a. Application of biocides and fertilizers
b. Storage of fuel for vehicles
c. Maintenance of vehicles and equipment (cleaning, refueling, lubrication, etc.)
d. Wastewater disposal

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

Very truly yours,

[Signature]

JOHN C. LEWIN, M.D.
Director of Health

cc: Mr. Akemi Kurokawa
SEIBU Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815
WELL CONSTRUCTION PERMIT
for
Ewa Golf Course Irrigation Wells 1 to 5
Well Nos. 1900-17 to 20 and 1901-03
Ewa, Oahu

TO: Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct and test five wells within Tax Map Key: 9-1-10:617 for golf course irrigation use, is approved subject to the following conditions:

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

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

3. The following shall be submitted to DOWALD within 30 days after completion of the wells:
   a. Well Completion Reports.
   b. Elevation (referenced to mean sea level) survey by a Hawaii-licensed surveyor.
   c. As-built sectional drawings of the wells.
   d. Plot plan and map showing the exact locations of the wells.
   e. Complete pumping test record; including time, pumping rate, drawdown, chloride content, and water quality data.
4. The applicant shall comply with all applicable laws, rules, and ordinances.

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

WILLIAM W. PATY, Chairperson  
Commission on Water Resource Management

AUG 24 1989  
Date of Issuance

cc: USGS  
Department of Health,  
Drinking Water Program  
Ground Water Protection Program  
Honolulu Board of Water Supply
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Seibu Hawaii, Inc.
Application for Well Construction Permits
Ewa Golf Course Irrigation Wells 1 to 5, Ewa, Oahu

Applicant: Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815

Background: The Commission, in October 1988, approved a water use permit for 1.5 million gallons per day (mgd) for the initial stage of development of the Ewa Golf Course and 0.9 mgd after full establishment of the course. The water source, Oahu Sugar Company's Pump 22, is located on the golf course site and taps the caprock aquifer.

Action Requested: Permission to construct and test five 15-inch diameter, 25 ft. deep wells (Well Nos. 1900-17 to 20 and 1901-03) which will cumulatively replace the permitted pumpage from Pump 22. Pump 22 will be left in place to allow for pumping flexibility but the total pumpage from the five new wells and Pump 22 will not exceed 1.5 mgd for the initial stage and 0.9 mgd after full establishment of the golf course.

Well Locations: The proposed well sites are on the proposed Ewa Golf Course near Ewa Beach, Oahu, at Tax Map Key: 9-1-10:6&7 (see attached map).

Well Description (typical):

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground elevation</td>
<td>20± ft.</td>
</tr>
<tr>
<td>Casing diameter</td>
<td>15-inch I.D.</td>
</tr>
<tr>
<td>Solid casing depth</td>
<td>17 ft. (3 ft., msl)</td>
</tr>
<tr>
<td>Screen casing depth</td>
<td>25 ft. (-5 ft., msl)</td>
</tr>
<tr>
<td>Total depth</td>
<td>25 ft.</td>
</tr>
<tr>
<td>Grouted annulus</td>
<td>0-4 ft.</td>
</tr>
</tbody>
</table>

Agency Review: The applications have been sent to the Honolulu Board of Water Supply and to the State Department of Health for review. There have been no objections to the project.

Analysis: The reasons for developing water from five wells instead of from a single source are as follows:
Chairperson and Members  
Commission on Water Resource Management  
August 16, 1989

(1) Pumping at lower rates from five wells instead of at a higher rate from Pump 22 should produce lower salinity water.

(2) The new wells have been located to capture cesspool and lawn irrigation water, which is generally fresher than the caprock water, from the adjacent housing subdivision.

(3) As part of the proposed development, all rainfall on the golf course and runoff from the parcel to the north will be allowed to percolate into the ground within the golf course boundaries. The well locations have been designed to capture as much of this fresh water as possible.

RECOMMENDATION:

That the Commission approve the issuance of well construction permits for construction and testing of Ewa Golf Course Irrigation Wells 1 to 5, subject to the following conditions:

(1) The Division of Water and Land Development (DOWALD) shall be notified before work commences.

(2) The permits shall be for construction and testing only. No permanent pumps may be installed and no water used from the wells without the necessary pump installation permits.

(3) The following shall be submitted to DOWALD within 30 days after completion of the wells:
   a. Driller's Well Completion Reports.
   b. Elevation (referenced to mean sea level) survey by a Hawaii-licensed surveyor.
   c. As-built sectional drawings of the wells.
   d. Plot plan and map showing the exact locations of the wells.
   e. Complete pumping test record; including time, pumping rate, drawdown, chloride content, and water quality data.

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

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

Respectfully submitted,

MANABU TAGOMORI  
Deputy Director

Attachment.

APPROVAL FOR SUBMITTAL:

WILLIAM W. PATY, Chairperson
EWA GOLF COURSE IRR. WELLS 1 to 5
(1901-03, 1900-17 to 20)
August 11, 1989

Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815

Gentlemen:

The Commission on Water Resource Management will be acting on your permit application for Ewa Golf Course Irrigation Wells 1 to 5 at their regularly scheduled meeting on August 16, 1989, at 2:00 p.m. in Board Room 132, 1151 Punchbowl Street, Honolulu.

Your application will be included on the agenda as Item 10 (attached).

You or your representative are invited to attend the meeting.

Sincerely,

[Signature]

MANABU TAGOMORI
Deputy Director

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

Dear Mr. Tagomori:

Subject: Your Letter of July 13, 1989 Regarding the Well Construction Permit Applications for Heeia-Estrella Well (2648-01) and Ewa Golf Course Irrigation Wells 1-5 (1901-03, 1900-17-20)

Thank you for allowing us to review the well construction permit applications. We have no objections to the construction of the wells. Please send us copies of all the data on geological formations encountered by the driller, water quality, and pump test results for our files.

Very truly yours,

KAZU HAYASHIDA  
Manager and Chief Engineer
JUL 18 1989

REF: WL-KC

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

Attention: Mr. Thomas Arizumi, Drinking Water Program

Dear Dr. Lewin:

Well Construction Permit Applications

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

Huehue Ranch Wells 2 & 3 (4459-01 & 4556-01)
MacFarlas Wells 2 & 3 (0951-01 & 0852-01)
Heeia-Estrellas Well (2648-01)
Wai Golf Course Irrigation Wells 1 to 5 (1901-03, 1900-17 to 20)
Kamaole Well (4325-01)
Kapalua Well No. 2 (5938-03)

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

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

Very truly yours,

WILLIAM W. PATY

Encl.
July 13, 1989

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Hayashida:

We would appreciate your review and comments of the following well construction permit applications:

- Hecia-Estrella Well (2648-01)
- Ewa Golf Course Irrigation Wells 1 to 5 (1901-03, 1900-17 to 20)

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

Sincerely,

[Signature]

Yoshio Tamura
Deputy Director

ES:ko
Enc.
July 10, 1989

Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815

Gentlemen:

We acknowledge receipt of your applications and filing fees to construct the Ewa Golf Course Irrigation Wells 1 to 5 at Honouliuli, Ewa, Oahu.

My Staff is processing the application and will contact you should there be any questions.

Sincerely,

[Signature]

MANABU TAGOMORI
Deputy Director

ES:bm
TO: State of Hawaii  
Commission on Water Resources Management  
Dept. of Land and Natural Resources  
Division of Water Resource Management  
1151 Punchbowl Street  
Honolulu, Hawaii 96813

ATTENTION: Mr. Manabu Tagomori

WE TRANSMIT:  
☑ ATTACHED  
☐ UNDER SEPARATE COVER  
☐ FOR YOUR INFORMATION  
 ☐ APPROVED AS NOTED  
 ☐ DISAPPROVED

THE FOLLOWING:  
☐ ADDENDUM  
☐ CALCULATIONS  
☐ CHANGE ORDER  
☐ COPY OF LETTER  
☐ DRAWING ORIGINAL(S)  
☐ DRAWING PRINT(S)  
☐ MAPS & DESCRIPTIONS  
☐ REPORT(S)  
☐ SPECIFICATIONS  
☐ PHOTOGRAPHS

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<table>
<thead>
<tr>
<th>COPIES</th>
<th>DATE</th>
<th>DESCRIPTION</th>
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<tr>
<td>1 ea</td>
<td>6-21-89</td>
<td>$125.00 check for application fee.</td>
</tr>
<tr>
<td>2 ea</td>
<td>6-8-89</td>
<td>Letter from Dames &amp; Moore to State of Hawaii, Water Commission, along with USGS Map Plot and Tax Map Plot.</td>
</tr>
<tr>
<td>5 ea</td>
<td></td>
<td>Well construction permit application forms.</td>
</tr>
</tbody>
</table>

ACTION CODE:  
A. ACTION INDICATED ON ITEM TRANSMITTED  
B. NO ACTION REQUIRED  
C. FOR SIGNATURE & RETURN TO THIS OFFICE  
D. FOR SIGNATURE & FORWARDING AS NOTED BELOW  
E. FOR YOUR APPROVAL  
F. SEE REMARKS BELOW

REMARKS:

RECEIVED BY:  
Dennis Hirota, Ph.D., P.E. - PRESIDENT
State of Hawaii
Commission on Water Resource Management
Department of Land and Natural Resources
Division of Water Resource Management

Attn: Mr. Manabu Tagomori

Well Construction Permit Applications
Golf Course Irrigation Wells
Proposed Ewa Golf Course
Honouliuli, Oahu, Hawaii

Following discussions with Mr. Ed Sakoda on May 23, 1989, we hereby submit well construction permit applications for five wells to be constructed for the subject project. These permit applications are filed on behalf of our client, Myers Development Corporation, and the landowner, Seibu Hawaii, Inc.

Each well will pump 300,000 gpd, and the five wells will cumulatively replace the existing pumping from the existing Oahu Sugar Well No. EP-22. EP-22 will be left in place to allow for some flexibility in location of pumping for the golf course, but the total pumping from the five wells and EP-22 will not exceed an average of the 1.5 MGD currently permitted. The pumping is expected to be continuous at a relatively constant pumping rate, with storage within golf course lakes to accommodate irrigation schedules.

The purpose in drilling these additional wells are as follows:

1. By reducing the pumping from the existing well EP-22 location and distributing it among five (or six) locations, we anticipate that the salinity of the water pumped can be minimized.

2. The location of the new wells is designed to recapture cesspool and lawn irrigation water from the adjacent housing subdivision, which is generally fresher than the water within the caprock aquifer.

3. As part of the proposed development, all rainfall on the golf course and runoff from the parcel to the north will be allowed to percolate into the ground within the golf course boundaries. The well locations are designed to recapture as much of this fresh water as possible.

USGS and property tax maps are attached showing well locations referenced to established property boundaries. A check for $125 to cover the filing fees is also attached.

- o0o -
If there are any questions regarding this submittal, please do not hesitate to contact the undersigned.

Respectfully submitted,

DAMES & MOORE
A Professional Limited Partnership

[Signature]

Masanobu R. Fujioka, P.E.
Consultant

MRF:ob(4533B/203B:11474-011-11)

Attachments:  Well Construction Permit Applications (5)
               USGS Map
               Property Tax Map
               Filing Fee check
APPLICATION FOR

X WELL CONSTRUCTION PERMIT

PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96808. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7543, Hydrology/Geology Section for assistance.

1. WELL LOCATION Well No. 1

Island OAHU Tax Map Key 9-1-10: 7 & portion 6

Address NO ADDRESS

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

2. WELL OWNER LANDOWNER

Firm Name SEIBU HAWAII, INC.

Contact Person MR. AKEMI KUROKAWA

Address 2237 Kuhio Avenue, Suite 303

Honolulu, Hawaii 96815

Phone (808) 922-0848

3. PROPOSED CONTRACTOR FOR: XWell Drilling O Pump Installation

Name ROSCOE MOSS COMPANY

Address 830 Ahua Street

Honolulu, Hawaii 96819

4. PROPOSED WORK

[ ] Drill New Well [ ] Deepen [ ] Redrill

[ ] Alter [ ] Seal [ ] Abandon

[ ] Install New Pump [ ] Replace Pump [ ] Modify Pump

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

5. PROPOSED USE

[ ] Municipal (including hotels, stores, etc.) [ ] Military

[ ] Domestic (individual, noncommercial water systems) [ ] Industrial

[ ] Irrigation (specify) GOLF COURSE [ ] Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL 300,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: [ ] Vertical Turbine [ ] Submersible [ ] Centrifugal

Motor: [ ] Diesel [ ] Gas [ ] Electric: [ ] Rated Horsepower

Rated Pump Capacity gallons per minute (gpm)

Well Owner (print) AKEMI KUROKAWA Landowner (print) AKEMI KUROKAWA

Signature Date 19 June, 89

For Official Use Only:

Field Checked By

Latitude

Hydrologic Unit

Date

Longitude

State Well No. 1901-03
Briefly describe the proposed work:

1. 24" hole will be drilled to 5' below water table (approximately 25').
2. 15" PVC casing, bottom 8' screened, will be installed.
3. The well will be developed and tested.
4. A 4-foot concrete surface seal will be placed in the annulus.

PROPOSED SECTION OF WELL

Elevation at top of casing: +21 ft., msl.

Cement Grout: 4 ft.
Hole Dia. 24 in.
Total Depth 25 ft.
Rock Packing 0 ft.

Ground Elev. +20 ft., msl

Solid Casing:
- Material: PVC
- Length: 17 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.

Casing: / /Perforated /x/Screen
- Material: PVC
- Length: 8 ft.
- Diameter: 15 in.
- Wall thickness: 0.471 in.
- Openings: 134.4 sq. in./L.F.

Open Hole:
- Length: NONE
- Diameter: 

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
State of Hawaii  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources  
Division of Water Resource Management

APPLICATION FOR

_____WELL CONSTRUCTION PERMIT  
_____PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 713, Honolulu, Hawaii 96803. Application must be accompanied by a non-refundable filing fee of $15.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7442, Hydrology/Geology Section for assistance.

1. WELL LOCATION

<table>
<thead>
<tr>
<th>Island</th>
<th>Tax Map Key</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>OAHU</td>
<td>9-1-10: 7 &amp; Portion 6</td>
<td>NO ADDRESS</td>
</tr>
</tbody>
</table>

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

2. WELL OWNER

<table>
<thead>
<tr>
<th>Firm Name</th>
<th>Contact Person</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEIBU HAWAII, INC.</td>
<td>MR. AKEMI KUROKAWA</td>
<td>2237 Kuhio Avenue, Suite 303 Honolulu, Hawaii 96815</td>
<td>(808) 922-0848</td>
</tr>
<tr>
<td>SEIBU RAILWAY CO., LTD.</td>
<td>MR. AKEMI KUROKAWA</td>
<td>2237 Kuhio Avenue, Suite 303 Honolulu, Hawaii 96815</td>
<td>(808) 922-0848</td>
</tr>
</tbody>
</table>

3. PROPOSED CONTRACTOR FOR:

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROSCOE MOSS COMPANY</td>
<td>839-6888</td>
</tr>
</tbody>
</table>

Contractor's License No. AC-2101

4. PROPOSED WORK

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Drill New Well</td>
<td>Deepen</td>
<td>Redrill</td>
</tr>
<tr>
<td>Alter</td>
<td>Seal</td>
<td>Abandon</td>
</tr>
<tr>
<td>Install New Pump</td>
<td>Replace Pump</td>
<td>Modify Pump</td>
</tr>
</tbody>
</table>

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

5. PROPOSED USE

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Municipal (including hotels, stores, etc.)</td>
<td>Military</td>
</tr>
<tr>
<td>Domestic (individual, noncommercial water systems)</td>
<td>Industrial</td>
</tr>
<tr>
<td>Irrigation (specify)</td>
<td>Other (specify)</td>
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</table>

6. PROPOSED AMOUNT OF WITHDRAWAL

<table>
<thead>
<tr>
<th>Gallons per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>300,000</td>
</tr>
</tbody>
</table>

7. PROPOSED PUMP INFORMATION

<table>
<thead>
<tr>
<th>Pump Type</th>
<th>Motor</th>
<th>Rated Pump Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Turbine</td>
<td>Diesel</td>
<td>gallons per minute (gpm)</td>
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<tr>
<td>Submersible</td>
<td>Gas</td>
<td></td>
</tr>
<tr>
<td>Centrifugal</td>
<td>Electric</td>
<td></td>
</tr>
</tbody>
</table>

Rated Horsepower

Well Owner (print) AKEMI KUROKAWA  
Landowner (print) AKEMI KUROKAWA

Signature  
Date 19 June 89

For Official Use Only:

Field Checked By ___________________  
Latitude ___________________  
Hydrologic Unit ___________________

Date ___________  
Longitude ___________________  
State Well No. 1900-17
Briefly describe the proposed work:

1. 24" hole will be drilled to 5' below water table (approximately 25').

2. 15" PVC casing, bottom 8' screened, will be installed.

3. The well will be developed and tested.

4. A 4-foot concrete surface seal will be placed in the annulus.

PROPOSED SECTION OF WELL

Elevation at top of casing +21 ft., msl.

Ground Elev. +20 ft., msl*

Cement Grout 4 ft.

Solid Casing: Material PVC
Length 17 ft.
Diameter 15 in.
Wall thickness 0.471 in.

Hole Dia. 24 in.

Total Depth 25 ft.

Rock Packing 0 ft.

Casing: / /Perforated /x/Screen
Material PVC
Length 8 ft.
Diameter 15 in.
Wall thickness 0.471 in.
Openings 134.4 sq. in./L.F.

Open Hole:
Length NONE
Diameter ____________ in.

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

WELL CONSTRUCTION PERMIT  
PUMP INSTALLATION PERMIT

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

1. WELL LOCATION
   Island OAHU  
   Tax Map Key 9-1-10: 7 & Portion 6
   Address NO ADDRESS
   (Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER
   Landowner
   Firm Name SEIBU HAWAII, INC.
   Contact Person MR. AKEMI KUROKAWA
   Address 2237 Kuhio Avenue, Suite 303
   Honolulu, Hawaii 96815
   Phone (808) 922-0848

   Well Owner
   Firm Name SEIBU RAILWAY CO., LTD.
   Contact Person MR. AKEMI KUROKAWA
   Address 2237 Kuhio Avenue, Suite 303
   Honolulu, Hawaii 96815
   Phone (808) 922-0848

3. PROPOSED CONTRACTOR FOR:
   ☑ Well Drilling  ☐ Pump Installation
   Name ROSCOE MOSS COMPANY
   Address 830 Ahua Street
   Honolulu, Hawaii 96819
   Phone 839-6888
   Contractor's License No. AC-2101

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

5. PROPOSED USE
   ☑ Municipal (including hotels, stores, etc.)  ☐ Military
   ☐ Domestic (individual, noncommercial water systems)  ☐ Industrial
   ☐ Irrigation (specify) GOLF COURSE  ☐ Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL  300,000 gallons per day

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

Well Owner (print) AKEMI KUROKAWA  Landowner (print) AKEMI KUROKAWA
Signature  Date 19 June 89  

For Official Use Only:

Field Checked By_________  Latitude_________  Hydrologic Unit_________
Date_________  Longitude_________  State Well No. 1900-18
Briefly describe the proposed work:

1. A 24" hole will be drilled to 5' below water table (approximately 25').
2. A 15" PVC casing, bottom 8' screened, will be installed.
3. The well will be developed and tested.
4. A 4-foot concrete surface seal will be placed in the annulus.

**PROPOSED SECTION OF WELL**

<table>
<thead>
<tr>
<th>Elevation at top of casing</th>
<th>Solid Casing:</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 ft., msl.</td>
<td>Material PVC</td>
</tr>
<tr>
<td></td>
<td>Length 17 ft.</td>
</tr>
<tr>
<td></td>
<td>Diameter 15 in.</td>
</tr>
<tr>
<td></td>
<td>Wall thickness 0.471 in.</td>
</tr>
<tr>
<td>Ground Elev.</td>
<td>+20 ft., msl*</td>
</tr>
<tr>
<td>Cement Grout</td>
<td>4 ft.</td>
</tr>
<tr>
<td>Hole Dia.</td>
<td>24 in.</td>
</tr>
<tr>
<td>Total Depth</td>
<td>25 ft.</td>
</tr>
<tr>
<td>Rock Packing</td>
<td>0 ft.</td>
</tr>
</tbody>
</table>

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

X WELL CONSTRUCTION PERMIT

PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 313, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $125.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-1541, Hydrology/Geology Section for assistance.

1. WELL LOCATION Well No. ___
   Island OAHU Tax Map Key 9-1-10: 7 & Portion 6
   Address NO ADDRESS

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

2. WELL OWNER

   Firm Name SEIBU HAWAII, INC.
   Contact Person MR. AKEMI KUROKAWA
   Address 2237 Kuhio Avenue, Suite 303
   Honolulu, Hawaii 96815
   Phone (808) 922-0848

   LANDOWNER

   Firm Name SEIBU RAILWAY CO., LTD.
   Contact Person MR. AKEMI KUROKAWA
   Address 2237 Kuhio Avenue, Suite 303
   Honolulu, Hawaii 96815
   Phone (808) 922-0848

3. PROPOSED CONTRACTOR FOR: [X] Well Drilling  [ ] Pump Installation

   Name ROSEOE MOSS COMPANY
   Address 830 Aha Street
   Honolulu, Hawaii 96819
   Phone 839-6888
   Contractor's License No. AC-2101

4. PROPOSED WORK

   [X] Drill New Well  [ ] Deepen  [X] Redrill
   [ ] Alter  [ ] Seal  [ ] Abandon
   [ ] Install New Pump  [ ] Replace Pump  [ ] Modify Pump

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

5. PROPOSED USE

   [X] Municipal (including hotels, stores, etc.)  [ ] Military
   [X] Domestic (individual, noncommercial water systems)  [ ] Industrial
   [X] Irrigation (specify) GOLF COURSE  [ ] Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL 300,000 gallons per day

7. PROPOSED PUMP INFORMATION

   Pump Type: [ ] Vertical Turbine  [ ] Submersible  [ ] Centrifugal
   Motor: [ ] Diesel  [ ] Gas  [ ] Electric: _____
   Rated Pump Capacity _____ gallons per minute (gpm)

   Well Owner (print) AKEMI KUROKAWA
   Landowner (print) AKEMI KUROKAWA
   Signature 19 Jan 1989
   Date 19 Jan 1989

For Official Use Only:

Field Checked By__________ Latitude__________ Hydrologic Unit__________
   Date__________ Longitude__________ State Well No. 1900-19
Briefly describe the proposed work:

1. 24" hole will be drilled to 5' below water table (approximately 25').
2. 15" PVC casing, bottom 8' screened, will be installed.
3. The well will be developed and tested.
4. A 4-foot concrete surface seal will be placed in the annulus.

**PROPOSED SECTION OF WELL**

<table>
<thead>
<tr>
<th>Elevation at top of casing</th>
<th>Total Depth</th>
<th>Rock Packing</th>
<th>Solid Casing:</th>
<th>Casing: / Perforated / Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>+21 ft., msl.</td>
<td>25 ft.</td>
<td>0 ft.</td>
<td>PVC</td>
<td>PVC</td>
</tr>
<tr>
<td>Cement Grout</td>
<td></td>
<td></td>
<td>Length</td>
<td>Length</td>
</tr>
<tr>
<td>4 ft.</td>
<td></td>
<td></td>
<td>17 ft.</td>
<td>8 ft.</td>
</tr>
<tr>
<td>Hole Dia.</td>
<td></td>
<td></td>
<td>Diameter</td>
<td>Diameter</td>
</tr>
<tr>
<td>24 in.</td>
<td></td>
<td></td>
<td>15 in.</td>
<td>15 in.</td>
</tr>
<tr>
<td>Solid Casing:</td>
<td></td>
<td></td>
<td>Wall thickness</td>
<td>Wall thickness</td>
</tr>
<tr>
<td>Material</td>
<td>PVC</td>
<td></td>
<td>0.471 in.</td>
<td>0.471 in.</td>
</tr>
<tr>
<td>Casing:</td>
<td></td>
<td></td>
<td>Openings</td>
<td>Openings</td>
</tr>
<tr>
<td>/Perforated</td>
<td></td>
<td></td>
<td>134.4 sq. in./L.F.</td>
<td>134.4 sq. in./L.F.</td>
</tr>
<tr>
<td>Material</td>
<td>PVC</td>
<td></td>
<td>Length</td>
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<td></td>
<td></td>
<td>Diameter</td>
<td>Diameter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

WELL CONSTRUCTION PERMIT

PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 317, Honolulu, Hawaii 96802. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 140-1443, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Well No. 5  
Island OAHU  
Tax Map Key 9-1-10: 7 & Portion 6  
Address NO ADDRESS  
(Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER

Firm Name SEIBU HAWAII, INC.  
Contact Person MR. AKEMI KUROKAWA  
Address 2237 Kuhio Avenue, Suite 303  
Honolulu, Hawaii 96815  
Phone (808) 922-0848  
Firm Name SEIBU RAILWAY CO., LTD.  
Contact Person MR. AKEMI KUROKAWA  
Address 2237 Kuhio Avenue, Suite 303  
Honolulu, Hawaii 96815  
Phone (808) 922-0848

3. PROPOSED CONTRACTOR FOR:

Well Drilling  
Pump Installation  
Name ROSCOE MOSS COMPANY  
Address 830 Ahua Street  
Honolulu, Hawaii 96819  
Phone 839-6888  
Contractor's License No. AC-2101

4. PROPOSED WORK

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

5. PROPOSED USE

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

6. PROPOSED AMOUNT OF WITHDRAWAL 300,000 gallons per day

7. PROPOSED PUMP INFORMATION

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

Well Owner (print) AKEMI KUROKAWA  
Landowner (print) AKEMI KUROKAWA

Signature  
Date 19 June 1987

For Official Use Only:

Field Checked By  
Latitude  
Hydrologic Unit

Date  
Longitude  
State Well No. 1900-20
Briefly describe the proposed work:

1. 24" hole will be drilled to 5' below water table (approximately 25').

2. 15" PVC casing, bottom 8' screened, will be installed.

3. The well will be developed and tested.

4. A 4-foot concrete surface seal will be placed in the annulus.

PROPOSED SECTION OF WELL

Elevation at top of casing

+21 ft., masl.

Ground Elev. +20 ft., masl*

Cement Grout 4 ft.

Hole Dia. 24 in.

Total Depth 25 ft.

Rock Packing 0 ft.

Solid Casing:

Material PVC

Length 17 ft.

Diameter 15 in.

Wall thickness 0.471 in.

Casing: / Perforated /x/ Screen

Material PVC

Length 8 ft.

Diameter 15 in.

Wall thickness 0.471 in.

Openings 134.4 sq. in./L.F.

Open Hole:

Length NONE

Diameter

*Approximate elevation at time of filing application. Final elevation (masl) by a surveyor licensed by the State must be submitted at start of construction.
THE MYERS CORPORATION
CLIENT TRUST ACCOUNT
745 FORT ST., SUITE 1500
HONOLULU, HI 96813

<table>
<thead>
<tr>
<th>EXPLANATION</th>
<th>AMOUNT</th>
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<tbody>
<tr>
<td></td>
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</table>

JNT
One hundred twenty-five and 00/100 DOLLARS

<table>
<thead>
<tr>
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<th>TO THE ORDER OF</th>
<th>DESCRIPTION</th>
<th>CHECK NUMBER</th>
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</thead>
<tbody>
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<td>DEPT. OF LAND &amp; NATURAL RESOURCES</td>
<td>EWA- PERMIT APPLICATION FEE 2495</td>
<td>59-101-1213</td>
</tr>
</tbody>
</table>

FIRST HAWAIIAN BANK - WAIKIKI BRANCH
2181 KALAKAUA AVE., HONOLULU, HI 96815

Elaine H. Vee

11/00 2495 12/13 01 151 31 02 2999
May 25, 1989

Mr. Manabu Tagomori, Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
1151 Punchbowl St.
Honolulu, Hawaii 96813

PROJECT: Myers/Seibu Championship Golf Course near Ewa Beach

Dear Mr. Tagomori:

We are filing a Declaration of Water Use for well EP-22 but wish to describe both the current and planned future conditions related to this well, in addition to two other wells on our property (EP-20 and EP-24).

Prior to the purchase of the 270 acre golf course property, Oahu Sugar harvested sugar cane on 4 fields (See attached map with Fields 076, 077, 080, 081) and utilized all the wells on our property to irrigate those fields. Well EP-22 was utilized for field 081; well EP-20 was utilized for field 076; and well EP-24 was utilized for a field across Fort Weaver Road. After we purchased the golf course property Oahu Sugar harvested all of their fields and have replanted those portions of fields 076 and 080 that lie outside our property. Well EP-22 is no longer being utilized by Oahu Sugar and is the well for which we received a Water Use Permit on October 28, 1988 for the withdrawal of 1.5 million gallons per day (MGD). Oahu Sugar continues to utilize well EP-20 for field 076 and EP-24 for the field across Fort Weaver Road. It is our intention to allow Oahu Sugar to continue to utilize these wells for irrigation purposes until their lease expires for those two fields in 1994. For this reason Oahu Sugar has submitted Water Use Declaration forms for these two wells. When they discontinue use of these wells we plan to close the wells up and discontinue use of them altogether.

With regards to well EP-22, we had originally planned to utilize this well as the sole source for our golf course irrigation water. Since the time we received our Water Use Permit our engineers have completed their hydrological investigations and have recommended that we drill five new shallower wells along the makai property.
line (See attached golf course plan). We plan to pull less water from each well in an effort to improve the quality of our irrigation water. We soon will submit an application for well drilling permits for these five new wells, with a request to transfer the water use rights from well EP-22 to these new wells (with a total draw from all 5 wells equal to 1.5 MGD). We also plan to maintain well EP-22 as a back-up source for future use if necessary, but do not plan on utilizing any additional water above the 1.5 MGD now authorized in our Water Use Permit.

Because of these conditions, Mr. Ed Sakoda of your Department recommended that we file a Water Use Declaration form for well EP-22 and that Oahu Sugar file Declarations for the other two wells on our property. We hope this letter helps to clarify the current and future conditions anticipated for water use in this area. If you should have any questions or need further information please don't hesitate to call me.

Sincerely,

Will Beaton, AIA
Project Manager

WB:tj

Enc.

cc: Akemi Kurokawa
Jack Myers
Ken Sugita
Ben Matsubara
Mike Burke
May 25, 1989

Manabu Tagomori
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
1151 Punchbowl St.
Honolulu, Hi 96813

PROJECT:  Myers/Seibu Championship Golf Course Near Ewa Beach
SUBJECT:  Water Use Permit

Dear Mr. Tagomori:

I met yesterday with Mr. Ed Sakoda of your department regarding our Water Use Permit, which was issued on October 28, 1988. Mr. Sakoda recommended that I write to you to confirm our request for an official extension for the Use Permit as described in your letter to us dated December 5, 1988.

As described in our letter to Mr. Sakoda dated November 2, 1988 there was some confusion and conflict related to Condition 3 of our Water Use Permit. At the time the permit was issued we were not fee owners of the property and were uncertain when we would accomplish the land acquisition from Campbell Estate. We have finalized the purchase and are now fee owners but we did not and do not plan to perform any "work" on well EP-22, for which we received the Water Use Permit. Because we are currently attempting to resolve some serious drainage problems on the property prior to start of construction we have not utilized well EP-22 as yet. In addition, Oahu Sugar has harvested their crops off our property and are no longer utilizing well EP-22. As a result of these circumstances we do not believe Condition 3 of the Water Use Permit is applicable to our situation and request that the Permit be extended to allow for future use once the golf course is under construction.

We will be submitting a Declaration of Water Use form for well EP-22, along with a letter describing the past and planned future use of all the wells on our property. We hope this information helps you better understand our current situation and that you will be able to administratively approve an extension to our Water Use Permit.
We appreciate your assistance in this matter and ask that you call us if you have any questions or need further information.

Sincerely,

[Signature]

Will Beaton, AIA
Project Manager

WB: tj

Enc.

cc: Akemi Kurokawa
    Jack Myers
    Ken Sugita
    Ben Matsubara
Seibu Hawaii, Inc.  
2237 Kuhio Avenue, Suite 303  
Honolulu, Hawaii 96815

Dear Seibu Hawaii:

The Commission on Water Resource Management will be acting on your permit application for a Pump Installation Permit at its meeting on June 27, 1990, at 2:00 p.m., in the Kalanimoku Building, Board Room 130, Honolulu, Hawaii.

Your application will be included on the agenda as Item 10 (enclosed).

You or your representative are invited to attend the meeting.

Sincerely,

[Signature]

MANABU TAGOMORI  
Deputy Director

ES:bm  
Enc.
May 8, 1990

Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815

Gentlemen:

We have received your application and $25.00 filing fee to install a pump in Well No. 1900-02 at Tax Map Key: 9-1-10:6 & 7, Ewa Beach, Oahu.

We are reviewing your application for completeness and will contact you if we need further information.

If you have any questions, please contact Ed Sakoda at 548-7543.

Sincerely,

[Signature]

MANABU TAGOMORI
Deputy Director

ES:bm
April 20, 1990

Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815

Gentlemen:

We acknowledge receipt of your application and $25.00 filing fee for a permit to install a pump in Well No. 1900-02 at the Ewa Golf Course.

We are reviewing your application for completeness and will contact you if we need further information.

If you have any questions, please contact Ed Sakoda at 548-7543.

Sincerely,

MANABU TAGOMORI
Deputy Director

ES:bm
cc: Dames & Moore
FACSIMILE TRANSMITTLAL PAGE

Please deliver the following pages to:

Name: Martha Systems
Company: Dames & Moore
From: Ed Sakeda DLNR - DOH
Date: 5-7-90 Time: 6:50pm
Message: Receipt for filing fee - Well No. 1900 - 02

Total number of pages (including Transmittal Page): 2

If you do not receive all of the pages legibly, please call back: (808) 548 - 7543
Sending Facsimile Number: (808) 548 - 6053
Receiving Facsimile Number: ( ) 732 - 6077

TRANSMISSION REPORT

THIS DOCUMENT (REDUCED SAMPLE ABOVE) WAS SENT

** COUNT **
# 2

*** SEND ***

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<th>DURATION</th>
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</tr>
</tbody>
</table>

TOTAL 0:01'27" 2 XEROX TELECOPIER 7020
State of Hawaii
Commission on Water Resource Management
Department of Land and Natural Resources
Division of Water Resource Management
P.O. Box 373
Honolulu, Hawaii 96809

To whom it may concern:

Please find enclosed the $25.00 filing fee for the pump installation permit for Well No. 1900-02. We request that the Division of Water and Land Development send us a receipt for the filing fee. Our fax number is 732-6077. Thank you for your cooperation.

Sincerely,

Martha Systrom
APPLICATION FOR

___ 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 96805. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for go 54b-157d, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Well No. 1900-02
Island OAHU
Tax Map Key 9-1-10: 7 & Portion
Address NO ADDRESS
(Attach a USGS map (scale 1"=2000') and property tax map referenced to established property boundaries.)

2. WELL OWNER

Firm Name SEIBU HAWAII, INC.
Contact Person MR. AKEMI KUROKAWA
Address 2237 Kuhio Avenue, Suite 303
Honolulu, Hawaii 96815
Phone (808) 922-0848

3. PROPOSED CONTRACTOR FOR:

☐ Well Drilling ☐ Pump Installation
Name ROSCOE MOSS COMPANY
Address 830 Aahu Street
Honolulu, Hawaii 96819
Contractor's License No. AC-2101
Phone 839-6888

4. PROPOSED WORK

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

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

5. PROPOSED USE

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

6. PROPOSED AMOUNT OF WITHDRAWAL

300,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: ☐ Vertical Turbine ☐ Submersible
Motor: ☐ Diesel ☐ Gas ☐ Electric: 300 gpm
Rated Pump Capacity 300 gallons per minute (gpm)

Well Owner (print) Seibu Hawaii Inc.
Landowner (print) Seibu Hawaii Inc.
Signature Mr. Akemi Kurokawa
Date 3 April 90

For Official Use Only:

Field Checked By
Latitude
Hydrologic Unit
Date
Longitude
State Well No.
Briefly describe the proposed work:

1. Removal of 40-horsepower 1720 gpm capacity electric pump

2. Installation of 300 gpm pump

3. 

4. 

PROPOSED SECTION OF WELL

Elevation at top of casing 

Ground Elev. 22.95 ft., msl

Cement Grout ___ ft.

Hole Dia. N/A in.

Total Depth 29.75 ft.

Rock Packing N/A ft.

Solid Casing:
Material N/A
Length N/A ft.
Diameter N/A in.
Wall thickness N/A in.

Casing: / /Perforated / /Screen
Material N/A
Length N/A ft.
Diameter N/A in.
Wall thickness N/A in.
Openings N/A sq. in./L.F.

Open Hole:
Length N/A
Diameter N/A in.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
PAY $25.00

TO THE ORDER OF

Dept. of Land & Natural Resources

PUMP INSTALLATION PERMIT
WELL NO. 1700-02 (OAHU)

DAMES & MOORE

by Marylith Jan A. Okano

SANWA BANK CALIFORNIA

LOS ANGELES, CALIFORNIA
SURVEY BRANCH
Division of Water Resource Management
EP2 (1900-02)

FROM: Ed
DATE: 5/23/89
FILE IN: EWA GOLF COURSE

TO: INITIAL:

PLEASE: See Me

REMARKS:
I met with Will Beaton, proj. mgr. for Ewa Golf Course, and Masa Fujjoka, D&M. The Myers Corp. presently has a water use permit for 1.5 mgd for the Ewa G.C. They are proposing to assign the 1.5 mgd from EP22 to 5 shallow, low draw, wells at the lower end of the project area. This would provide for more efficient use of the 1.5 mgd.

FOR YOUR INFORMATION:

Note: EP20 & EP24 will be used by OCSO under a separate agreement between OCSO & The Myers Corp.
May 25, 1989

Mr. Manabu Tagomori, Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
1151 Punchbowl St.
Honolulu, Hawaii 96813

PROJECT: Myers/Seibu Championship Golf Course near Ewa Beach

Dear Mr. Tagomori:

We are filing a Declaration of Water Use for well EP-22 but wish to describe both the current and planned future conditions related to this well, in addition to two other wells on our property (EP-20 and EP-24).

Prior to the purchase of the 270 acre golf course property, Oahu Sugar harvested sugar cane on 4 fields (See attached map with Fields 076, 077, 080, 081) and utilized all the wells on our property to irrigate those fields. Well EP-22 was utilized for field 081; well EP-20 was utilized for field 076; and well EP-24 was utilized for a field across Fort Weaver Road. After we purchased the golf course property Oahu Sugar harvested all of their fields and have replanted those portions of fields 076 and 080 that lie outside our property. Well EP-22 is no longer being utilized by Oahu Sugar and is the well for which we received a Water Use Permit on October 28, 1988 for the withdrawal of 1.5 million gallons per day (MGD). Oahu Sugar continues to utilize well EP-20 for field 076 and EP-24 for the field across Fort Weaver Road. It is our intention to allow Oahu Sugar to continue to utilize these wells for irrigation purposes until their lease expires for those two fields in 1994. For this reason Oahu Sugar has submitted Water Use Declaration forms for these two wells. When they discontinue use of these wells we plan to close the wells up and discontinue use of them altogether.

With regards to well EP-22, we had originally planned to utilize this well as the sole source for our golf course irrigation water. Since the time we received our Water Use Permit our engineers have completed their hydrological investigations and have recommended that we drill five new shallower wells along the makai property
line (See attached golf course plan). We plan to pull less water from each well in an effort to improve the quality of our irrigation water. We soon will submit an application for well drilling permits for these five new wells, with a request to transfer the water use rights from well EP-22 to these new wells (with a total draw from all 5 wells equal to 1.5 MGD). We also plan to maintain well EP-22 as a back-up source for future use if necessary, but do not plan on utilizing any additional water above the 1.5 MGD now authorized in our Water Use Permit.

Because of these conditions, Mr. Ed Sakoda of your Department recommended that we file a Water Use Declaration form for well EP-22 and that Oahu Sugar file Declarations for the other two wells on our property. We hope this letter helps to clarify the current and future conditions anticipated for water use in this area. If you should have any questions or need further information please don't hesitate to call me.

Sincerely,

Will Beaton, AIA
Project Manager

WB:tj

Enc.

cc: Akemi Kurokawa
    Jack Myers
    Ken Sugita
    Ben Matsubara
    Mike Burke
May 25, 1989

Manabu Tagomori
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
1151 Punchbowl St.
Honolulu, Hi 96813

PROJECT: Myers/Seibu Championship Golf Course Near Ewa Beach
SUBJECT: Water Use Permit

Dear Mr. Tagomori:

I met yesterday with Mr. Ed Sakoda of your department regarding our Water Use Permit, which was issued on October 28, 1988. Mr. Sakoda recommended that I write to you to confirm our request for an official extension for the Use Permit as described in your letter to us dated December 5, 1988.

As described in our letter to Mr. Sakoda dated November 2, 1988 there was some confusion and conflict related to Condition 3 of our Water Use Permit. At the time the permit was issued we were not fee owners of the property and were uncertain when we would accomplish the land acquisition from Campbell Estate. We have finalized the purchase and are now fee owners but we did not and do not plan to perform any "work" on well EP-22, for which we received the Water Use Permit. Because we are currently attempting to resolve some serious drainage problems on the property prior to start of construction we have not utilized well EP-22 as yet. In addition, Oahu Sugar has harvested their crops off our property and are no longer utilizing well EP-22. As a result of these circumstances we do not believe Condition 3 of the Water Use Permit is applicable to our situation and request that the Permit be extended to allow for future use once the golf course is under construction.

We will be submitting a Declaration of Water Use form for well EP-22, along with a letter describing the past and planned future use of all the wells on our property. We hope this information helps you better understand our current situation and that you will be able to administratively approve an extension to our Water Use Permit.
We appreciate your assistance in this matter and ask that you call us if you have any questions or need further information.

Sincerely,

Will Beaton, AIA
Project Manager

WB:tj

Enc.

cc: Akemi Kurokawa
    Jack Myers
    Ken Sugita
    Ben Matsubara
STATE OF HAWAII
COMMISSION ON WATER RESOURCE MANAGEMENT
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF WATER RESOURCE MANAGEMENT

REGISTRATION OF WELL
AND DECLARATION OF WATER USE

INSTRUCTIONS: Please type or print. If information is not available or not applicable, indicate as N/A. Fill out as completely as possible, sign, and file form with the Division of Water Resource Management, P.O. Box 373, Honolulu, Hawaii 96809. Phone 548-3948 or 548-7543 for assistance.

BATTERY OF WELLS: For a battery of wells, on the surface, in a tunnel, or in a shaft, submit a registration form for each well together with a single map or plot plan showing layout of wells.

STATE WELL NO.: 1900-02
WELL NAME OR DESIGNATION: Ewa Plantation EP22
ISLAND: OAHU

A. WELL OPERATOR
Firm name: SEIBU HAWAII INC.
Contact person: AKEMI KUROKAWA
Address: 2237 KUHIO AVE., STE. 303
HONOLULU, HAWAII
Zip: 96815
Phone: (808)922-0848

B. OWNER OF WELL SITE
Firm name: SEIBU RAILWAY CO., LTD.
Contact person: AKEMI KUROKAWA
Address: 2237 KUHIO AVE., STE. 303
HONOLULU, HAWAII
Zip: 96815
Phone: (808)922-0848

C. WELL LOCATION
Tax Map Key: 9-1-10:7
Town, Place, District: Puuloa, Ewa District
Attach USGS "Quad" map (scale 1:24,000), tax map, or other map showing the well location.

D. WELL DATA Vertical Shaft with Tunnel
Ground elevation (Mean sea level): 22.95 ft.
Reference point (used to measure depth to water): Elevation:
Description: Elevation at surface of shaft
Depth to water (Below reference point): 22.75 ft.
Maximum recorded chloride: 965 ppm
Minimum recorded chloride: 440 ppm
Maximum chloride in 1987: 965 ppm
Year drilled or constructed: 1930
Well contractor: Ewa Plantation Co.
Casing diameter: N/A in.
Solid casing depth (Below ground): N/A ft.
Perforated casing depth (Below ground): N/A ft.
Total depth of well: 28.75 ft.
Minimum chloride in 1987: 821 ppm

E. INSTALLED PUMP DATA
Pump type: 0 Vertical shaft 0 Submersible 0 Centrifugal 0 Other (specify):
Power: 0 Diesel, __ HP 0 Gas, __ HP 0 Electric, __ HP 0 Other (specify):
Pump capacity: 1720 gallons per minute
Pump installation contractor: OAHU SUGAR COMPANY

For Official Use Only:
Date received: __________ Date accepted: __________
Field checked by: __________ Date: __________ Latitude: __________ Hydrologic Unit: __________
Comments: __________ Longitude: __________ State Well No.: __________

References: Hawaii Revised Statutes, Chapter 174C.
Hawaii Administrative Rules, Chapters 13-167 to 13-171.
F. DECLARATION OF WATER USE

NOTE: The purpose of the Declaration of Water Use is to obtain information necessary for the management of the State's water resources. The Declaration does not confer a legal right to water or its use.

Water use data are recorded: [ ] Daily [ ] Weekly [ ] Monthly

Method of measurement:
[ ] Flow Meter [ ] Orifice
[ ] Other (Describe): [ ] Pump Run Time x Pump Capacity

Quantity of Use (Report metered or estimated monthly water use from the well described on the reverse side of this form, for the calendar years 1983 through 1987. For a battery of wells which are not individually metered, but which are connected to a single meter or other measuring device, report total use from the battery.)

WATER USE, IN GALLONS x 1000

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Minimum day's use: [ ] gallons Maximum day's use: 2,476,800 gallons

Typical times of usage: [ ] Constant usage throughout the day

Type of Use (Check all category boxes that apply and provide additional information as indicated):

Category
[ ] Municipal (including resorts, hotels, businesses)
[ ] Domestic (systems serving 25 people or less)
[ ] Irrigation
Past (1988)
Future (1990)

Additional Information

Number of service connections:

Acres Irrigated: 188 acres

Crop(s):
[ ] Sugar [ ] Pineapple
[ ] Other (specify):

Non-Crop:
[ ] Landscape [ ] Golf Course (270 ACRES)
[ ] Other (specify):

Method:
[ ] Drip [ ] Furrow [ ] Sprinkler
Past
Future

[ ] Cooling [ ] Manufacturing [ ] Mill

[ ] Other (specify):

Specify (livestock, aquaculture, etc.):

I declare that the contents of the above Declaration of Water Use are, to the best of my knowledge and belief, true, correct, and complete.

Water User's Signature:

Printed Name:

Firm or Title (Well Operator, etc.):

Date:

DIN","ER SECRETARY
December 5, 1988

Mr. Will Beaton  
Project Manager  
The Meyers Corporation  
Amfac Center, Hawaii Bldg.  
745 Fort Street, Suite 1500  
Honolulu, Hawaii 96813

Dear Mr. Beaton:

Thank you for your letter of November 2, 1988, concerning the water use permit recently issued to The Meyers Corporation for the proposed Ewa Golf Course.

As stated in your letter, terms of your land acquisition agreement with Campbell Estate may potentially conflict with your complying with Condition 3 of the water use permit, which requires start of construction within six months of the date of issuance. Our staff does not foresee any problems should you need an additional six months to start construction, provided that you request in writing an extension of time and the reasons therefor, by April 19, 1989.

If you have any questions, please contact Mr. Dan Lum at 548-7619.

Sincerely,

MANABU TAGOMORI  
Deputy Director

ES:ko
November 2, 1988

Mr. Ed Sakoda
STATE OF HAWAII
Department of Land & Natural Resources
Commission on Water Resource Management
1151 Punchbowl Street
Honolulu, HI 96813

PROJECT: PROPOSED EWA GOLF COURSE

SUBJECT: WATER USE PERMIT

Dear Ed:

I am writing to request a written verification regarding Condition 3 of our recently granted Water Use Permit. Condition 3 stipulates that the permit can be revoked if work is not started within 6 months of the date of issuance or if work is suspended or abandoned for 6 months. As we discussed yesterday, The Myers Corporation has a potential conflict regarding Condition 3 because of some terms in our Land Acquisition Agreement with Campbell Estate.

In our agreement with Campbell Estate we have agreed to purchase the property by means of a land or property exchange. Campbell Estate has up to one year to identify a property of equivalent value that they wish to purchase. We then will purchase that particular property and exchange the golf course property with them. As a result of this agreement we may not actually become the fee owner of the property for up to a year. We therefore, may not be able to proceed with any improvements on the well until that point in time.

Per our telephone conversation today we understand that this condition should not pose a problem for us and that we may receive an extension to the 6 month period stipulated in
Condition 3 through an administrative procedure within your office. We would like to ask that you verify this in writing so that we may proceed with confidence in executing the Acquisition Agreement with Campbell Estate.

We thank you very much for your help and prompt attention to this matter.

Sincerely,

Will Beaton, AIA
Project Manager

WB/ejk

cc: Jack Myers
    Akemi Kurokawa
The Myers Corporation  
745 Fort Street, #1500  
Honolulu, Hawaii 96813  

Gentlemen:  

I am pleased to inform you that the Commission on Water Resource Management approved your application for a water use permit at its October 19, 1988 meeting. Enclosed is a copy of the approved submittal and your water use permit for the use of Pump 22, State Well Number 1900-02.  

If you have any questions, please contact Mr. Nanabu Tagomori, Deputy Director, at 548-7533.  

Very truly yours,  

WILLIAM W. PATY  

Enc.
State of Hawaii  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources  

WATER USE PERMIT  

Applicant: THE MYERS CORPORATION  
Address: 745 Fort St., #1500, Honolulu, Hawaii 96813  
Ground Water Management Area: Pearl Harbor  
Subarea: Caprock  
Well(s) Name: Pump 22  
Well No.(s): 1900-02  
Amount of Withdrawal (Average Annual): 1.5 mgd initial stage; 0.9 mgd after full establishment  
Reasonable-Beneficial Use: Golf course irrigation  
Area or Projects Served: Ewa Golf Course  

The applicant is hereby granted a permit to withdraw and use ground water from the source identified above in accordance with Chapter 174C, HRS, State Water Code; Chapter 13-171, Hawaii Administrative Rules; and the following:  

General Conditions. (1) the water use authorized by this permit must be for the reasonable-beneficial use described in this permit; (2) the use must not interfere with any existing legal use of water; and (3) the use is subject to the shortage and emergency powers of the Commission.  

Additional Conditions.  
(1) This permit shall be valid until the designation of the Pearl Harbor Ground Water Management Area is rescinded, unless revoked or modified as provided by law.  
(2) An approved flowmeter(s) must be installed to measure withdrawals; and a record of the withdrawals must be kept and reported to the Department of Land and Natural Resources, Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96809, on a monthly basis.  
(3) This permit may be revoked if work is not started within six months of the date of issuance or if work is suspended or abandoned for six months. The development of the ground water source shall be completed within two years of the date of issuance.  

The issuance of this permit was approved by the Commission on Water Resource Management at its meeting on October 19, 1988.  
Date of Issuance: OCT 28 1988  
Chairperson of the Commission
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Application for Water Use Permit for
Ewa Golf Course Well, Ewa, Oahu

Applicant: The Meyers Corporation, 745 Fort Street, #1500, Hon., HI

Action Requested: Approval of a Water Use Permit for 1.5 million
gallons per day (mgd) of brackish caprock water from Oahu Sugar
Company, Ltd. Pump 22 during the initial stage of landscaping
establishment and 0.9 mgd after full establishment of the Ewa Golf
Course.

Place of Use: The proposed Ewa Golf Course is situated at the
southeast end of the Ewa Plain and bounded by Iroquois Point
Road, Leeward Estates Subdivision, and the U.S. Government
property known as the "Blast Zone Area".

Well Location: The well is located on-site (see attached map).

Impact on Surrounding Wells: Under current irrigation practices, the
salinity of the caprock water in the project area is expected to
increase to approximately 1300 mg/l chloride. Since the proposed
water use (1.5 mgd) will be less than presently being used by
Oahu Sugar Co., Ltd. (1.61 mgd average use from 6/87 to 6/88),
no adverse effects on surrounding wells are anticipated. However,
future changes in land use such as termination of irrigation will
severely affect sustainable yield and salinity in the area.

Public Notice: In accordance with DLNR Administrative Rules, a Public
Notice was published in the Star Bulletin on October 3 and 10, 1988
(attached). In addition, copies of the Public Notice were sent to
the Department of Health, the Mayor's office, the Honolulu Board of
Water Supply, Oahu Sugar Company, Ltd., and Puuloa Homes which
was issued a Water Use Permit for a nearby well. Written
objections to the proposed permit may be submitted, by persons
with proper standing, to the Commission by October 20, 1988. In
the event no statement of objections is filed, the Commission may
proceed to approve or reject the application. No objections have
been filed to date.
COMMENDATION:

That the Commission approve the issuance of a Water Use Permit to the Meyers Corporation for 1.5 mgd of brackish caprock water from Pump 22 during the initial stage of landscaping establishment and 0.9 mgd after full establishment of the Ewa Golf Course. The approval shall be effective October 21, 1988, provided no written statement of objections is filed by any person with proper standing by October 20, 1988. Should such statement of objections be filed by October 20, 1988, the application shall be deferred.

The approval shall be subject to the requirements of other applicable laws, rules and ordinances, and the following conditions:

1. This permit shall be valid until the designation of the Pearl Harbor Ground Water Management Area is rescinded, unless revoked or modified as provided by law.

2. An approved flowmeter shall be installed to measure water withdrawals.

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

Respectfully submitted,

MANABU TAGOMORI
Deputy Director

Attachments

APPROVED FOR SUBMITTAL

WILLIAM W. PATY, Chairperson

* Replace sentence with: "Should any statement of objection be filed, the action that is taken today shall be voided and the application will be reconsidered after standing has been determined."
Mr. William W. Paty, Chairperson  
Commission on Water Resource Management  
Department of Land and Natural Resources  
P. O. Box 621  
Honolulu, Hawaii 96809  

Dear Mr. Paty:

Subject: Your Letter Dated October 4, 1988 on Water Use Application Permit for Well 1900-02, Ewa Plantation Pump 22

Thank you for the opportunity to review and comment on the above application. We have no objections to the use of caprock water for irrigating the golf course.

If you have any questions, please call Herbert H. Minakami at 527-6183.

Very truly yours,

KAZU HAYASHIDA  
Manager and Chief Engineer

Pure Water ... man's greatest need - use it wisely
## NOTICE TO VENDORS

Conditions of purchase are listed on the back side of this purchase order. Please read carefully. Payments may be delayed if all steps are not followed.

### Hawaii Newspaper Agency

**P.O. Box 3350**

**Honolulu, Hawaii 96801 Attn: Legal Ad**

The State of Hawaii is an EQUAL EMPLOYMENT OPPORTUNITY and AFFIRMATIVE ACTION employer. We encourage the participation of women and minorities in all phases of employment.

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### VOUCHER

**AUTHENTICATED BY:**

**TELEPHONE NUMBER:** 548-7539

**GOODS/SERVICES RECEIVED IN GOOD ORDER AND CONDITION BY**

**DATE:**

**FOR DEPARTMENT USE ONLY**

**REQUISITION NO.:** 66431

**VENDOR**

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**SFX TC F YR APP D OBJECT CC PROJ NO. PH ACT ESTIMATED COST ACTUAL COST M R OPT DEPT DATA**

| 01 | 621 G 85 044 C 4000 | **0721 000000 000070** | 150.00 |
### WELL COMPLETION REPORT

**A. STATE WELL NO.** 1 (1901-03) **WELL NAME** GOLF CLUB **ISLAND** OAHU

**B. LOCATION** SWA **TAX MAP KEY** 9-1/10 6 76-7

**C. WELL OWNER** THE HAWAII PRINCE HOTEL

**D. DRILLING OR PUMP INSTALLATION CONTRACTOR** FOR most CONSTRUCTION CO./REGO MFG CO.

**E. TYPE OF Rig** DRILLER L. MOAALI

**F. DATE OF WELL COMPLETION** 01/90 **DATE OF PUMP INSTALLATION** Jan 20, 1992

**G. GROUND ELEVATION** (ft) **(APPROX.)**

- Top of Drilling Platform (mal) = 45 ft. above ground surface
- Height of drilling platform above ground surface = 40 ft.

**H. TOTAL DEPTH OF WELL BELOW GROUND** 26 ft.

**I. HOLE SIZE:** 24 inch dia. from 0 ft. to 20 ft. below ground

**J. CASING INSTALLED:**

- 15 in. I.D. x 3/4 in. wall solid section to 18 ft. below ground
- 18 in. I.D. x 3/4 in. wall perforated section to 26 ft. below ground

**K. ANNULUS:**

- Grouted from 0 ft. to 5 ft. below ground
- Gravel packed from 5 ft. to 26 ft. below ground

**L. PERMANENT PUMP INSTALLATION:**

- Pump type, make, serial No., Submersible Groundwater Capacity = 210 gpm
- Motor type, H.P., voltage, r.p.m., Franklin 2HP 3600 rpm 340 volts
- Depth of pump intake setting 0.5 ft. below finished ground which elevation is ft.
- Depth of bottom of airstream 2.5 ft. below which elevation is ft.

**M. PROPOSED USE**

- Golf Course Irrigation

**N. INITIAL WATER LEVEL** ft. below ground. Date and time of measurement ____________

**O. INITIAL CHLORIDE** ppm. Date and time of sampling ____________

**P. PUMPING TESTS:**

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**Q. DRILLER’S LOG:**

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<td>to 60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>to 65</td>
<td></td>
<td></td>
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<tr>
<td>65</td>
<td>to 70</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>70</td>
<td>to 75</td>
<td></td>
<td></td>
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<tr>
<td>75</td>
<td>to 80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>to 85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>to 90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>to 95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>to 100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

Submitted by (print) ____________  Title ____________

Signature ____________  Date ____________
STATE OF HAWAII
DEPARTMENT OF LAND & NATURAL RESOURCES
DIVISION OF WATER AND LAND DEVELOPMENT
DRILLER'S REPORT

DESCRIPTION

Date of report: January 23, 1990
Person filing report: J. H. Runnells

WELL
A. OWNER: Seibu Hawaii Inc.
NAME: Hawaii Prince Golf Course 81 ISLAND: Oahu
B. GENERAL LOCATION: Ewa
C. DRILLING COMPANY: ROSSCOR MCB COMPANY
D. TYPE OF RIG: DRILLING COMPLETED: 01/19/90
DRILLER: J. H. Maalii

E. ELEVATION, msl: Top of drilling platform approx. 21 ft. Bench mark and method used to determine
Height of drilling platform above ground surface: 0 ft. elevation:
F. HOLE SIZE: 24" inch dia. to 26" ft. below drilling platform.

G. CASING INSTALLED: 15 in. I.D. x PVC in wall solid section to 218 ft. below drilling platform.
15 in. I.D. x PVC in wall perforated section to 26 ft. below drilling platform.

H. ANNULUS: Grouted 0 ft. to 5 ft. below drilling platform.
Gravel packed ft. to ft. below drilling platform.

I. PERMANENT PUMP INSTALLATION:
- Pump type, make, serial no.
- Capacity gpm.
- Motor type, H.P., voltage, r.p.m.
- Depth of pump intake setting ft. below which elevation is ft.
- Depth of bottom of airline ft. below which elevation is ft.

HYDROLOGY

J. INITIAL WATER LEVEL ft. below drilling platform. Date of measurement:

K. INITIAL CHLORIDE: ppm, total depth of well ft. below drilling platform:

L. PUMPING TESTS:

<table>
<thead>
<tr>
<th>Sampling Date</th>
<th>Reference point (R.P.) used</th>
<th>which elevation is ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date 01/19/90</td>
<td>Start water level 20'11&quot; ft. below R. P.</td>
<td>Start water level ft. below R. P.</td>
</tr>
<tr>
<td></td>
<td>End water level 20'11&quot; ft. below R. P.</td>
<td>End water level ft. below R. P.</td>
</tr>
<tr>
<td></td>
<td>Depth of well 26 ft. below R. P.</td>
<td>Depth of well ft. below R. P.</td>
</tr>
<tr>
<td></td>
<td>Rate (gpm)</td>
<td>Draw-down (ft.)</td>
</tr>
<tr>
<td>8:00 to 8:00 a.m.</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>to 24 hours test</td>
<td>to</td>
<td>to</td>
</tr>
</tbody>
</table>

SUBSURFACE FORMATION

M. DRILLER'S LOG:

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>Soil</td>
<td></td>
<td>to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 to 26</td>
<td>Solid &amp; Broken Coral</td>
<td></td>
<td>to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to</td>
<td></td>
<td></td>
<td>to</td>
<td></td>
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<td>to</td>
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<td>to</td>
<td></td>
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<td>to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N. REMARKS:</td>
<td></td>
<td></td>
<td>to</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FOR OFFICIAL USE

Latitude
Longitude
Well No.

FOR DRILLER'S USE

Job Name
Job No.

hree (3) copies to: Manager, Chief Engineer, Division of Engineering, P.O. Box 373, Honolulu, Hawaii 96801.
171 entitled "Aestesian Wells, Generally," HRS, as 171. Honolulu Board of Water Supply, "Rules and
the Protection, Development and Conservation of Water," Chartered by the City and County of Honolulu, 1959.
WELL COMPLETION REPORT

INSTRUCTIONS: Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 375, Honolulu, HI 96809. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology, Geology Section for assistance.

A. STATE WELL NO. 1

B. LOCATION: SWA

C. WELL OWNER: THE HAWAII PRINCE HOTEL

D. DRILLING OR PUMP INSTALLATION CONTRACTOR: FARMER CONSTRUCTION CO, ROOSEVELT MEWS CO.

E. TYPE OF RIG: DRILLER: L. MCGILL

F. DATE OF WELL COMPLETION: 01/10/90

G. GROUND ELEVATION (m.s.l.): 26 ft.

H. TOTAL DEPTH OF WELL BELOW GROUND: 26 ft.

I. HOPE SIZE: 8" inch dia. from 0 ft. to 26 ft. below ground

J. CASING INSTALLED: 16 in. I.D. x PVC in. wall solid section to 16 ft. below ground

K. ANNULUS: Grouted from 0 ft. to 5 ft. below ground

L. PERMANENT PUMP INSTALLATION;

M. PROPOSED USE: GOLF COURSE (Irrigation)

N. INITIAL WATER LEVEL: Date and time of measurement

O. INITIAL CHLORIDE: Date and time of sampling

P. PUMPING TESTS: Reference point (R.P.) used:

Q. DRILLER'S LOG:

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level ft.</th>
<th>Depth (ft.)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>SOLID &amp; BROKEN COAL</td>
<td></td>
<td>0.1</td>
<td>SOLID &amp; BROKEN COAL</td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td></td>
<td></td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td></td>
<td></td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td></td>
<td></td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:
### Description

Date of report: Jan. 23, 1990  
Person filing report: L.H. Runnels

- **WELL**
  - OWNER: Seibu Hawaii Inc.  
  - NAME: Hawaii Prince Golf Course  
  - ISLAND: Oahu

- **GENERAL LOCATION**
  - Address:  
  - Elevation:

- **DRILLING COMPANY**
  - Name: ROSCOR MOSS COMPANY

- **TYPE OF RIG**
  - DRILLING COMPLETED: 01 / 90  
  - DRILLER: L. Moalii

- **ELEVATION**
  - MLS: Top of drilling platform  
  - Approx. 21 ft.  
  - Bench mark and method used to determine

- **HOLE SIZE**
  - 24 inch dia. to 26 ft. below drilling platform.

- **CASING INSTALLED**
  - 15 in. I.D. PVC in wall solid section to 18 ft. below drilling platform.
  - 15 in. I.D. PVC in wall perforated section to 26 ft. below drilling platform.

- **ANNULUS**
  - Grouted  
  - 0 ft. to 5 ft. below drilling platform.

- **PERMANENT PUMP INSTALLATION**
  - Pump type, make, serial no.:
  - Capacity: g.p.m.
  - Motor type, H.P., voltage, r.p.m.
  - Depth of pump intake setting ft. below ........................................... ft.  
  - which elevation is ft.
  - Depth of bottom of airline ft. below ........................................... ft.  
  - which elevation is ft.

### Hydrology

- **INITIAL WATER LEVEL**
  - ft. below drilling platform.
  - Date of measurement.

- **INITIAL CHLORIDE**
  - ppm, total depth of well ft. below drilling platform.

- **PUMPING TESTS**
  - Reference point (R.P.) used:
  - which elevation is ft.
  - Date:
  - Start water level ft. below R. P.
  - End water level ft. below R. P.
  - Depth of well ft. below R. P.

- **Water Level**
  - Rate (ppm)
  - Drawdown (ft.)
  - Temp. (F)
  - Elapsed Time (hours)

- **Sampling Date**
  - 08:00 to 08:00 a.m.
  - 210  
  - 600
  - 24 hours test to
  - to
  - to
  - to

### Subsurface Formation

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>Soil</td>
<td></td>
<td>to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 to 26</td>
<td>Solid &amp; Broken Coral</td>
<td></td>
<td>to</td>
<td></td>
<td></td>
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<td>to</td>
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<td>to</td>
<td></td>
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<tr>
<td>1/2/90</td>
<td></td>
<td></td>
<td>to</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Remarks

FOR OFFICIAL USE

- Latitude
- Longitude
- Well No.

FOR DRILLER'S RECORD

- Job Name
- Job No.

(here) copies to: Manager-Chief Engineer, Division of Water Resources, P.O. Box 32, Honolulu, Hawaii 96809.  
WELL COMPLETION REPORT

INSTRUCTIONS: Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 373, Honolulu, HI 96809. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology, Geology Section for assistance.

**A. STATE WELL NO.** 2  **WELL NAME:** HAWAII PRINCE GOLF CLUB ©TAX MAP KEY: 9-1-10: G PAR 7

**B. LOCATION:** Ewa

**C. WELL OWNER:** THE HAWAII PRINCE HOTEL

**D. DRILLING OR PUMP INSTALLATION CONTRACTOR:** ROSS MILLER CO. / FROST INT.

**E. TYPE OF RIG:** DRILLER

**F. DATE OF WELL COMPLETION:** 01/19  **DATE OF PUMP INSTALLATION:** Jan. 20, 1992

**G. GROUND ELEVATION (msl) (APPROX.)**  **ft.**

Top of Drilling Platform (msl)  30.00 ft.
Height of drilling platform above ground surface 0 ft.

**H. TOTAL DEPTH OF WELL BELOW GROUND**

<table>
<thead>
<tr>
<th>HOLE SIZE</th>
<th>24 inch dia. from 0 ft. to 10 ft. below ground</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 inch dia. from 0 ft. to 10 ft. below ground</td>
</tr>
<tr>
<td></td>
<td>4 inch dia. from 0 ft. to 10 ft. below ground</td>
</tr>
</tbody>
</table>

**J. CASING INSTALLED:**

18 in. I.D. x 12 in. wall solid section to 18 ft. below ground
18 in. I.D. x 12 in. wall perforated section to 26 ft. below ground

**K. ANNULUS:**

Grouted from 0 ft. to 5 ft. below ground
Gravel packed from 5 ft. to 10 ft. below ground

**L. PERMANENT PUMP INSTALLATION:**

<table>
<thead>
<tr>
<th>Pump type, make, serial No.</th>
<th>SUBMERSIBLE GALCMON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor capacity, H.P., voltage, r.p.m.</td>
<td>210 gpm</td>
</tr>
<tr>
<td>Depth of pump intake setting</td>
<td>26.4 ft. below ground</td>
</tr>
<tr>
<td>Depth of bottom of airline</td>
<td>6.3 ft. below ground</td>
</tr>
</tbody>
</table>

**M. PROPOSED USE**

GOLF COURSE IRRIGATION

**N. INITIAL WATER LEVEL** 19.8 ft. below ground.  **Date and time of measurement**

**O. INITIAL CHLORIDE** ppm.

**P. PUMPING TESTS:**

Reference point (R.P.) used: _______________

Date  (10/17/84)

Start water level 19.8 ft. below R. P.
End water level 19.8 ft. below R. P.
Depth of well 46 ft. below R. P.

<table>
<thead>
<tr>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Drawn down (ft.)</th>
<th>Temp. °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.11:15</td>
<td>210</td>
<td>310</td>
<td>84.9</td>
</tr>
<tr>
<td>9.4:15</td>
<td>210</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.4:15</td>
<td>210</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.4:15</td>
<td>210</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.4:15</td>
<td>210</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Q. DRILLER’S LOG:**

Depth, ft.  Rock Description & Remarks  Water Level, ft.  Depth, ft.  Rock Description & Remarks  Water Level, ft.

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>Silt</td>
<td></td>
<td>0 to</td>
<td>Silt</td>
<td></td>
</tr>
<tr>
<td>3 to 20</td>
<td>90% Silt, 10% Sand</td>
<td></td>
<td>0 to</td>
<td>90% Silt, 10% Sand</td>
<td></td>
</tr>
<tr>
<td>0 to</td>
<td></td>
<td></td>
<td>0 to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to</td>
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<td>0 to</td>
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<td>0 to</td>
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<td></td>
</tr>
<tr>
<td>0 to</td>
<td></td>
<td></td>
<td>0 to</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

submitted by (print) __________________________

Signature __________________________

Title __________________________

Date __________________________
### STATE OF HAWAI’I DEPARTMENT OF LAND & NATURAL RESOURCES
### DIVISION OF WATER AND LAND DEVELOPMENT

#### DRILLER’S REPORT

**Date of Report:** Jan. 23, 1990  
**Person Filing Report:** L.H. Runnells

**WELL**
- **Owner:** Seibu Hawaii Inc.  
- **NAME:** Hawaii Prince Golf Course #2  
- **ISLAND:** Oahu

**GENERAL LOCATION**
- **P.O. BOX:** 373, Honolulu, Hawaii 96809

**DRILLING COMPANY**
- **ROSCOE MOSS COMPANY**

**TYPE OF RIG**
- **DRILLING COMPLETED:** 01 / 90  
- **DRILLER:** Moaalii

**ELEVATION, msl:** Top of drilling platform approx. 20 ft.  
**Height of drilling platform above ground surface:** ft. elevation:

**HOLE SIZE:**
- 24” inch dia. to 26 ft. below drilling platform.
- 24” inch dia. to 26 ft. below drilling platform.
- 24” inch dia. to 26 ft. below drilling platform.

**CASING INSTALLED:**
- 15 in. l.d.x PVC in. wall solid section to 18 ft. below drilling platform.
- 15 in. l.d.x PVC in. wall perforated section to 26 ft. below drilling platform.

**ANNULUS:**
- **Grouted:** 0 ft. to 5 ft. below drilling platform.

**PERMANENT PUMP INSTALLATION:**
- **Pump type, make, serial no.:** Capacity g.p.m.
- **Motor type, H.P., voltage, r.p.m.**
- **Depth of pump intake setting:** ft. below which elevation is ft.
- **Depth of bottom of airline:** ft. below which elevation is ft.

### HYDROLOGY

**INITIAL WATER LEVEL:** 19’8” ft. below drilling platform.

**INITIAL CHLORIDE:** ppm, total depth of well ft. below drilling platform.

**PUMPING TESTS:**
- **Reference point (R.P.) used:** Date of measurement.
- **Capacity:** g.p.m.
- **Sampling Date:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/07/89</td>
<td>19’8” ft. below R. P.</td>
<td>19’8” ft. below R. P.</td>
<td>26 ft. below R. P.</td>
</tr>
</tbody>
</table>

**Water Level:** ft.  
**Depth:** ft.

**Water Level:** ft.

**Rate Draw-down (ft.):** ft.  
**Cl- (ppm):** ppm  
**Temp. °F:** °F

<table>
<thead>
<tr>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Draw-down (ft.)</th>
<th>Cl- (ppm)</th>
<th>Temp. °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:11 a.m. to 9:15 a.m.</td>
<td>210 gpm</td>
<td>3”</td>
<td>500 ppm</td>
<td>72 Hours test</td>
</tr>
</tbody>
</table>

**Rate Draw-down (ft.):** ft.

**Cl- (ppm):** ppm  
**Temp. °F:** °F

**Rock Description & Remarks:**
- **Soil**
- **Solid & Broken Coral**

**Subsurface Formation**

#### SUBSURFACE FORMATION

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. to 3</td>
<td>Soil</td>
</tr>
<tr>
<td>3. to 26</td>
<td>Solid &amp; Broken Coral</td>
</tr>
</tbody>
</table>

**FOR DRILLER’S USE**
- **Name:**  
- **No.:**

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

COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management

WELL COMPLETION REPORT

INSTRUCTIONS: Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 373, Honolulu, HI 96809. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology, Geology, Section for assistance.

A. STATE WELL NO.:
B. LOCATION EDA
C. WELL OWNER
D. DRILLING OR PUMP INSTALLATION CONTRACTOR
E. TYPE OF RIG
F. DATE OF WELL COMPLETION
G. GROUND ELEVATION (ft)
H. TOTAL DEPTH OF WELL BELOW GROUND

J. CASING INSTALLED:
K. ANNULUS:
L. PERMANENT PUMP INSTALLATION:
M. PROPOSED USE
N. INITIAL WATER LEVEL
O. INITIAL CHLORIDE
P. PUMPING TESTS

Q. DRILLER'S LOG:

REMARKS:

submitted by (print)  

Title

gnature  

Date
**State of Hawaii**

**DEPARTMENT OF LAND & NATURAL RESOURCES**

**DIVISION OF WATER AND LAND DEVELOPMENT**

**DRILLER'S REPORT**

**DESCRIPTION**

- **Job No.**
- **Driller**
- **Owner**
- **Location**
- **Well Type**
- **Drilling Company**
- **Drilling Method**
- **Elevation**
- **Hole Size**
- **Casing**
- **Subsurface Formation**

**HYDROLOGY**

- **Initial Water Level**
- **Initial Chloride**
- **Sampling Dates**
- **Test Results**

**SUBSURFACE FORMATION**

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level (ft)</th>
<th>Depth (ft)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 2</td>
<td>Soil</td>
<td>to</td>
<td>to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 to 25</td>
<td>Coral, Hard &amp; Soft</td>
<td>to</td>
<td>to</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES**

- **Remarks**

**REFERENCES**

# WELL COMPLETION REPORT

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

**A. STATE WELL NO.** 4  
**WELL NAME** HAWAII PRINCE GOLF CLUB  
**TAX MAP KEY** 9-1-10:6 906.7  
**B. LOCATION** ISLAND: OAHU

**C. WELL OWNER** THE HAWAII PRINCE HOTEL

**D. DRILLING OR PUMP INSTALLATION CONTRACTOR** ROSCE HOUS COMPANY  
**FAX** 548-7543  
**E. TYPE OF JOB**  
**F. DATE OF WELL COMPLETION** 01/90  
**DATE OF PUMP INSTALLATION** 01/22/92

**G. GROUND ELEVATION (m.s.l.)** ft.  
Top of Drilling Platform (m.s.l.) **20** ft. (APPROX.)  
Height of drilling platform above ground surface **3 ft.**  
Bench mark and method used to determine ground elevation **4 ft.**

**H. TOTAL DEPTH OF WELL BELOW GROUND**

<table>
<thead>
<tr>
<th>HOLE SIZE</th>
<th>ft.</th>
<th>ft.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Inch dia. from 0 ft. to 76 ft. below ground</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ft.</td>
<td>ft.</td>
<td>ft.</td>
<td>ft.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**J. CASING INSTALLED:**

<table>
<thead>
<tr>
<th>In. L.D. x M.D.</th>
<th>No.</th>
<th>ft.</th>
<th>ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>17</td>
<td>76</td>
</tr>
<tr>
<td>ft.</td>
<td>ft.</td>
<td>ft.</td>
<td>ft.</td>
</tr>
</tbody>
</table>

**K. ANNULUS:**

<table>
<thead>
<tr>
<th>Grout from 0 ft. to 3 ft. below ground</th>
<th>Gravel packed from 3 ft. to 76 ft. below ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft.</td>
<td>ft.</td>
</tr>
</tbody>
</table>

**L. PERMANENT PUMP INSTALLATION:**

<table>
<thead>
<tr>
<th>Pump type, make, serial No.</th>
<th>Capacity</th>
<th>210 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBMERSIBLE GROUDEUS</td>
<td>210 ppm</td>
<td></td>
</tr>
<tr>
<td>FRANKLIN 5HP 3400 RPM 3PH 600V GE 460 1003</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depth of pump intake setting</th>
<th>24-1/2 ft. below ground</th>
<th>WELLHEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft.</td>
<td>ft.</td>
<td>ft.</td>
</tr>
<tr>
<td>ft.</td>
<td>ft.</td>
<td>ft.</td>
</tr>
</tbody>
</table>

**M. PROPOSED USE**

<table>
<thead>
<tr>
<th>Golf Course Irrigation</th>
</tr>
</thead>
</table>

**N. INITIAL WATER LEVEL** 18-8 ft. below ground.  
**Date and time of measurement** 10/15/90

**O. INITIAL CHLORIDE** ppm.  
**Date and time of sampling** 10/15/90

**P. PUMPING TESTS:** Reference point (R.P.) used:  
**Date** 10/15/90

| Start water level | End water level | Depth of well | Rate (gpm) Drawdown (ft.) Cl- (ppm) Temp. F |
|---|---|---|---|---|
| 18-8 | 18-8 | 24-1/2 | 0 to 18 | 0 to 18 |
| to | to | ft. | ft. | ft. |
| to | to | ft. | ft. | ft. |
| to | to | ft. | ft. | ft. |
| to | to | ft. | ft. | ft. |
| to | to | ft. | ft. | ft. |
| 0 to 3 | 0 to 3 |

**Q. DRILLER'S LOG:**

<table>
<thead>
<tr>
<th>Depth ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>50% CORAL HILL</td>
<td>50%</td>
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<tr>
<td>to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to</td>
<td></td>
<td></td>
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<tr>
<td>to</td>
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<td>to</td>
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<tr>
<td>to</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

Submitted by (print)  
Signature  
Date  
Title
### State of Hawaii
#### DEPARTMENT OF LAND & NATURAL RESOURCES
#### DIVISION OF WATER AND LAND DEVELOPMENT
#### DRILLER'S REPORT

**DESCRIPTION**

Date of report: Jan. 23, 1990  
Person filing report: L. H. Runnels

A. OWNER: Seibu Hawaii Inc.  
NAME: Hawaii Prince Golf Course  
ISLAND: Oahu

B. GENERAL LOCATION:  
EWA

C. DRILLING COMPANY: ROSECOR MOSS COMPANY

D. TYPE OF RIG: PERMANENT PUMP  
DRILLING COMPLETED 01/09/90  
DRILLER: L. MOAALII

E. ELEVATION, msl: Top of drilling platform approx. 20 ft.  
Bench mark and method used to determine depth of drilling platform above ground surface

F. HOLE SIZE: 24 in. dia. to 25 ft. below drilling platform  
23 in. dia. to 25 ft. below drilling platform.

G. CASING INSTALLED:  
15 in. I.D. x PVC in. wall solid section to 17 ft. below drilling platform.  
15 in. I.D. x PVC in. wall perforated section to 25 ft. below drilling platform.

H. ANNULUS: Grouted 0 ft. to 3 ft. below drilling platform.

Gravel packed 0 ft. to 0 ft. below drilling platform.

I. PERMANENT PUMP INSTALLATION:

- Pump type, make, serial no.  
- Capacity: g.p.m.
- Motor type, H.P., voltage, r.p.m.
- Depth of pump intake setting: ft. below which elevation is ft.
- Depth of bottom of airline: ft. below which elevation is ft.

**HYDROLOGY**

J. INITIAL WATER LEVEL: 18'8" ft. below drilling platform.  
Date of measurement:

K. INITIAL CHLORIDE: ppm, total depth of well ft. below drilling platform.

L. PUMPING TESTS:

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Rate</th>
<th>Draw-down (ft.)</th>
<th>Temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-15-90</td>
<td>18'8&quot; ft. below R. P.</td>
<td>18'8&quot; ft. below R. P.</td>
<td>25 ft. below R. P.</td>
<td>210</td>
<td>1'8&quot;</td>
<td>560</td>
</tr>
</tbody>
</table>

M. DRILLER'S LOG:

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>Soil</td>
<td>18'8&quot;</td>
</tr>
<tr>
<td>3 to 25</td>
<td>Coral Hard &amp; Soft</td>
<td>18'8&quot;</td>
</tr>
<tr>
<td>25 to</td>
<td></td>
<td>18'8&quot;</td>
</tr>
</tbody>
</table>

N. REMARKS:

FOR DRILLER'S USE

Job Name

Job No.

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


FOR OFFICIAL USE

Latitude

Longitude

Well No.
INSTRUCTIONS: Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 373, Honolulu, HI 96829. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology, Geology Section for assistance.

A. STATE WELL NO. 5
B. LOCATION
C. WELL OWNER
D. DRILLING OR PUMP INSTALLATION CONTRACTOR
E. TYPE OF RIG
F. DATE OF WELL COMPLETION
G. DATE OF PUMP INSTALLATION
H. TOTAL DEPTH OF WELL BELOW GROUND
I. HOLE SIZE:
J. CASING INSTALLED:
K. ANNULUS:
L. PERMANENT PUMP INSTALLATION:
M. PROPOSED USE
N. INITIAL WATER LEVEL:
O. INITIAL CHLORIDE
P. PUMPING TESTS:
Q. DRILLER’S LOG:
R. REMARKS:

--- Table ---

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Rate (gpm)</th>
<th>Draw-down (ft.)</th>
<th>Cl. (ppm)</th>
<th>Temp. °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/17/80</td>
<td>19.3' ft. below R. P.</td>
<td>21.4' ft. below R. P.</td>
<td>25' ft. below R. P.</td>
<td>6.44</td>
<td>4.60</td>
<td>1.00</td>
<td>70</td>
</tr>
<tr>
<td>08/17/80</td>
<td>19.4' ft. below R. P.</td>
<td>21.4' ft. below R. P.</td>
<td>25' ft. below R. P.</td>
<td>6.44</td>
<td>4.60</td>
<td>1.00</td>
<td>70</td>
</tr>
<tr>
<td>08/17/80</td>
<td>19.4' ft. below R. P.</td>
<td>21.4' ft. below R. P.</td>
<td>25' ft. below R. P.</td>
<td>6.44</td>
<td>4.60</td>
<td>1.00</td>
<td>70</td>
</tr>
<tr>
<td>08/17/80</td>
<td>19.4' ft. below R. P.</td>
<td>21.4' ft. below R. P.</td>
<td>25' ft. below R. P.</td>
<td>6.44</td>
<td>4.60</td>
<td>1.00</td>
<td>70</td>
</tr>
</tbody>
</table>

--- Table ---

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 35</td>
<td>COAL HARD S. CANT</td>
<td>3016</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>35 to 105</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>105 to 250</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>250 to 300</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
</tbody>
</table>

--- Table ---

<table>
<thead>
<tr>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>to</td>
</tr>
</tbody>
</table>

Submitted by (print) 
Signature

Title
Date
STATE OF HAWAII
DEPARTMENT OF LAND & NATURAL RESOURCES
DIVISION OF WATER AND LAND DEVELOPMENT

DRILLER'S REPORT

DESCRIPTION


B. GENERAL LOCATION: EWA.
C. DRILLING COMPANY: ROSCOE-MOSS COMPANY.
D. TYPE OF RIG: DRILLING COMPLETED: 01/...90. DRILLER: L. Moaalii.
E. ELEVATION, ms: Top of drilling platform approx. 20. ft. Bench mark and method used to determine.
F. HOLE SIZE: 24. inch dia. to 25. ft. below drilling platform.
G. CASING INSTALLED: 15. in. I.D. x PVC. in. wall solid section to 17. ft. below drilling platform.
H. ANNULUS: Grouted 0. ft. to 5. ft. below drilling platform.

HYDROLOGY

J. INITIAL WATER LEVEL: 19.1'. ft. below drilling platform. Date of measurement.
K. INITIAL CHLORIDE: ppm, total depth of well ft. below drilling platform.

L. PUMPING TESTS:

Reference point (R.P.) used: which elevation is ft.

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Draw-down (ft.)</th>
<th>CI (ppm)</th>
<th>Temp. °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-17-90</td>
<td>19.1'</td>
<td>19.1'</td>
<td>25. ft. below R.P.</td>
<td>8:10 am.</td>
<td>210</td>
<td>6</td>
<td>600</td>
<td>to</td>
</tr>
<tr>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>24 Hours test</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
</tbody>
</table>

SUBSURFACE FORMATION

M. DRILLER'S LOG:

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. to 3.</td>
<td>Soil</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>3. to 25.</td>
<td>Coral Hard &amp; Soft</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>25. to</td>
<td></td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
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<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
</tbody>
</table>

N. REMARKS:

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


FOR DRILLER'S USE
Job Name:
Job No.

FOR OFFICIAL USE
Latitude:
Longitude:
Well No.
PUMP INSTALLATION PERMITS

for

The Hawaii Prince Golf Club Wells 1 to 5
Well Nos. 1901-03, 1900-17 to 20
Ewa Beach, Oahu

TO: Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install 300 gallons per minute pumps into five wells for golf course irrigation use is approved, subject to the following conditions:

1. The Division of Water Resource Management (DWRM), Geology-Hydrology Section, shall be notified at 548-7543, before any work covered by this permit commences.

2. The proposed use shall not adversely affect existing legal uses in the area.

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

4. The applicant shall submit a Well Completion Report to the DWRM within 30 days after completion of the work.

5. This permit may be revoked if work is not started within six months of the date of issuance or if work is suspended or abandoned for six months. The work shall be completed within two years of the date of issuance.
The continued use of water from the Caprock Aquifer in the future may depend upon the ability of the water users in the area to find a source of recharge to the aquifer such as treated sewage effluent. Without such a supplemental source of recharge, the caprock resource may eventually become too saline to be used.

AUG - 8 1990
Date of Issuance

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

cc: USGS
Department of Health
  Drinking Water Branch
  Ground Water Protection Program
Honolulu Board of Water Supply
PUMP INSTALLATION PERMIT

for

Ewa Golf Course Well (EP22)
Well No. 1900-02
Ewa, Oahu

TO: Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install a 300 gallons per minute pump into Ewa Golf Course Well (Well No. 1900-02) for golf course irrigation use is approved, subject to the following conditions:

1. The Division of Water Resource Management (DWRM), Geology-Hydrology Section, shall be notified at 548-7543, before any work covered by this permit commences.

2. The proposed use shall not adversely affect existing legal uses in the area.

3. The applicant shall comply with all applicable laws, rules, and ordinances.
PUMP INSTALLATION PERMIT
WELL NO. 1900-02

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

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

Date of Issuance

cc: USGS
Department of Health
   Drinking Water Branch
   Ground Water Protection Program
Honolulu Board of Water Supply
State of Hawaii  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources  
Honolulu, Hawaii  

June 27, 1990  

Chairperson and Members  
Commission on Water Resource Management  
State of Hawaii  
Honolulu, Hawaii  

Gentlemen:  

Seibu Hawaii, Inc.  
Application for a Pump Installation Permit  
Ewa Golf Course Well (EP 22), Ewa, Oahu  

Applicant:  
Seibu Hawaii, Inc.  
2237 Kuhio Avenue, Suite 303  
Honolulu, HI 96815  

Landowner:  
Seibu Railway Co., Ltd.  
2237 Kuhio Avenue, Suite 303  
Honolulu, HI 96815  

Action Requested: Permission to install a 300 gallons per minute (gpm) pump into Ewa Golf Course Well (EP 22) (Well No. 1900-22) for golf course irrigation.  

Proposed Amount of Withdrawal: 300,000 gallons per day.  

Well Description: The well is a 6 ft. by 6 ft. vertical shaft with a 95 ft. tunnel at the bottom, into the caprock aquifer.  

Ground elevation: 22.95 ft.  
Total depth: 28.75 ft.  
Pump Capacity: 300 gpm  

Analysis: The well will develop brackish, caprock water. No immediate adverse impacts are expected.  

Water Availability: The well is located in the Honolulu-Puuloa Sector of the Ewa Plain Caprock Aquifer, Oahu. Sustainable yield is estimated at 10 to 15 mgd. The applicant has a water use permit from the Commission to use 1.5 mgd for the initial stage and 0.9 mgd after full establishment of the golf course. The continued use of water from the Caprock Aquifer in the future will depend upon the ability of the water users in the area to find a source of recharge to the aquifer such as treated sewage effluent. Without such a supplemental source of recharge, the caprock resource will eventually become too saline to be used.  

RECOMMENDATION:  

That the Commission approve the issuance of a pump installation permit for Ewa Golf Course Well, subject to the following conditions:
Chairperson and Member
Commission on Water Resource Management

June 27, 1990

(1) The proposed use shall not adversely affect existing legal uses in the area.

(2) The applicant shall comply with all applicable laws, rules, and ordinances.

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

Respectfully submitted,

MANABU TAGOMORI
Deputy Director

APPROVAL FOR SUBMITTAL:

WILLIAM W. PATY, Chairperson
**DRILLER'S REPORT**

**DESCRIPTION**

Date of report: Jan. 23, 1990
Person filing report: L.H. Runnells

A. **OWNER**: Seibu Hawaii Inc.
B. **NAME**: Hawaii Prince Golf Course #5
C. **ISLAND**: Oahu

**HISTORY**

D. **TYPE OF RIG**: RIG
E. **DRILLING COMPLETED**: 01/09
F. **DRILLER**: L. Moalii

**HYDROLOGY**

Date of measurement: Jan. 23, 1990

**HYDROLOGY**

- **DATE**: 01-17-90
- **START WATER LEVEL**: 19.13 ft. below R. P.
- **END WATER LEVEL**: 19.13 ft. below R. P.
- **DEPTH OF WELL**: 25 ft. below R. P.

**SUBSURFACE FORMATION**

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>Soil</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>3 to 25</td>
<td>Coral Hard &amp; Soft</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
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<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
</tbody>
</table>


**FOR OFFICIAL USE**

Latitude: 21° 19’ 43’’
Longitude: 158° 00’ 25’’
Well No.: 1900-20
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>GPM</th>
<th>Conduct Reading</th>
<th>Hatch Sample</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/17/70</td>
<td>8:10 AM</td>
<td>210</td>
<td>19.3&quot;</td>
<td>12 drops</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:15 AM</td>
<td>210</td>
<td>19.6&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:30 AM</td>
<td>210</td>
<td>19.7&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9:00 AM</td>
<td>210</td>
<td>19.9&quot;</td>
<td>15 drops</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:00 AM</td>
<td>210</td>
<td>19.9&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11:00 AM</td>
<td>210</td>
<td>19.9&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2:00 PM</td>
<td>210</td>
<td>19.9&quot;</td>
<td>16 drops</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4:00 PM</td>
<td>210</td>
<td>19.9&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:00 PM</td>
<td>210</td>
<td>19.9&quot;</td>
<td>17 drops 8:00 PM</td>
<td></td>
</tr>
<tr>
<td>1/18/70</td>
<td>12:10 PM</td>
<td>210</td>
<td>19.9&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4:00 AM</td>
<td>210</td>
<td>19.9&quot;</td>
<td>#3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finish test 8:10 AM</td>
<td>210</td>
<td>19.9&quot;</td>
<td>17 drops 8:10 AM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:12 AM</td>
<td></td>
<td>19.3&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Notes:*
- #3 Water & Development
- Recovery in two min.
**DRILLER'S REPORT**

### DESCRIPTION

**Date of report** .... Jan. 23, 1990 .... **Person filing report** .... L.H. Runnells

- **A. OWNER** .... Seibu Hawaii Inc. .... **NAME** .... Hawaii Prince Golf Course #4 .... **ISLAND** .... Oahu

- **B. GENERAL LOCATION** .... EWA

- **C. DRILLING COMPANY** .... ROSCOE MOSS COMPANY

- **D. TYPE OF RIG** .... **DRILLING COMPLETED** .... 01. / 090 .... **DRILLER** .... L. M0aalii

- **E. ELEVATION, m.s.l:** Top of drilling platform approx. 20 ft. Bench mark and method used to determine height of drilling platform above ground surface ft. elevation:

- **F. HOLE SIZE:** 24 inch dia. to 25 ft. below drilling platform.

- **G. CASING INSTALLED:** 15 in. I.D. x PVC in. wall solid section to 17 ft. below drilling platform. 15 in. I.D. x PVC in. wall perforated section to 25 ft. below drilling platform.

- **H. ANNULUS:** Grouted 0 ft. to 5 ft. below drilling platform

- **I. PERMANENT PUMP INSTALLATION:**
  - Pump type, make, serial no. Capacity g.p.m.
  - Motor type, H.P., voltage, r.p.m.
  - Depth of pump intake setting ft. below which elevation is ft.
  - Depth of bottom of airline ft. below which elevation is ft.

### HYDROLOGY

**J. INITIAL WATER LEVEL** .... 18' 8" ft. below drilling platform. Date of measurement

**K. INITIAL CHLORIDE:** ppm, total depth of well ft. below drilling platform

**L. PUMPING TESTS:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>Start water level</th>
<th>End water level</th>
<th>End water level</th>
<th>Depth of well</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-15-90</td>
<td>18' 8&quot;</td>
<td>ft. below R. P.</td>
<td>18' 8&quot;</td>
<td>ft. below R. P.</td>
<td>25 ft. below R. P.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Draw-down (ft.)</th>
<th>CI (ppm)</th>
<th>Temp. °F</th>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Draw-down (ft.)</th>
<th>CI (ppm)</th>
<th>Temp. °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>to 210</td>
<td>1' 8&quot;</td>
<td>560</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>to 24 Hours test</td>
<td>to</td>
<td></td>
<td></td>
<td></td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
</tbody>
</table>

**M. DRILLER'S LOG:**

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>Soil</td>
<td>to</td>
<td>to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 to 25</td>
<td>Coral Bard &amp; Soft</td>
<td>to</td>
<td>to</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>to</td>
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<td></td>
<td></td>
<td>to</td>
<td>to</td>
<td></td>
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</tr>
</tbody>
</table>

**N. REMARKS:**

---

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


---

**FOR OFFICIAL USE**

- **Latitude:** 21 19 41
- **Longitude:** 158 00 35
- **Well No.:** 1900-19
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>GPM</th>
<th>Conduct Reading</th>
<th>Hatch</th>
<th>Sample</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/15/90</td>
<td>8:00 AM</td>
<td>210</td>
<td>18' 8&quot;</td>
<td>10 drps</td>
<td>8:00 AM</td>
<td>WATER</td>
</tr>
<tr>
<td></td>
<td>8:05 AM</td>
<td>210</td>
<td>19' 1&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:10 AM</td>
<td>210</td>
<td>20' 2&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:15 AM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:30 AM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td>10 drps</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9:00 AM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:00 AM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noon</td>
<td>12:00 PM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td>14 drps</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2:00 PM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4:00 PM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td></td>
<td></td>
<td>#2</td>
</tr>
<tr>
<td></td>
<td>8:00 PM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td>14 drps</td>
<td>8:00 PM</td>
<td></td>
</tr>
<tr>
<td>1/16/90</td>
<td>9:00 AM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td></td>
<td></td>
<td>#3</td>
</tr>
<tr>
<td>Finish Test</td>
<td>8:00 AM</td>
<td>210</td>
<td>20' 4&quot;</td>
<td>14 drps</td>
<td>8:00 AM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:02 AM</td>
<td></td>
<td>18' 8&quot;</td>
<td></td>
<td></td>
<td>Recover to normal in 7.6 min.</td>
</tr>
</tbody>
</table>
**DEPARTMENT OF LAND & NATURAL RESOURCES**  
DIVISION OF WATER AND LAND DEVELOPMENT

**DRILLER'S REPORT**

**DESCRIPTION**

Date of report: Jan. 23, 1990  
Person filing report: L.H. Runnels

A. OWNER: Seibu Hawaii Inc.  
NAME: Hawaii Prince Golf Course  
ISLAND: Oahu

B. GENERAL LOCATION: EWA

C. DRILLING COMPANY: ROSCOE MOSS COMPANY

D. TYPE OF RIG: DRILLING COMPLETED 01/90  
DRILLER: L. Moalii  
Month and year

E. ELEVATION, msl: Top of drilling platform approx. 20 ft.  
Bench mark and method used to determine

Height of drilling platform above ground surface ft. elevation:

F. HOLE SIZE: 24 inch dia. to 25 ft. below drilling platform.  
21 inch dia. to 25 ft. below drilling platform.  
21 inch dia. to 25 ft. below drilling platform.

G. CASING INSTALLED: 19 in. I.D. x PVC in. wall solid section to 17 ft. below drilling platform.  
19 in. I.D. x PVC in. wall perforated section to 25 ft. below drilling platform.  
Type of perforation: SLOTS

H. ANNULUS: Grouted 0 ft. to 5 ft. below drilling platform.  
Gravel packed 0 ft. to 0 ft. below drilling platform.

I. PERMANENT PUMP INSTALLATION:

- Pump type, make, serial no.  
- Capacity g.p.m.
- Motor type, H.P., voltage, r.p.m.
- Depth of pump intake setting ft. below which elevation is ft.
- Depth of bottom of airline ft. below which elevation is ft.

**HYDROLOGY**

J. INITIAL WATER LEVEL: ft. below drilling platform, Date of measurement.

K. INITIAL CHLORIDE: ppm, total depth of well ft. below drilling platform  
Sampling Date

L. PUMPING TESTS:

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Rate (gpm)</th>
<th>Draw-down (ft.)</th>
<th>Cl- (ppm)</th>
<th>Temp.</th>
<th>Rate (gpm)</th>
<th>Draw-down (ft.)</th>
<th>Cl- (ppm)</th>
<th>Temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-12-90</td>
<td>19.6 ft. below R.P.</td>
<td>19.6 ft. below R.P.</td>
<td>23 ft. below R.P.</td>
<td>210 gpm</td>
<td>.10 m</td>
<td>700 ppm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:00a.m</td>
<td>to</td>
<td></td>
<td></td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
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<td>to</td>
<td></td>
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<tr>
<td>to</td>
<td>.24 hours test</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
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<td>to</td>
<td></td>
</tr>
</tbody>
</table>

**SUBSURFACE FORMATION**

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level (ft.)</th>
<th>Depth (ft.)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 2</td>
<td>Soil</td>
<td>Soil</td>
<td>to</td>
<td>Soil</td>
<td>Soil</td>
</tr>
<tr>
<td>2 to 25</td>
<td>Coral Hard &amp; Soft</td>
<td>Soil</td>
<td>to</td>
<td>Coral Hard &amp; Soft</td>
<td>Oil</td>
</tr>
<tr>
<td>to</td>
<td></td>
<td>Soil</td>
<td>to</td>
<td></td>
<td>Soil</td>
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<td>Soil</td>
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<tr>
<td>to</td>
<td></td>
<td>Soil</td>
<td>to</td>
<td></td>
<td>Soil</td>
</tr>
</tbody>
</table>

N. REMARKS:

**FOR DRILLER'S USE**

Job Name:  
Job No.:  

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


**FOR OFFICIAL USE**

Latitude: 21° 19' 46"  
Longitude: 158° 00' 04.97"  
Well No.: 1900-1
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>RPM</th>
<th>Conduct Reading</th>
<th>Hack Sample</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td>1/12/70</td>
<td>8:00 AM</td>
<td>210</td>
<td>19' 6&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:01 AM</td>
<td>210</td>
<td>19'10&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:03 AM</td>
<td>210</td>
<td>19'11&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:08 AM</td>
<td>210</td>
<td>20' 2&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:18 AM</td>
<td>210</td>
<td>20'3&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:48 AM</td>
<td>210</td>
<td>20'4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9:00 AM</td>
<td>210</td>
<td>20'4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:00 AM</td>
<td>210</td>
<td>20'4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12:00 PM</td>
<td>210</td>
<td>20'4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:00 PM</td>
<td>210</td>
<td>20'4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:00 AM</td>
<td>210</td>
<td>20'4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12:00 PM</td>
<td>210</td>
<td>20'4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:00 AM</td>
<td>210</td>
<td>20'4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:02 AM</td>
<td>210</td>
<td>19' 6&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RECEIVED

Jan 29, 9:02

#1 JOB DEVELOPMENT

1/13/70

#3 STOP TEST

Recover to Normal #3 Start.
**DESCRIPTION**

Date of report: Jan. 23, 1990 
Person filing report: L.H. Runnells

A. OWNER: Seibu Hawaii Inc. NAME: Hawaii Prince Golf Course #2 - ISLAND: Oahu
B. GENERAL LOCATION: Ewa
C. DRILLING COMPANY: ROSCOE MOSS COMPANY
D. TYPE OF RIG: DRILLING COMPLETED 01/.90 DRILLER: Moaalii

E. ELEVATION, msl: Top of drilling platform approx. 20 ft. Bench mark and method used to determine Height of drilling platform above ground surface ft. elevation:

F. HOLE SIZE: 24" inch dia. to 26 ft. below drilling platform.

G. CASING INSTALLED: 15 in. I.D. x PVC in. wall solid section to 18 ft. below drilling platform.
15 in. I.D. x PVC in. wall perforated section to 26 ft. below drilling platform.
Type of perforation: Slots

H. ANNULUS: Grouted 0 ft. to 5 ft. below drilling platform.
Gravel packed ft. to ft. below drilling platform.

I. PERMANENT PUMP INSTALLATION:

- Pump type, make, serial no. ____________
- Motor type, H.P., voltage, r.p.m. ____________
- Depth of pump intake setting ft. below ____________ which elevation is ____________ ft.
- Depth of bottom of airline ft. below ____________ which elevation is ____________ ft.

**HYDROLOGY**

J. INITIAL WATER LEVEL: 19.8 ft. below drilling platform. Date of measurement.

K. INITIAL CHLORIDE: ppm, total depth of well ft. below drilling platform

L. PUMPING TESTS:

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Draw down (ft.)</th>
<th>Cl- Temp. F</th>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Draw down (ft.)</th>
<th>Cl- Temp. F</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/07/89</td>
<td>19.8</td>
<td>19.8</td>
<td>26</td>
<td>9:11 to 9:15</td>
<td>210</td>
<td>3</td>
<td>540</td>
<td>to</td>
<td></td>
<td></td>
<td></td>
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N. REMARKS: ________________________________

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**INSTRUCTIONS:** Send three(3) copies to: Manager-Chief Engineer, Division of Water and Land Development, P. O. Box 313, Honolulu, Hawaii 96809.

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<th>Drawdown (in mmhos)</th>
<th>Chlorides (ppm)</th>
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<th>Conductivity (mmhos 25°C)</th>
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**DESCRIPTION**

Date of report: Jan. 23, 1990  
Person filing report: L.H. Runnels

A. OWNER: Seibu Hawaii Inc.  
NAME: Hawaii Prince Golf Course #1 Island, Oahu

B. GENERAL LOCATION: Ewa

C. DRILLING COMPANY: Roscoe Moss Company

D. TYPE OF RIG:  
DRILLER'S REPORT: 01/90  
DRILLER: L. Moya

E. ELEVATION, msl: Top of drilling platform approx. 21 ft. Bench mark and method used to determine

Height of drilling platform above ground surface: 0 ft. elevation:

F. HOLE SIZE: 24 inch dia. to 26 ft. below drilling platform.

G. CASING INSTALLED: 15 in. I.D. x PVC in. wall solid section to 18 ft. below drilling platform.

H. ANNULUS: Grouted 0 ft. to 5 ft. below drilling platform.

Gravel packed ft. to ft. below drilling platform.

I. PERMANENT PUMP INSTALLATION:

- Pump type, make, serial no.  
- Capacity: g.p.m.
- Motor type, H.P., voltage, r.p.m.
- Depth of pump intake setting ft. below which elevation is ft.
- Depth of bottom of airline ft. below which elevation is ft.

**HYDROLOGY**

J. INITIAL WATER LEVEL: ft. below drilling platform. Date of measurement:

K. INITIAL CHLORIDE: ppm, total depth of well ft. below drilling platform:

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

- Date: 01/19/90  
- Start water level: 20.11 ft. below R.P.
- End water level: 20.11 ft. below R.P.
- Depth of well: 26 ft. below R.P.

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<th>Cl- (ppm)</th>
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**SUBSURFACE FORMATION**

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N. REMARKS:
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**RECOVERY**

**TO NORMAL IN TWO MIN**
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Seibu Hawaii, Inc.
Application for Pump Installation Permits
The Hawaii Prince Golf Club Wells 1 to 5, Ewa Beach, Oahu

Applicant: Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

Landowner: Seibu Railway Co., Ltd.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

Action Requested: Permission to install 300 gallons per minute (gpm) pumps into The Hawaii Prince Golf Club (formerly Ewa Golf Course) Wells 1 to 5 (Well Nos. 1901-03, 1900-17 to 20) for golf course irrigation.

Proposed Amount of Withdrawal: 300,000 gallons per day per well.

Well Description (typical):
 Ground elevation: 20 ft.
 Solid casing depth: 17 ft.
 Screen casing depth: 25 ft.
 Total depth: 25 ft.
 Pump Capacity: 300 gpm

Analysis: The wells will develop brackish, caprock water. No immediate adverse impacts are expected.

Water Availability: The wells are located in the Honouliuli-Puuloa Sector of the Ewa Plain Caprock Aquifer, Oahu. Sustainable yield is estimated at 10 to 15 mgd. The applicant has a water use permit from the Commission to use 1.5 mgd for the initial stage and 0.9 mgd after full establishment of the golf course. (The continued use of water from the Caprock Aquifer in the future will depend upon the ability of the water users in the area to find a source of recharge to the aquifer such as treated sewage effluent. Without such a supplemental source of recharge, the caprock resource will eventually become too saline to be used.

RECOMMENDATION:

That the Commission approve the issuance of pump installation permits for The Hawaii Prince Golf Club Wells 1 to 5, subject to the following conditions:
Chairperson and Members
Commission on Water Resource Management

July 25, 1990

(1) The applicant shall notify the Division of Water Resource Management (DWRM) before work begins.

(2) The applicant shall submit a well completion report to DWRM within 30 days after completion of the work.

(3) The proposed use shall not adversely affect existing legal uses in the area.

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

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

Respectfully submitted,

MANABU TAGOMORI
Deputy Director

Attach.

APPROVAL FOR SUBMITTAL:

WILLIAM W. PATY, Chairperson
Seibu Hawaii, Inc.
2237 Kuhio Avenue, Suite 303
Honolulu, HI 96815

Dear Seibu Hawaii, Inc.:

We have received your applications and $25.00 filing fees to install pumps in The Hawaii Prince Golf Club (formerly Ewa Golf Course) Wells 1 to 5 (Well Nos. 1901-03 and 1900-17 to 20) at Tax Map Key: 9-1-10:6&7, Ewa Beach, Hawaii.

We are reviewing your applications for completeness and will contact you if we need more information.

Please call Ed Sakoda at 548-7543 if you have any questions.

Sincerely,

[Signature]

MANABU TAGOMORI
Deputy Director

ES:bm
TRANSMITTAL LETTER

TO: Mr. Ed Sakoda  
Department of Land & Natural Resources  
State of Hawaii

FROM: Joe Metcalfe, AIA

DATE: July 11, 1990

RE: THE HAWAII PRINCE GOLF CLUB

TRANSMITTED:

Copies Date Description
5 7/10/90 Pump Installation Permit
5 7/10/90 Application for Wells #1, 2, 3, 4, & 5
5 7/10/90 $25.00 checks - application fee for each well

( ) for your information & use ( ) for your approval
( ) for your signature & return ( ) for your review/comment
( ) for your further necessary action ( ) per your request
( ) for your signature & forwarding ( ) see remarks below
( ) as noted below ( ) per our conversation
( ) for your files

REMARKS: Per our discussion, we anticipate Commission review mid-August.

CC: Akemi Kurokawa  
Dale Winchester  
Masa Fujioka
PUBLIC NOTICE

Pearl Harbor Ground Water Management Area

The Commission on Water Resource Management has received an application for a water use permit to withdraw water from the brackish caprock aquifer of the Pearl Harbor Ground Water Management Area. Pertinent information is as follows:

Applicant: The Myers Corporation
745 Fort Street #1500
Honolulu, Hawaii 96813

Date Application Received: August 31, 1988

Source of Water Supply: On-site well, currently designated by Oahu Sugar Company, Ltd. as Pump 22.

Quantity Applied for: 1.5 million gallons per day (mgd) during the initial stage of landscaping establishment and 0.9 mgd after full establishment.

Use: Irrigation of the proposed Ewa Golf Course.

Place of Use: The proposed Ewa Golf Course is situated at the southeast end of the Ewa Plain and bounded by Iroquois Point Road, Leeward Estates Subdivision and the U.S. Government property known as the "Blast Zone Area".

Location of the Well: The well is located on-site. See attached map.

Written objections to the proposed permit may be filed by any person who has some property interest in any land within the hydrologic unit from which the water sought by the applicant is to be drawn or who will be directly and immediately affected by the water use proposed in the application. Written objections shall: (1) state property interest or other interest in the matter; (2) set forth questions of procedure, fact, law or policy, to which objections are taken; and (3) state all grounds for objections to the proposed permit. Send written objections by October 20, 1988, to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96809.

State of Hawaii
Commission on Water Resource Management

WILLIAM W. PATY, Chairperson

Dated: Sept. 28, 1988

Publish in Honolulu Star Bulletin, issues of October 3 and 10, 1988
LEGAL NOTICE

PUBLIC NOTICE
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The Commission on Water Resource Management has received an application for a water use permit to withdraw water from the brackish caprock aquifer of the Pearl Harbor Ground Water Management Area. Pertinent information is as follows:

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State of Hawaii
Commission on Water Resource Management
WILLIAM W. PATY, Chairperson

Dated Sept. 28, 1988
(Hon. S.-B.: Oct. 3, 10, 1988)

IN THE OFFICE OF THE LIEUTENANT GOVERNOR
STATE OF HAWAII

In the Matter of the Petition of Richard Robert Szuster and Nicola Jan Szuster, for themselves and for and on behalf of Zachary Harrison Szuster minor children, For Change of Name.

NOTICE OF CHANGE OF NAME

Upon consideration of the Petition of Richard Robert Szuster, and Nicola Jan Szuster, and there appearing to me to be good reasons for granting the same,

NOW, THEREFORE, by virtue of the authority vested in me by law vested and thereunto enabling, I, Benjamin J. Cayetano, Lieutenant Governor of the State of Hawaii, do hereby give public notice that the names of Richard Robert Szuster, Nicola Jan Szuster, and Zachary Harrison Szuster, shall be changed to Richard Robert Shuster, Nicola Jan Shuster, and Zachary Harrison Shuster, upon a single publication in the Honolulu Star-Bulletin, a newspaper of general circulation in the State of Hawaii, published at Honolulu, Hawaii.

Dated Oct. 10, 1988
TO PLACE YOUR CLASSIFIED AD
CALL 521-9111
Monday thru Friday
8 a.m.-4:45 p.m.
Saturday 8-11:45 a.m.
Or come to 605 KAPIOLANI BLVD.
Monday thru Friday 8:30 a.m.-4:45 p.m. Saturday 8-11:45 a.m.

Rental Announcements: 410
Rentals to Exchange: 430
Rentals Trade for Services: 431
Rentals Wanted: 435
Rooms Furnished: 456
Rooms Unfurnished: 457
Storage: 490
Stores: 469
Townhouses Furnished: 477
Townhouses Part Furnished: 478
Townhouses Unfurnished: 479
Vacation/Resorts: 480
Warehouses: 481

Transportation
Auto Access/Services: 810
Auto Announcements: 811
Autos Domestic: 805
Autos Foreign/Sports: 850
Autos for Lease: 808
Autos for Rent: 837
Autos Wanted (in general): 806
Aviation Sales/Services: 840
Buses: 820
Campers/Trailers/Vans: 825
Classics: 823
Go Carts: 835
Hot Rods: 811
Mobile Homes: 825
Motor Carts: 830
Motor Scooters: 835
Motorcycle Notices: 834
Motorcycle Parts/Services: 833
Motorcycle Rentals: 832
Motorcycles: 830
Pickup/Truck Notices: 819
Pickup/Trucks/Buses: 820
4-Wheel Drive: 821
Sports Cars: 850
Tractors: 825
Trucks: 820
Vans: 825
Service Directory: 900

CANCELLATIONS
Orders are numbered & are given as a receipt to the advertiser in case of a dispute. Sorry but no adjustment will be allowed without a number. No number is given for ads placed on POP, Wiki or Thrift plans, as these are based on flat, non-refundable rates.

Help Wanted

DAIEI/HOLIDAY MART
Honolulu Holiday Mart

Has immediate need for

ACTUAL MANAGER

Part-time
Waikanaloa Wet Cave

Lava Flows

Division of Water & Land Development (4/88)
Honorable John C. Lewin, M.D.
Director of Health
Department of Health
State of Hawaii
1250 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Lewin:

Public Notice for a Water Use Permit Application
Pearl Harbor Ground Water Management Area, Oahu

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-171-17(a), we are sending you the enclosed public notice which will be published in the Star Bulletin.

If you have any comments, please submit them to us by October 17, 1988.

Very truly yours,

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

Encl.
Honorable Frank F. Fasi  
Mayor, City and County of Honolulu  
City Hall  
Honolulu, Hawaii 96813  

Dear Mayor Fasi:

Public Notice for a Water Use Permit Application  
Pearl Harbor Ground Water Management Area, Oahu

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-171-17(a), we are sending you the enclosed public notice which will be published in the Star Bulletin.

If you have any comments, please submit them to us by October 17, 1988.

Very truly yours,

WILLIAM W. PATY, Chairperson  
Commission on Water Resource Management

Encl.
Mr. Kazu Hayashida
Manager & Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Hayashida:

Public Notice for a Water Use Permit Application
Pearl Harbor Ground Water Management Area, Oahu

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-171-17(a), we are sending you the enclosed public notice which will be published in the Star Bulletin.

If you have any comments, please submit them to us by October 17, 1988.

Very truly yours,

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

Encl.
WAIPALAE WET CAVE (CROSS SECTION)

LAVA FLOWS

TALUS

SEDIMENTS

Division of Water & Land Development (4/88)
PUBLIC NOTICE

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745 Fort Street #1500
Honolulu, Hawaii 96813

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Use: Irrigation of the proposed Ewa Golf Course.

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Location of the Well: The well is located on-site. See attached map.

Written objections to the proposed permit may be filed by any person who has some property interest in any land within the hydrologic unit from which the water sought by the applicant is to be drawn or who will be directly and immediately affected by the water use proposed in the application. Written objections shall: (1) state property interest or other interest in the matter; (2) set forth questions of procedure, fact, law or policy, to which objections are taken; and (3) state all grounds for objections to the proposed permit. Send written objections by October 20, 1988, to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96809.

State of Hawaii
Commission on Water Resource Management

WILLIAM W. PATY, Chairperson

Dated: Sept. 28, 1988

Publish in Honolulu Star Bulletin, issues of October 3 and 10, 1988
October 3, 1988

Meyers Corporation
745 Fort St., #1500
Honolulu, Hawaii 96813

Gentlemen:

Enclosed for your information is a public notice which will be published in the Star Bulletin.

If you have any questions, please contact Dan Lum at 548-7643.

Sincerely,

MANABU TAGOMORI
Deputy for Water Resource Management

ES:ko
Enc.
October 3, 1988

Ms. Cheryl M. Palesh  
Vice President  
Sam O. Hirota, Inc.  
864 So. Beretania Street  
Honolulu, Hawaii 96813

Dear Ms. Palesh:

Enclosed for your information is a public notice which will be published in the Star Bulletin.

If you have any questions, please contact Dan Lum at 548-7643.

Sincerely,

MANABU TAGOMORI  
Deputy for Water Resource Management

ES:ko  
Enc.
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State of Hawaii
Commission on Water Resource Management

WILLIAM W. PATY, Chairperson

Dated: Sept. 28, 1988

Publish in Honolulu Star Bulletin, issues of October 3 and 10, 1988
September 30, 1988

Mr. William D. Balfour, Jr.
President and Manager
Oahu Sugar Company, Ltd.
P.O. Box "0"
Waipahu, Hawaii 96797

Dear Mr. Balfour:

Enclosed for your information is a public notice which will be published in the Star Bulletin.

If you have any questions, please contact Dan Lum at 548-7643.

Sincerely,

MANABU TAGOMORI
Deputy for Water Resource Management

Enc.
September 30, 1988

Puuleo Homes, Ltd.
745 Fort St., Suite 311
Honolulu, Hawaii 96813

Gentlemen:

Enclosed for your information is a public notice which will be published in the Star Bulletin.

If you have any questions, please contact Dan Lum at 548-7643.

Sincerely,

MAÄÑABU TAGOMORÌ
Deputy for Water Resource Management

ES:ko
Enc.
SURVEY BRANCH

Rev. 4/88

FROM: ED

DATE: 9/27/88
FILE IN: 1900-02-17-20 HR WECE

TO: INITIAL:

✓ D. LUM

E. Sakoda
D. Nakano
P. Haraguchi
R. Jinnai
M. Ohye

D. Hamada
K. Oshiro
M. Tagomori
G. Matsumoto
G. Akita
L. Chang
S. Kokubun

PLEASE:

See Me
Call
Review & Comment
Take Action
Investigate & Report
Draft Reply
Acknowledge Receipt
Type Draft
Type Final
Xerox copies
File
Mail

REMARKS:

Received call from Jack Meyers re: Ewa Golf Course water use permit application. They expect to have a conditional use permit from DLU approved on Oct. 12. Wants to expedite water use permit. Mr. Meyers will try to get OSG's approval of transfer to the golf course) to us ASAP.

FOR YOUR

Approval
Signature
Information
September 15, 1988

Ms. Cheryl M. Palesh
Vice President
Sam O. Hirota, Inc.
864 So. Beretania Street
Honolulu, Hawaii 96813

Dear Ms. Palesh:

This is to acknowledge receipt of your letter of August 31, 1988, and attached water use permit application and $25.00 filing fee for the proposed Ewa Golf Course project.

My staff is reviewing the application and will contact you should more information be required.

Sincerely,

MANABU TAGOMORI
Deputy for Water Resource Management

ES:ko
REV. 4/88

DIVISION OF WATER RESOURCE MANAGEMENT

FROM: [Signature]
DATE: 9-1
FILE IN: ______

TO: INITIAL: 

PLEASE: 

___ M. TAGOMORI
___ D. Lum
___ G. Matsumoto
___ G. Akita
___ L. Chang
___ Y. Shiroma
___ E. Sakoda
___ D. Nakano
___ S. Miyamoto
___ S. Samuels
___ P. Matsuo
___ H. Young
___ R. Suzuki
___ N. Kaneshiro
___ S. Kokubun
___ D. Hamada
___ L. Nanbu
___ F. Ching

REMARKS: 

(check attached)

[Handwritten remarks]

[Handwritten signature]
State of Hawaii
Department of Land and Natural Resources (DLNR)
Commission On Water Resource Management
1151 Punchbowl Street, Room 227
Honolulu, Hawaii 96813

Attention: Mr. Manabu Tagomori
Deputy for Water Resource Management

Re: Proposed Ewa Golf Course
Tax Map Key: 9-1-10: 7, Por. 6
Your letter of July 7, 1988

Gentlemen:

Submitted herewith is the application and $25.00 filing fee for a permit to withdraw water for a beneficial use for the referenced project. This application was prepared in accordance with your referenced letter and the guidance provided by your office. Presented below is the additional information requested in your referenced letter. The items are listed in accordance with the letter request.

1. A map indicating the location of all wells within a mile radius of Pump 22, and their associated water quality data, are enclosed. The most recent data are from groundwater samples taken on August 2, 1988 by the firm of Dames and Moore. The data indicate an average salinity of the area groundwater of 1100 milligrams per liter (mg/l) chlorides. The samples were withdrawn from four wells which were pumping at the time of sampling.

The potential impacts of irrigation water withdrawal via Pump 22 were analyzed by Dames and Moore. The results of their analyses are summarized below. Please refer to the enclosed description of their "Ewa Caprock Mixing Model" for an explanation of the analytical program.

The analyses were conducted using results from the recent DLNR study. The study projects a steady state chloride concentration of 1226 mg/l based on a caprock aquifer draft of 18 million gallons per day (MGD) (1982-1987 average). The lower 1100 mg/l average
chlorides measured may be due to transient conditions, since the effects of the conversion to drip irrigation have not yet been fully felt, and because the current draft of 16.1 MGD (one year period ending 6/88) is lower than the average for the analysis period in the DLNR draft study.

The current draft of 16.1 MGD was analyzed using input parameters from the draft DLNR study. The results of the analysis are as follows:

a. Scenario 1 - Existing Conditions: The key inputs in this analysis were:

\[ Q_p = \text{rate of rainfall precipitation return} = 4.4 \text{ MGD} \]
\[ \text{at a 20 mg/l chlorides concentrations (DLNR, 1988).} \]
\[ n = \text{returning irrigation fraction for drip irrigation} = 0.3 \text{ (DLNR, 1988).} \]
\[ Q_d = \text{total irrigation draft from Puuloa Limestone} = 16.1 \text{ MGD (Oahu Sugar pumping records for period 6/87 through 6/88).} \]
\[ Q_u = \text{rate of underflow from outside model area} = 15 \text{ MGD at a 550 mg/l chlorides concentration (DLNR, 1988).} \]

b. Scenario 2 - Ewa Golf Course Withdrawal: Under steady state conditions, an average chlorides concentration of 1015 mg/l was projected.

The key inputs in this analysis were:

\[ Q_p = \text{rate of rainfall precipitation return} = 4.4 \text{ MGD} \]
\[ \text{at a 20 mg/l chlorides concentration (DLNR, 1988).} \]
\[ Q_u = \text{rate of underflow from outside model area} = 15 \text{ MGD at a 550 mg/l chlorides concentration.} \]
\[ n = \text{returning irrigation fraction for drip irrigation} = 0.3 \text{ (DLNR, 1988).} \]
\[ Q_d = \text{total sugar cane irrigation draft from Puuloa Limestone} = 14.49 \text{ MGD.} \]
n_2 = returning irrigation fraction from golf course irrigation = 0.25 (manufacturer’s data).

Q_{gc} = golf course irrigation draft = 1.39 MGD.

The analysis indicates that groundwater quality would improve as a result of development of the golf course. The reasons for this are:

a. A reduction in pumping of Pump 22 from 1.61 MGD (well records for the period 6/87 through 6/88), to 1.39 MGD, based on analysis of water requirements.

b. Areas to be planted and irrigated by Oahu Sugar to replace the acreage lost to the golf course will be located in Kunia, using irrigation water sources outside the Puuloa Limestone.

The proposed land use change and resultant reduction in pumping would thus result in an increase in groundwater quality.

2. In their previous study for the Ewa Marina project, "Final Addendum to the Final EIS, Ewa Marina Community Increment II", July 7, 1986, Dames and Moore investigated the effect of Oahu Sugar Company's conversion to drip irrigation. Their study concluded the following:

a. The importation of basal ground water from outside the Ewa Plain had been discontinued under drip irrigation. This basal ground water, following field irrigation and percolation of irrigation return water, had been a significant input to the total ground water flow of the Ewa Plain.

b. Irrigation return flow is the major source of the shallow relatively fresh ground water within the coralline aquifer.

c. An effect of the conversion to drip irrigation was less ground water flow and higher salinity of the caprock aquifer water.
d. The effects of the conversion to drip irrigation had not yet been fully realized and that future water quality degradation was expected as a result of the conversion to drip irrigation.

Since the study, a number of factors have changed:

a. A small quantity of basal ground water (approximately 1 MGD) from outside the Ewa Plain is being imported to irrigate areas of the Ewa Plain.

b. The total draft from the caprock aquifer has been significantly reduced, from approximately 19.2 MGD in 1984 to 16.1 MGD in 1988, with presumably an attendant reduction in the acreage under sugar cane cultivation.

Despite the reimportation of some basal water and the decrease in total draft from the caprock aquifer, a significant increase in salinity has occurred since 1986. It is anticipated that the dynamics of the caprock aquifer are such that the effects of the pre-1986 activities are not yet fully felt. In the referenced 1986 study, it was concluded that the effects of the original change to drip irrigation would require over a decade to reach steady state.

Sensitivity modeling conducted by Dames and Moore using the Ewa Caprock Mixing Model and the most recent data provided the following preliminary conclusions:

a. Reducing the importation of basal ground water increases the salinity of the caprock water.

b. Reducing the draft from the caprock decreases the salinity of the caprock water.

c. In order to maintain salinity at approximately 800 mg/l chlorides, a reduction in draft to approximately 13 MGD is necessary, to counter the effect of essentially halting the importation of basal ground water. According to pumping records, a reduction in draft to approximately 16 MGD was apparently implemented over the last several years by Oahu Sugar.
In regards to the reductions in acreage by Oahu Sugar Company, the effect would generally be a decrease in both salinity and available draft. With reduction in acreage and presumably draft from the aquifer, the percentage of ground water flow which is irrigation return is reduced. Since the quality of water from other sources, leakage from basalt, precipitation, etc., is higher, the general result would be an overall increase in water quality. However, because irrigation is a significant component of the total flow, a reduction in acreage would also result in less water available for pumping.

The results of the analyses of the relationship between caprock aquifer draft, related to acreage in cane production, and salinity is depicted graphically on Plate 2. The graph indicates a tendency for salinity to decrease as draft is decreased. As the total draft is reduced, there is less irrigation water return with less total water flowing through the caprock aquifer system. At very low drafts, the total flow through the system may be so low that other factors, such as salt water upconing at wells and insufficient water flow to overcome the effects of the brackish water transition zone between the "fresh water" lens and the salt water, may result in higher salinity. As such, the curve presented in Plate 2 will most likely level off at a chlorides concentration between 200 and 400 mg/l, rather than extend to the graph's origin.

3. The primary alternative action to be undertaken should golf course irrigation use of Pump 22 affect the salinity of the caprock aquifer in the area, would be to reassess pumping operations and consider water treatment to lower the salinity to acceptable levels for course irrigation. However, from the discussions above, it is clear that the caprock aquifer is a highly interrelated system and significant increases in salinity could not solely be due to pumping at Pump 22. Oahu Sugar would remain as the primary user of caprock water, and their operations would have the most effect on salinity of wells in the Ewa Plain, including Pump 22.
In regards to area groundwater recharge, please note that under the terms of the land lease and in accordance with Department of Public Works' requirements, stormwater runoff from the 100 year 24-hour rainfall for the golf course, and 250 acre area to the north thereof is to be retained on site. The runoff will be collected in the depressions located throughout the 270 acre course, with disposal by evaporation and percolation. The total quantity of runoff to be collected will range from 3 million gallons for the 10 year, 1-hour rainfall to 40 million gallons for the 100 year, 24-hour rainfall. The groundwater within the course area will thus have the benefit of recharge from both on-site and off-site storm runoff.

Oahu Sugar Company will be transmitting to your office a letter indicating their concurrence with the transfer of groundwater withdrawal permit and allocation. Please contact us if any additional information is required. Kindly note that the Conditional Use Permit is being processed and that your immediate review of this information will be greatly appreciated.

Very truly yours,

SAM O. HIROTA, INC.

Cheryl M. Palesh, P.E.
Vice President

Encl
Note: Based on Ewa Caprock mixing model (Dames & Moore, 1986)

CAPROCK AQUIFER SALINITY vs. DRAFT
FOR
PUUOIA LIMESTONE AREA

Dames & Moore

PLATE 2
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APPENDIX A

EWA CAPROCK MIXING MODEL

The limestone area of the Ewa Caprock can be generalized graphically by a single cell mixing model as shown below:

![Diagram of mixing model]

The mass balance of the model consists of:

A. INPUT

1. $\text{C}_B \text{Q}_B$
   Where: $\text{C}_B$ = Concentration of basalt aquifer return irrigation
   $\text{Q}_B$ = Rate of irrigation return from basalt aquifer wells

2. $\text{C}_P \text{Q}_P$
   Where: $\text{C}_P$ = Concentration of rainfall return
   $\text{Q}_P$ = Rate of rainfall return

3. $k \text{C}_n \text{Q}_D$
   Where: $k = \frac{1}{n}$ = Concentration factor
   $n$ = Returning irrigation fraction
   $\text{C}_n$ = Concentration in cell
   $\text{Q}_D$ = Total irrigation draft

4. $\text{C}_{U} \text{Q}_{U}$
   Where: $\text{C}_{U}$ = Concentration of underflow
   $\text{Q}_{U}$ = Rate of underflow from outside of model

(2891A/277A)
B. WITHIN CELL
   1. VC
      Where:  
          \( V \)  = Volume of cell  
          \( C \)  = Concentration of mixing cell  
          \( C_0 \)  = Concentration of mixing cell at time = 0

C. OUTPUT
   1. OD
      Where:  
          \( C \)  = Concentration of mixing cell  
          \( Q_D \)  = Total irrigation draft
   2. OL
      Where:  
          \( C \)  = Concentration of mixing cell  
          \( O_L \)  = Leakage from system

Which can be written as:

\[
O_L = Q_{\text{INPUT}} - Q_D
\]

Where:

\[
Q_{\text{INPUT}} = Q_U + Q_B + Q_P + nQ_D
\]

Substituting:

\[
O_L = Q_U + Q_B + Q_P + nQ_D - Q_D
\]

Or:

\[
O_L = Q_U + Q_B + Q_P - (1-n)Q_D
\]

For the mixing cell, the following equation can be written for the mass balance:

\[
V \frac{dC}{dt} = \sum_{i} C_i Q_i \left| \text{INPUT} \right| - \sum_{i} C_i Q_i \left| \text{OUTPUT} \right| \]

By letting:

\[
\begin{align*}
  a &= C_B Q_B + C_P Q_P + C_U Q_U \\
  b &= (1-n) Q_D - Q_B - Q_P - Q_U
\end{align*}
\]

Then the equation can be rewritten as:

\[
\int_{C_0}^{C} \frac{dc}{a+bc} = \frac{1}{V} \int_{t}^{t} \frac{dt}{t}
\]

Integrating and solving for \( C \) yields:

\[
C = \frac{a+bc}{b} \left( e^{bt/v} \right) - \frac{a}{b} \quad \text{(Transient equation)}
\]

Solving for steady state condition where time approaches infinity:

\[
e^{bt/v} \rightarrow 0 \quad \text{(because } b \text{ is a negative value)}
\]
Therefore:

\[ C = -\frac{a}{b} \]

Substituting for \(a\) and \(b\):

\[ C = -\frac{C_B Q_B + C_P Q_P + C_U Q_U}{(1-n)Q_D - Q_B - Q_P - Q_U} \]

Solving for \(Q_U\):

\[ Q_U = \frac{C_B Q_B + C_P Q_P + C[(1-n)Q_D - Q_B - Q_P]}{C - C_U} \]

The boundaries and conditions of the limestone aquifer include:

A. Cane Land over limestone = 4,414 acres
B. Non-cane land over limestone = 9,024 acres
C. Total area = 13,438 acres = 21 sq. miles
D. Mean annual rainfall for area = 22 inches/year
   For total area,
   Total precipitation (TP) = (22 inches/year)(21 sq. miles) = 22 million gallons per day (Mgd)

Using the above information, the following scenarios were investigated.
State of Hawaii
Department of Land and Natural Resources
EWA Ground Water Control Area

APPLICATION FOR: (check one)

☐ PERMIT TO WITHDRAW WATER FOR BENEFICIAL USE
☐ PERMIT TO SUPPLY WATER FOR BENEFICIAL USE

Instructions: Fill out, sign, and send application with pertinent attachments to Dept. of Land & Natural Resources, P.O. Box 333, Honolulu, Hawaii 96809. A non-refundable filing fee of $100 is required, excepting military, federal, state, and local government agencies.

1. NAME OF APPLICANT: THE MYERS CORPORATION
   Address: 745 Fort St. #1500 Honolulu, HI 96813
   Phone: 521-941

2. REQUESTED BENEFICIAL USE OF WATER:
   ☑ Domestic ☑ Municipal ☑ Military ☑ Agricultural ☑ Industrial ☑ Other
   ☑ Irrigation (specify)

   Appropriately describe nature and purpose of requested use:
   IRRIGATION FOR GOLF COURSE AND LANDSCAPING AROUND CLUBHOUSE.

   Proposed commencement date of water use: JANUARY, 1991

3. REQUESTED AMOUNT OF WITHDRAWAL OR SUPPLY:
   Average Annual: mgd; Maximum Month: mgd; Maximum Day: 1.5 mgd

   Appropriately describe schedule or times of taking requested withdrawal:
   DAILY IRRIGATION OF COURSE AREA DURING NON-PLAYING HOURS - 7:00 PM to 7:00 AM

4. NATURE AND TERM OF REQUESTED PERMIT:
   ☑ Temporary ☑ Permanent

   Requested period of permit:

5. PROPOSED SOURCE OF WATER SUPPLY:
   ☑ Existing source ☑ Modification of existing source ☑ New source

   Briefly describe existing or proposed source and any related facilities and submit map, plot plan, and plans or drawings of source of supply:
   EXISTING ON-SITE WELL DESIGNATED BY OAHU SUGAR COMPANY, LTD. AS PUMP 22.

If construction work is proposed for new or modified existing source, give:
Commencement Date: ____________________________ Completion Date: ____________________________

6. ASSESSMENT OF REQUESTED WATER USE OR SUPPLY

In a separate attachment to this application, applicant must provide a written assessment addressing the desirability of issuing the requested permit, including such considerations as the availability of water, the beneficial purpose of the proposed water use, and the impact, if any, of the proposed water use on existing permitted uses, preserved uses, and individual household uses.

Signature: ____________________________ Date: June 1, 1988
Water User or Supplier

Signature: ____________________________ Date: 6/2/88
Owner of Water Source

In accordance with Department Regulation No. 9, every permit approved and issued by the Board of Land & Natural Resources shall be for a specified period of time, for a specified beneficial use, subject to suspension and revocation, and subject to the shortage and emergency powers of the Board. Consideration of applications for a permit shall include: availability of water, the beneficial purpose of the proposed water use, non-impairment of the most beneficial use and development of the water resources in the designated area, and no substantial and material interference with existing uses of water.

Filing Fee ($2500)
Deposit: 9/1/88

For Official Use:
Docket No. ____________________________
180 days
Board Approved Disapproved
Well No. 1900-02 (EP022)
ITEM 6 OF APPLICATION TO WITHDRAW WATER FOR BENEFICIAL USE

This assessment is part of the request to withdraw water from an existing on-site well for use in irrigation of the proposed Ewa Golf Course. Used as reference is the DLU Zoning Change Applications, Section III-A: Infrastructure and Utilities-Water.

AVAILABILITY OF WATER:

As indicated in the second paragraph of the reference, the production capacity for Pump #22 exceeds the golf course irrigation requirements. The irrigation demand is estimated to be 1.5 mgd for the landscape establishment period and 0.9 mgd thereafter.

BENEFICIAL PURPOSE:

All water withdrawn from the well will be used solely for the purpose of irrigating the golf course. Due to the intense irrigation of the course to maintain the lush landscaping, the ground water recharge will be greater than under the existing agricultural drip-irrigation system. Excess runoff will be collected by interceptor ditches for recycled use. The proposed land and water uses will thus result in a much higher rate of groundwater recharge than other types of land uses which could be undertaken on the site. The greater recharge, in turn, will enhance groundwater quality by diluting salinity.

IMPACT:

Since the proposed withdrawals will be within existing production levels, there should be no significant detrimental impact on existing permitted, preserved or existing household uses due to the proposed use change. As indicated above, there are potential beneficial impacts which are likely to be experienced relative to groundwater supply and recharge.
CITY AND COUNTY OF HONOLULU  
DEPARTMENT OF LAND UTILIZATION  
650 South King Street, 7th Floor 
Honolulu, Hawaii 96813  

DLU MASTER APPLICATION FORM  

Additional data, drawings/plans, and fee requirements are listed on a separate sheet titled "Instructions for Filing." PLEASE ASK FOR THESE INSTRUCTIONS.  

All specified materials and fees must accompany this form; incomplete applications could delay processing. You are encouraged to consult with department staff in completing the application. Please call the appropriate phone number given in the "Instructions for Filing" sheet. Please print legibly or type the required information.  

PERMIT REQUESTED (Check one or more as appropriate):  

Clusters:  
☐ Agricultural Cluster  
☐ Cluster Housing  
☐ Country Cluster  

☐ Park Dedication  
☐ Plan Review Use  
☐ Planned Development-Housing  
☐ Shoreline Setback Variance  
☐ Site Plan Review  

☐ Special Management Area Permit/Assessment  
☐ State Special Use Permit  
☐ Subdivision  
☐ Sunlight Reflection  
☐ Variance from LEO Sec(s):  

☐ Waiver (public uses/utilities)  
☐ Zero Lot Line  
☐ Zone Change, From AG-1 to AG-2  
☐ Zoning Adjustment, LEO Sec(s):  

TAX MAP KEY(S): 9-1-10:7, Por.6  
LOT AREA: 270 acres  
ZONING DISTRICT: AG-1  
STATE LAND USE DISTRICT: Agriculture  

STREET ADDRESS/LOCATION OF PROPERTY: Situated at the southeast end of the Ewa Plain and bounded by Iroquois Point Road, Fort Weaver Road, Leeward Estates Subdivision and the U.S. Government property known as the "Blast Zone Area."  

RECORDED FEE OWNER: THE ESTATE OF JAMES CAMPBELL  
APPLICANT: THE MYERS CORPORATION  
Authorized Agent/Contact Person: ENVIRONMENTAL COMMUNICATIONS, INC.  

PRESENT USE OF PROPERTY/BUILDING: Sugar Cane Cultivation (Oahu Sugar Company)  
PROJECT NAME (if any): Ewa Golf Course  
PROJECT PROPOSAL (Briefly describe the proposed activity or project): Develop 27 hole (3 Nine Hole layouts) Golf Course  

Mailing Address 828 FORT STREET MALL, #500  
HONOLULU, HAWAII 96813  
Phone Number (808) 523-9611  
Signature  

Mailing Address 2255 KUHIO AVE., #2200  
HONOLULU, HAWAII 96815  
Phone Number (808) 926-1818  
Signature  

Mailing Address 1146 FORT STREET MALL, #200  
HONOLULU, HAWAII 96813  
Phone Number (808) 523-8391  
Signature  

Mailing Address 828 FORT STREET MALL, #500  
HONOLULU, HAWAII 96813  
Phone Number (808) 523-9611  
Signature  

Mailing Address 1146 FORT STREET MALL, #200  
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Signature  

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HONOLULU, HAWAII 96813  
Phone Number (808) 523-8391  
Signature
III. INFRASTRUCTURE AND UTILITIES

A. Water

The City & County of Honolulu Board of Water Supply's (BWS's) system in the project vicinity is limited to a 16-inch and an 8-inch water line along Fort Weaver Road, both of which are part of BWS's 228' system, i.e., the water source is from reservoirs with overflow elevations of 228 feet mean sea level (msl). However, due to the stressed capacity of BWS's system in the Ewa Plain area, a moratorium has been imposed by BWS whereby new service connections are not allowed. Pursuant to this BWS moratorium, the Ewa Plain Water Development Corporation has been established by Campbell Estate to provide water service to proposed development in the Ewa Plain area.

The water demand for the proposed golf course can be categorized in accordance with its usage as either irrigation or domestic. The irrigation water demand (non-potable caprock water) for the golf course and landscaping around the club house fringe areas is expected to be 1.5 million gallons per day (mgd) during the initial stage of landscaping establishment and 0.9 mgd after full establishment. This volume of irrigation water will be obtained from an existing on-site well, currently designated by Oahu Sugar Company, Ltd. as Pump 22, which has a historic production capacity exceeding the required volume (Figure 3). As a backup to this well, it is anticipated that stormwater stored in the proposed on-site lakes of the golf course would also be utilized for irrigation purposes. Application to the State Department of Land and Natural Resources, Division of Water and Land Development (DLNR/DOWALD) will be made after the zoning process is completed.

The domestic water demand for the club house and minor rest stops on the golf course is expected to be 10,000-15,000 gallons per day (gpd). This relatively minor volume of potable water (as compared
to the irrigation demand) will be obtained from the aforementioned private water corporation. All water requirements (Potable and non-potable) will be requested in accordance with prescribed procedures from the appropriate agencies, Ewa Plain Water Development Corporation and the State Department of Land and Natural Resources, Division of Water & Land Development.

B. **Sewerage**

The volume of sewage generated at the club house and minor rest stops on the golf course is expected to be 7,000 - 10,000 gpd. It is proposed that the sewage be conveyed to a future sewer manhole (SMH) to be constructed by the City and County as part of the sewer collection system for the existing Leeward Estates Subdivision adjacent to, and south of, the golf course. Preliminary discussions with City Wastewater Management personnel indicate that the City's system can accommodate this relatively low volume of sewage from the golf course. The method of conveyance of sewage will either be via a gravity line or a force main from a small pump station at the club house. Although a gravity line is preferable, the possibility of the sewage flowing by gravity over the substantial distance from the club house to the SMH depends on the finished topography of the golf course (Figure 4). All final design engineering will be in accordance with City Department of Public Works and State Department of Health standards.

C. **Drainage**

Pursuant to drainage concerns, the area under consideration is not limited to the 275 acre golf course site, but will also include a 250 acre area north of, and adjacent to, the golf course. This adjacent site is currently under lease to Oahu Sugar Co. and is in cane cultivation. Furthermore, the existing Leeward Estates Subdivision adjacent to, and lower in elevation than, the golf course does not have a drainage system that can accommodate any significant runoff from the golf course. Therefore, the general premise in analyzing the drainage issue for the golf course is that all rainfall upon the
July 7, 1988

Mr. Steven H. Harano
Sam O. Hirota, Inc.
864 So. Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Harano:

Thank you for giving us the opportunity to informally review your application for a water use permit to use existing Oahu Sugar Company Pump 22 for the proposed Ewa Golf Course.

We request the following information be included in your application:

1. Location and salinity of existing wells within a 1 mile radius of Pump 22, the proposed source, and the potential impact of using Pump 22 for golf course irrigation on the yield and quality of these wells.

2. An evaluation of the effects of Oahu Sugar Company's conversion to drip irrigation and reduction in acreage on the sustainable yield and quality of the caprock aquifer.

3. A discussion of alternative actions should the proposed use of Pump 22 adversely affect the salinity of the caprock aquifer in the area become too saline for irrigation use.

We look forward to receiving the additional information.

Sincerely,

MANABU TAGOMORI
Deputy for Water Resource Management

ES:DL:ko
WE Transmit:
☒ Attached
☒ Under separate cover
☒ For your information
☒ Per your request
☒ Approved
☐ Approved as noted
☐ Disapproved

The following:
☒ Addendum
☒ Calculations
☒ Change order
☒ Copy of letter
☒ Maps & descriptions
☒ Drawing original(s)
☐ Drawing print(s)
☒ Report(s)
☐ Sample(s)
☐ Specifications
☐ Photographs
☒ Portions of agreement

Copies Date Description Action Code
1 5/20/88 Water Use Assessment w/ Figure 3
1 5/20/88 Portions of Seibu - Campbell Estate Agreement relating to water withdrawal - Title 4, pp. 7,8, 10/18
1 5/10/88 Composite site map

Action Code: A. Action indicated on item transmitted
B. No action required
C. For signature & return to this office
D. For signature & forwarding as noted below
E. For your approval
F. See remarks below

Remarks: These items are to assist you in preliminary review of the draft application sent last week. Should there be any questions or additional information required, please contact me at 537-9971.

Cheryl  

Received by: ________________________________ By: ________________________________
Date: ________________________________
SEIBU ACQUISITION AGREEMENT

THIS AGREEMENT ("Agreement") is made and is effective this 28th day of May, 1987 between F. E. TROTTER, INC., W. H. McVAY, INC., P. R. CASSIDAY, INC. and H. C. CORNUELLE, INC., all Hawaii professional corporations, the duly appointed, qualified and acting TRUSTEES UNDER THE WILL AND OF THE ESTATE OF JAMES CAMPBELL, DECEASED, acting in their fiduciary and not in their individual corporate capacities ("Estate"), and SEIBU HAWAII, INC., a Hawaii corporation ("Seibu").

RECITALS:

A. Estate owns the 270 acre parcel of real property shown on the Map attached as Exhibit A hereto (together with the Access Easement described in Paragraph 1 herein, the "Estate Property"). Exhibit B hereto sets forth all encumbrances affecting the Estate Property. Exhibit C-1 hereto is a form of Estate's limited warranty deed for conveying the Estate Property exclusive of the Access Easement. Exhibit C-2 hereto is a form of grant of easement for conveying the Access Easement. Exhibits D-1 and D-2 hereto are two forms of an Exchange Agreement and Escrow Instructions, one of which may be executed by the parties pursuant to this Agreement. Exhibit E hereto is a form of an irrevocable standby letter of credit which may be issued under Paragraph 4.b herein. Exhibit F hereto is a cross-sectional representation of the Buffer Zone described in Paragraph 6.a.vii herein. All such exhibits are incorporated herein by this reference.
alteration or modification of the grade of the slope on the Mauka Land as shown on Exhibit F. Seibu acknowledges and agrees that the grants from Estate to Seibu and all work performed by Seibu on the Mauka Land pursuant to this subparagraph are for the sole benefit of Seibu in furtherance of its construction and development of the Course and not for the benefit of Estate;

viii. The duty of Seibu to cultivate, fertilize, water, prune, trim, replace, replant and otherwise maintain the landscaping on the Course (including, without limitation, all plantings in the Buffer Zone) in a first class condition, consistent with the courses described in subparagraph 6.a.v above.

ix. The reservation to Estate of all subsurface water rights with respect to the Estate Property, including without limitation all rights to basal, subterranean and artesian waters, except that Seibu shall be entitled to drill wells upon the Estate Property and withdraw from said wells non-potable water as may be available, but in no event more than 1.5 million gallons per day, for use only upon the Estate Property for irrigation and other purposes related to the Course and not for export beyond the Estate Property. Seibu shall, at its expense, install water meters on all wells on the Estate Property to record the amount of non-potable water withdrawn from all such wells and shall provide to the Estate monthly written reports showing the amount of non-potable water withdrawn. By granting Seibu this entitlement, Estate makes no representations as to the availability of non-potable water from any such wells either at present or in the future for Seibu's purposes or any other purpose, and Seibu expressly bears the risk that non-potable water from any such wells may not be sufficient or may become insufficient for its purposes or any other purpose;

x. The reservation to Estate, its successors-in-trust and assigns of an easement over the Estate Property consisting of a strip thirty (30) feet wide and running the length of and adjacent to the boundary between the Estate Property and Fort Weaver Road, together with such other easements as may be mutually agreed upon by Estate and Seibu, for the transmission of water, electricity and other utilities to adjacent or nearby Estate properties; and
involve without limitation periodic dust, noise, odor, use of chemicals, blasting or explosives, and agrees to take title to the Estate Property subject to such activities. However, nothing herein shall be construed to be a waiver or a preclusion of any of Seibu's legal or equitable rights or remedies against any persons and/or entities where there has been misconduct, gross negligence or other tortious acts of commission or omission (including tortious acts of strict liability) by such persons and/or entities.

16. Potable Water. Seibu has advised Estate that the operation of the Course will require potable water in an amount of up to 15,000 gallons per day. Seibu has requested Estate's assistance in obtaining potable water in such quantities for the Course and Estate is willing to so assist provided that Estate incurs no liability, costs or expenses whatsoever in rendering such assistance. Accordingly, Estate agrees that, upon specific request by Seibu, it will use its best efforts to assist Seibu in gaining sufficient potable water to operate the Course from the Ewa Plains Water Development Corporation ("Corporation") and/or the Board of Water Supply of the City and County of Honolulu, subject to the limitations set hereinabove. By so agreeing Estate makes no representations as to the availability of potable water in any amount either at present or in the future for Seibu's purposes or any other purpose, and Seibu expressly bears the risk that potable water from whatever source may not be sufficient or may become insufficient for its purpose or any other purpose. To the extent that Seibu obtains potable water from or through the Corporation, Seibu will reimburse the Corporation for its pro rata share of the cost of source development, storage and delivery of potable water installing the water line to the Estate Property's boundary as determined by the Corporation. Seibu acknowledges that nothing herein shall permit Seibu to drill wells on the Estate Property for the purpose of withdrawing potable water from the Estate Property and Seibu agrees to look solely to sources other than the Estate Property for its potable water needs. This paragraph 16 shall survive Closing.

17. No Assignment. Seibu's rights hereunder are personal to it and may not be assigned, and any purported assignment shall be void. Notwithstanding the foregoing, Seibu shall be entitled to assign its rights hereunder to any corporate affiliate of Seibu provided that (a) the
Buffer Zone no closer than fifteen (15) feet from any other tree, and (d) otherwise construct, grade, landscape and maintain the Buffer Zone in accordance with the cross-sectional representation set forth in Exhibit D hereto;

5. The duty of Grantee to cultivate, fertilize, water, prune, trim, replace, replant and otherwise maintain the landscaping on the Course (including, without limitation, all plantings in the Buffer Zone) in a first class condition, consistent with the courses described in Paragraph 2 above.

6. The reservation to Grantors of all subsurface water and water rights with respect to the Property, including without limitation all rights to basal, subterranean and artesian waters, except that Grantee shall be entitled to drill wells upon the Property and withdraw from said wells non-potable water as may be available, but in no event more than 1.5 million gallons per day, for use only upon the Property for irrigation and other purposes related to the Course and not for export beyond the Property. Grantee shall, at its expense, install water meters on all wells on the Property to record the amount of non-potable water withdrawn from all such wells and shall provide to the Grantors monthly written reports showing the amount of non-potable water withdrawn. By granting Grantee this
entitlement, Grantors makes no representations as to the availability of non-potable water from any such wells either at present or in the future for Grantee's purposes or any other purpose, and Grantee expressly bears the risk that non-potable water from any such wells may not be sufficient or may become insufficient for its purposes or any other purpose;

7. The reservation to Grantors, their successors in trust and assigns of an easement over the Property consisting of a strip thirty (30) feet wide and running the length of and adjacent to the boundary between the Property and Fort Weaver Road, together with such other easements as may be mutually agreed upon by Grantors and Grantee, for the transmission of water, electricity and other utilities to adjacent or nearby Grantors' properties; and

8. The restriction that the Property shall be used solely for the development and operation of the Course.

9. The acknowledgment by Grantee that Grantors have entered and may further enter into agreements with others for development and agricultural use of other land of Grantors located adjacent to or near the Property including without limitation land in the Campbell Industrial Park, the further acknowledgment by Grantee that such agricultural and
WATER USE ASSESSMENT
PROPOSED EWA GOLF COURSE
MAY 20, 1988

ITEM 6 OF APPLICATION TO WITHDRAW WATER FOR BENEFICIAL USE

This assessment is part of the request to withdraw water from an existing on-site well for use in irrigation of the proposed Ewa Golf Course. Used as reference is the DLU Zoning Change Applications, Section III-A: Infrastructure and Utilities-Water.

AVAILABILITY OF WATER:

As indicated in the second paragraph of the reference, the production capacity for Pump #22 exceeds the golf course irrigation requirements. The irrigation demand is estimated to be 1.5 mgd for the landscape establishment period and 0.9 mgd thereafter.

BENEFICIAL PURPOSE:

All water withdrawn from the well will be used solely for the purpose of irrigating the golf course. Due to the intense irrigation of the course to maintain the lush landscaping, the ground water recharge will be greater than under the existing agricultural drip-irrigation system. Excess runoff will be collected by interceptor ditches for recycled use. The proposed land and water uses will thus result in a much higher rate of groundwater recharge than other types of land uses which could be undertaken on the site. The greater recharge, in turn, will enhance groundwater quality by diluting salinity.

IMPACT:

Since the proposed withdrawals will be within existing production levels, there should be no significant detrimental impact on existing permitted, preserved or existing household uses due to the proposed use change. As indicated above, there are potential beneficial impacts which are likely to be experienced relative to groundwater supply and recharge.
CITY AND COUNTY OF HONOLULU
DEPARTMENT OF LAND UTILIZATION
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

DLU MASTER APPLICATION FORM

Additional data, drawing/plans, and fee requirements are listed on a separate sheet titled “Instructions for Filing.”
PLEASE ASK FOR THESE INSTRUCTIONS.

All specified materials and fees must accompany this form; incomplete applications could delay processing. You are encouraged to consult with department staff in completing the application. Please call the appropriate phone number given in the “Instructions for Filing” sheet.
Please print legibly or type the required information.

PERMIT REQUESTED (Check one or more as appropriate):

- Agricultural Cluster
- Cluster Housing
- Country Cluster
- Park Dedication
- Plan Review Use
- Planned Development-Housing
- Shoreline Setback Variance
- Site Plan Review
- Site Development Plan
- Special District:

(Indicate District)

- Special Management Area Permit/Assessment
- State Special Use Permit
- Subdivision
- Sunlight Reflection
- Variance from LUO Sec.(s):

- Waiver (public uses/utilities)
- Zero Lot Line
- Zone Change, From AG-1 to AG-2
- Zoning Adjustment, LUO Sec.(s):

TAX MAP KEY(S): 9-1-10:7, Por.6
LOT AREA: 270 acres
ZONING DISTRICT: AG-1
STATE LAND USE DISTRICT: Agriculture

STREET ADDRESS/LOCATION OF PROPERTY: Situated at the southeast end of the Ewa Plain and bounded by Iroquois Point Road, Fort Weaver Road, Leeward Estates Subdivision and the U.S. Government property known as the "Blast Zone Area."

RECORDED FEE OWNER:
Name THE ESTATE OF JAMES CAMPBELL
Mailing Address 828 FORT STREET MALL, #500
HONOLULU, HAWAII 96813
Phone Number (808) 523-9611
Signature

APPLICANT:
Name THE MYERS CORPORATION
Mailing Address 2255 KUHIO AVE., #2200
HONOLULU, HAWAII 96815
Phone Number (808) 926-1818
Signature

AUTHORIZED AGENT/CONTACT PERSON:
Name ENVIRONMENTAL COMMUNICATIONS, INC.
Mailing Address 1146 FORT STREET MALL, #200
HONOLULU, HAWAII 96813
Phone Number (808) 522-8391
Signature

PRESENT USE OF PROPERTY/BUILDING: Sugar Cane Cultivation (Gahu Sugar Company)

PROJECT NAME (if any): Ewa Golf Course

PROJECT PROPOSAL (Briefly describe the proposed activity or project): Develop 27 hole (3 Nine Hole Layouts) Golf Course

YOUR NAME: ____________________________
YOUR NUMBER: __________________________
YOUR SIGNATURE: ________________________

PREPARED BY: ____________________________
DATE: ____________________________
III. INFRASTRUCTURE AND UTILITIES

A. Water

The City & County of Honolulu Board of Water Supply's (BWS's) system in the project vicinity is limited to a 16-inch and an 8-inch water line along Fort Weaver Road, both of which are part of BWS's 228' system, i.e., the water source is from reservoirs with overflow elevations of 228 feet mean sea level (msl). However, due to the stressed capacity of BWS's system in the Ewa Plain area, a moratorium has been imposed by BWS whereby new service connections are not allowed. Pursuant to this BWS moratorium, the Ewa Plain Water Development Corporation has been established by Campbell Estate to provide water service to proposed development in the Ewa Plain area.

The water demand for the proposed golf course can be categorized in accordance with its usage as either irrigation or domestic. The irrigation water demand (non-potable caprock water) for the golf course and landscaping around the club house fringe areas is expected to be 1.5 million gallons per day (mgd) during the initial stage of landscaping establishment and 0.9 mgd after full establishment. This volume of irrigation water will be obtained from an existing on-site well, currently designated by Oahu Sugar Company, Ltd. as Pump 22, which has a historic production capacity exceeding the required volume (Figure 3). As a backup to this well, it is anticipated that stormwater stored in the proposed on-site lakes of the golf course would also be utilized for irrigation purposes. Application to the State Department of Land and Natural Resources, Division of Water and Land Development (DLNR/DOWALD) will be made after the zoning process is completed.

The domestic water demand for the club house and minor rest stops on the golf course is expected to be 10,000-15,000 gallons per day (gpd). This relatively minor volume of potable water (as compared
to the irrigation demand) will be obtained from the aforementioned private water corporation. All water requirements (potable and non-potable) will be requested in accordance with prescribed procedures from the appropriate agencies, Ewa Plain Water Development Corporation and the State Department of Land and Natural Resources, Division of Water & Land Development.

B. **Sewerage**

The volume of sewage generated at the club house and minor rest stops on the golf course is expected to be 7,000 - 10,000 gpd. It is proposed that the sewage be conveyed to a future sewer manhole (SMH) to be constructed by the City and County as part of the sewer collection system for the existing Leeward Estates Subdivision adjacent to, and south of, the golf course. Preliminary discussions with City Wastewater Management personnel indicate that the City's system can accommodate this relatively low volume of sewage from the golf course. The method of conveyance of sewage will either be via a gravity line or a force main from a small pump station at the club house. Although a gravity line is preferable, the possibility of the sewage flowing by gravity over the substantial distance from the club house to the SMH depends on the finished topography of the golf course (Figure 4). All final design engineering will be in accordance with City Department of Public Works and State Department of Health standards.

C. **Drainage**

Pursuant to drainage concerns, the area under consideration is not limited to the 225 acre golf course site, but will also include a 250 acre area north of, and adjacent to, the golf course. This adjacent site is currently under lease to Oahu Sugar Co. and is in cane cultivation. Furthermore, the existing Leeward Estates Subdivision adjacent to, and lower in elevation than, the golf course does not have a drainage system that can accommodate any significant runoff from the golf course. Therefore, the general premise in analyzing the drainage issue for the golf course is that all rainfall upon the
Pump Location Map

Figure 3
TO: DLNR
WATER RESOURCES
KALANIMOKU Bldg.
Rm. 227
ATTENTION: Mr. Ed Sakoda

WE TRANSMIT:
☑ ATTACHED
☑ UNDER SEPARATE COVER
☑ FOR YOUR INFORMATION
☑ PER YOUR REQUEST
☑ FOR DISTRIBUTION
☑ APPROVED
☐ APPROVED AS NOTED
☐ DISAPPROVED

THE FOLLOWING:
☐ ADDENDUM
☐ CALCULATIONS
☐ CHANGE ORDER
☐ COPY OF LETTER
☐ DRAWING ORIGINAL(S)
☐ DRAWING PRINT(S)
☐ MAPS & DESCRIPTIONS
☐ REPORT(S)
☐ SAMPLE(S)
☐ SPECIFICATIONS
☐ PHOTOGRAPHS
☐ Portion(s) of Agreement

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<td>Portions of Seibu-Campbell Estate Agreement relating to water withdrawal - Title &amp; pp. 78, 10/18</td>
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<tr>
<td>1</td>
<td>5/1/88</td>
<td>Composite Site Map</td>
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ACTION CODE:
A. ACTION INDICATED ON ITEM TRANSMITTED
B. NO ACTION REQUIRED
C. FOR SIGNATURE & RETURN TO THIS OFFICE
D. FOR SIGNATURE & FORWARDING AS NOTED BELOW
E. FOR YOUR APPROVAL
F. SEE REMARKS BELOW

REMARKS: These items are to assist you in preliminary review of the draft application sent last week. Should there be any questions or additional information required, please contact me at 537-9971. Thank you.

REMOVED BY
DATE
THIS AGREEMENT ("Agreement") is made and is effective this 28th day of May, 1987 between F. E. TROTTER, INC., W. H. McVAY, INC., P. R. CASSIDAY, INC. and H. C. CORNUELLE, INC., all Hawaii professional corporations, the duly appointed, qualified and acting TRUSTEES UNDER THE WILL AND OF THE ESTATE OF JAMES CAMPBELL, DECEASED, acting in their fiduciary and not in their individual corporate capacities ("Estate"), and SEIBU HAWAII, INC., a Hawaii corporation ("Seibu").

RECATALS:

A. Estate owns the 270 acre parcel of real property shown on the Map attached as Exhibit A hereto (together with the Access Easement described in Paragraph 1 herein, the "Estate Property"). Exhibit B hereto sets forth all encumbrances affecting the Estate Property. Exhibit C-1 hereto is a form of Estate's limited warranty deed for conveying the Estate Property exclusive of the Access Easement. Exhibit C-2 hereto is a form of grant of easement for conveying the Access Easement. Exhibits D-1 and D-2 hereto are two forms of an Exchange Agreement and Escrow Instructions, one of which may be executed by the parties pursuant to this Agreement. Exhibit E hereto is a form of an irrevocable standby letter of credit which may be issued under Paragraph 4.b herein. Exhibit F hereto is a cross-sectional representation of the Buffer Zone described in Paragraph 6.a.vii herein. All such exhibits are incorporated herein by this reference.
alteration or modification of the grade of the slope on the Mauka Land as shown on Exhibit F. Seibu acknowledges and agrees that the grants from Estate to Seibu and all work performed by Seibu on the Mauka Land pursuant to this subparagraph are for the sole benefit of Seibu in furtherance of its construction and development of the Course and not for the benefit of Estate;

viii. The duty of Seibu to cultivate, fertilize, water, prune, trim, replace, replant and otherwise maintain the landscaping on the Course (including, without limitation, all plantings in the Buffer Zone) in a first class condition, consistent with the courses described in subparagraph 6.a.v above.

ix. The reservation to Estate of all subsurface water and water rights with respect to the Estate Property, including without limitation all rights to basal, subterranean and artesian waters, except that Seibu shall be entitled to drill wells upon the Estate Property and withdraw from said wells non-potable water as may be available, but in no event more than 1.5 million gallons per day, for use only upon the Estate Property for irrigation and other purposes related to the Course and not for export beyond the Estate Property. Seibu shall, at its expense, install water meters on all wells on the Estate Property to record the amount of non-potable water withdrawn from all such wells and shall provide to the Estate monthly written reports showing the amount of non-potable water withdrawn. By granting Seibu this entitlement, Estate makes no representations as to the availability of non-potable water from any such wells either at present or in the future for Seibu's purposes or any other purpose, and Seibu expressly bears the risk that non-potable water from any such wells may not be sufficient or may become insufficient for its purposes or any other purpose;

x. The reservation to Estate, its successors-in-trust and assigns of an easement over the Estate Property consisting of a strip thirty (30) feet wide and running the length of and adjacent to the boundary between the Estate Property and Fort Weaver Road, together with such other easements as may be mutually agreed upon by Estate and Seibu, for the transmission of water, electricity and other utilities to adjacent or nearby Estate properties; and
involve without limitation periodic dust, noise, odor, use of chemicals, blasting or explosives, and agrees to take title to the Estate Property subject to such activities. However, nothing herein shall be construed to be a waiver or a preclusion of any of Seibu's legal or equitable rights or remedies against any persons and/or entities where there has been misconduct, gross negligence or other tortious acts of commission or omission (including tortious acts of strict liability) by such persons and/or entities.

16. **Potable Water.** Seibu has advised Estate that the operation of the Course will require potable water in an amount of up to 15,000 gallons per day. Seibu has requested Estate's assistance in obtaining potable water in such quantities for the Course and Estate is willing to so assist provided that Estate incurs no liability, costs or expenses whatsoever in rendering such assistance. Accordingly, Estate agrees that, upon specific request by Seibu, it will use its best efforts to assist Seibu in gaining sufficient potable water to operate the Course from the Ewa Plains Water Development Corporation ("Corporation") and/or the Board of Water Supply of the City and County of Honolulu, subject to the limitations set hereinafter. By so agreeing Estate makes no representations as to the availability of potable water in any amount either at present or in the future for Seibu's purposes or any other purpose, and Seibu expressly bears the risk that potable water from whatever source may not be sufficient or may become insufficient for its purpose or any other purpose. To the extent that Seibu obtains potable water from or through the Corporation, Seibu will reimburse the Corporation for its pro rata share of the cost of source development, storage and delivery of potable water installing the water line to the Estate Property's boundary as determined by the Corporation. Seibu acknowledges that nothing herein shall permit Seibu to drill wells on the Estate Property for the purpose of withdrawing potable water from the Estate Property and Seibu agrees to look solely to sources other than the Estate Property for its potable water needs. This paragraph 16 shall survive Closing.

17. **No Assignment.** Seibu's rights hereunder are personal to it and may not be assigned, and any purported assignment shall be void. Notwithstanding the foregoing, Seibu shall be entitled to assign its rights hereunder to any corporate affiliate of Seibu provided that (a) the
Buffer Zone no closer than fifteen (15) feet from any other tree, and (d) otherwise construct, grade, landscape and maintain the Buffer Zone in accordance with the cross-sectional representation set forth in Exhibit D hereto;

5. The duty of Grantee to cultivate, fertilize, water, prune, trim, replace, replant and otherwise maintain the landscaping on the Course (including, without limitation, all plantings in the Buffer Zone) in a first class condition, consistent with the courses described in Paragraph 2 above.

6. The reservation to Grantors of all subsurface water and water rights with respect to the Property, including without limitation all rights to basal, subterranean and artesian waters, except that Grantee shall be entitled to drill wells upon the Property and withdraw from said wells non-potable water as may be available, but in no event more than 1.5 million gallons per day, for use only upon the Property for irrigation and other purposes related to the Course and not for export beyond the Property. Grantee shall, at its expense, install water meters on all wells on the Property to record the amount of non-potable water withdrawn from all such wells and shall provide to the Grantors monthly written reports showing the amount of non-potable water withdrawn. By granting Grantee this
entitlement, Grantors makes no representations as to the availability of non-potable water from any such wells either at present or in the future for Grantee's purposes or any other purpose, and Grantee expressly bears the risk that non-potable water from any such wells may not be sufficient or may become insufficient for its purposes or any other purpose;

7. The reservation to Grantors, their successors in trust and assigns of an easement over the Property consisting of a strip thirty (30) feet wide and running the length of and adjacent to the boundary between the Property and Fort Weaver Road, together with such other easements as may be mutually agreed upon by Grantors and Grantee, for the transmission of water, electricity and other utilities to adjacent or nearby Grantors' properties; and

8. The restriction that the Property shall be used solely for the development and operation of the Course.

9. The acknowledgment by Grantee that Grantors have entered and may further enter into agreements with others for development and agricultural use of other land of Grantors located adjacent to or near the Property including without limitation land in the Campbell Industrial Park, the further acknowledgment by Grantee that such agricultural and
ITEM 6 OF APPLICATION TO WITHDRAW WATER FOR BENEFICIAL USE

This assessment is part of the request to withdraw water from an existing on-site well for use in irrigation of the proposed Ewa Golf Course. Used as reference is the DLU Zoning Change Applications, Section III-A: Infrastructure and Utilities-Water.

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CITY AND COUNTY OF HONOLULU  
DEPARTMENT OF LAND UTILIZATION  
650 South King Street, 7th Floor  
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<tr>
<td>THE ESTATE OF JAMES CAMPBELL</td>
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| HONOLULU, HAWAII 96813 |

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<td>THE MYERS CORPORATION</td>
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| HONOLULU, HAWAII 96815 |

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<th>AUTHORIZED AGENT/CONTACT PERSON:</th>
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<td>ENVIRONMENTAL COMMUNICATIONS, INC.</td>
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| HONOLULU, HAWAII 96813 |

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| PROJECT PROPOSAL (Briefly describe the proposed activity or project): |
| Develop 27 hole(3 Nine Hole layouts) Golf Course |

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Pump Location Map
Figure 3
TO  Ed
DATE  6/7/8X TIME  1:31
WHILE YOU WERE OUT
M  Cheryl Paleske
of  ASN  H1074
Phone  537-9971

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RETURNED YOUR CALL

Message  Eva Golf Course — she has quantities for existing
well.

27/5
87 603, MG 1.652 MGD
86 551 1.510 Operator
85 659 1.805
In accordance with FTEI recommendations, the submission of this report is expected to affect or impact the affected well(s).
TO: DEPT. OF LAND & NATURAL RESOURCES
WATER & LAND DEVELOPMENT DIVISION
1151 PUNCHBOWL

DATE: 03/03/03

ATTENTION: MR. MANABU TAGAMI

WE TRANSMIT:
- ATTACHED
- UNDER SEPARATE COVER
- FOR YOUR INFORMATION

- PER YOUR REQUEST
- FOR DISTRIBUTION
- APPROVED

- APPROVED AS NOTED
- DISAPPROVED

THE FOLLOWING:
- ADDENDUM
- CALCULATIONS
- CHANGE ORDER
- COPY OF LETTER

- DRAWING ORIGINAL(S)
- DRAWING PRINT(S)
- MAPS & DESCRIPTIONS
- REPORT(S)

- SAMPLE(S)
- SPECIFICATIONS
- PHOTOGRAPHS
- INFORMAL APPLICATION

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<td>03/03/03</td>
<td>INFORMAL APPLICATION FOR PERMIT TO KILL TRASH KILLER</td>
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ACTION CODE:
A. ACTION INDICATED ON ITEM TRANSMITTED
B. NO ACTION REQUIRED
C. FOR SIGNATURE & RETURN TO THIS OFFICE
D. FOR SIGNATURE & FORWARDING AS NOTED BELOW
E. FOR YOUR APPROVAL
F. SEE REMARKS BELOW

REMARKS: FOR YOUR REVIEW AND COMMENTS. PLEASE CONTACT ME AT 537-9971 IF YOU HAVE ANY QUESTIONS.

RECEIVED BY _______________________________ BY: STEVEN H. HARANO
CITY AND COUNTY OF HONOLULU
DEPARTMENT OF LAND UTILIZATION
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

DLU MASTER APPLICATION FORM

Additional data, drawing/plans, and fee requirements are listed on a separate sheet titled "Instructions for Filing." PLEASE ASK FOR THESE INSTRUCTIONS.

All specified materials and fees must accompany this form; incomplete applications could delay processing. You are encouraged to consult with department staff in completing the application. Please call the appropriate phone number given in the "Instructions for Filing" sheet. Please print legibly or type the required information.

PERMIT REQUESTED (Check one or more as appropriate):

☐ Agricultural Cluster  ☐ Park Dedication  ☐ Special Management Area Permit/Assessment
☐ Cluster Housing  ☐ Plan Review Use  ☐ State Special Use Permit
☐ Country Cluster  ☐ Planned Development-Housing  ☐ Subdivision
☐ Cluster Special Management Area Permit/Assessment
☐ Housing Plan Review  ☐ Sunlight Reflection  ☐ Waiver (public uses/utilities)
☐ Planned Development-Housing  ☐ Shoreline Setback Variance  ☐ Zero Lot Line
☐ Site Plan Review  ☐ Site Development Plan  ☐ Zone Change, From AG-1 to AG-2
☐ Special District: (Indicate District)
☐ Special District: (Indicate District)
☐ Subdivision  ☐ Sunlight Reflection
☐ State Special Use Permit  ☐ Waiver (public uses/utilities)
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☐ Subdivision  ☐ Special District: (Indicate District)
☐ Sunlight Reflection  ☐ State Special Use Permit
☐ Waiver (public uses/utilities)  ☐ Special District: (Indicate District)
☐ Sunlight Reflection
☐ Waiver (public uses/utilities)

TAX MAP KEY(S): 9-1-10:7, Por.6
LOT AREA: 270 acres
ZONING DISTRICT: AG-1
STATE LAND USE DISTRICT: Agriculture

STREET ADDRESS/LOCATION OF PROPERTY: Situated at the southeast end of the Ewa Plain and bounded by Iroquois Point Road, Fort Weaver Road, Leeward Estates Subdivision and the U.S. Government property known as the "Blast Zone Area."

RECORDED FEE OWNER:
Name: THE ESTATE OF JAMES CAMPBELL
Mailing Address: 828 FORT STREET MALL, #500
HONOLULU, HAWAII 96813
Phone Number: (808) 523-9611
Signature:

APPLICANT:
Name: THE MYERS CORPORATION
Mailing Address: 2255 KUHIO AVE., #2200
HONOLULU, HAWAII 96815
Phone Number: (808) 925-1818
Signature:

AUTHORIZED AGENT/CONTACT PERSON:
Name: ENVIRONMENTAL COMMUNICATIONS, INC.
Mailing Address: 1146 FORT STREET MALL, #200
HONOLULU, HAWAII 96813
Phone Number: (808) 522-8391
Signature:

PRESENT USE OF PROPERTY/BUILDING: Sugar Cane Cultivation (Oahu Sugar Company)

PROJECT NAME (if any): Ewa Golf Course

PROJECT PROPOSAL (Briefly describe the proposed activity or project): Develop 27 hole (3 Nine Hole layouts) Golf Course

_____________________________
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III A. Read Figure 3 - Pump 22 production

Documentation from OSCo in tender
APPLICATION FOR: (check one)
☐ PERMIT TO WITHDRAW WATER FOR BENEFICIAL USE
☐ PERMIT TO SUPPLY WATER FOR BENEFICIAL USE

Instructions: Fill out, sign, and send application with pertinent attachments to Dept. of Land & Natural Resources, P.O. Box 373, Honolulu, Hawaii 96809. A non-refundable filing fee of $100 is required, excepting military, federal, state, and local government agencies.

1. NAME OF APPLICANT: SEIKU HAWAII, INC. Address: HONOLULU, HI Phone: 922-0848

2. REQUESTED BENEFICIAL USE OF WATER:
☐ Domestic ☐ Municipal ☐ Military ☐ Agricultural ☐ Industrial ☐ Other LANDSCAPE (specify)

Appropriately describe nature and purpose of requested use:
IRRIGATION FOR GOLF COURSE AND LANDSCAPING AROUND CLUB HOUSE.

Proposed commencement date of water use: JANUARY 1990

3. REQUESTED AMOUNT OF WITHDRAWAL OR SUPPLY:
Average Annual mgd; Maximum Month mgd; Maximum Day mgd. 1.5 mgd.

Appropriately describe schedule or times of taking requested withdrawal:
DAILY IRRIGATION OF COURSE AREA DURING NON-PLAYING HOURS 7:00 PM TO 7:00 AM.

4. NATURE AND TERM OF REQUESTED PERMIT: ☐ Temporary ☐ Permanent Requested period of permit INDEFINITE

5. PROPOSED SOURCE OF WATER SUPPLY:
☐ Existing source ☐ Modification of existing source ☐ New source

Briefly describe existing or proposed source and any related facilities and submit map, plot plan, and plans or drawings of source of supply:
EXISTING ON-SITE WELL DESIGNATED BY OAHU SUGAR COMPANY, LTD. AS PUMP 22.

If construction work is proposed for new or modified existing source, give:
Commencement Date Completion Date

6. ASSESSMENT OF REQUESTED WATER USE OR SUPPLY
In a separate attachment to this application, applicant must provide a written assessment addressing the desirability of issuing the requested permit, including such considerations as the availability of water, the beneficial purpose of the proposed water use, and the impact. If any, of the proposed water use on existing permitted uses, preserved uses, and individual household uses.

Signature: Water User or Supplier Date:

Signature: Owner of Water Source Date:

In accordance with Department Regulation No. 9, every permit approved and issued by the Board of Land & Natural Resources shall be for a specified period of time, for a specified beneficial use, subject to suspension and revocation, and subject to the shortage and emergency powers of the Board. Consideration of applications for a permit shall include: availability of water, beneficial purpose of water use, non-impairment of the most beneficial use and development of the water resources in the designated area, and no substantial and material interference with existing uses of water.

For Official Use:
Docket No. 180 days
Board Approved Disapproved
Well No.
WATER USE ASSESSMENT
PROPOSED EWA GOLF COURSE
MAY 20, 1988

ITEM 6 OF APPLICATION TO WITHDRAW WATER FOR BENEFICIAL USE

This assessment is part of the request to withdraw water from an existing on-site well for use in irrigation of the proposed Ewa Golf Course. Used as reference is the DLU Zoning Change Applications, Section III-A: Infrastructure and Utilities-Water.

AVAILABILITY OF WATER:

As indicated in the second paragraph of the reference, the production capacity for Pump #22 exceeds the golf course irrigation requirements. The irrigation demand is estimated to be 1.5 mgd for the landscape establishment period and 0.9 mgd thereafter.

BENEFICIAL PURPOSE:

All water withdrawn from the well will be used solely for the purpose of irrigating the golf course. Due to the intense irrigation of the course to maintain the lush landscaping, the ground water recharge will be greater than under the existing agricultural drip-irrigation system. Excess runoff will be collected by interceptor ditches for recycled use. The proposed land and water uses will thus result in a much higher rate of groundwater recharge than other types of land uses which could be undertaken on the site. The greater recharge, in turn, will enhance groundwater quality by diluting salinity.

IMPACT:

Since the proposed withdrawals will be within existing production levels, there should be no significant detrimental impact on existing permitted, preserved or existing household uses due to the proposed use change. As indicated above, there are potential beneficial impacts which are likely to be experienced relative to groundwater supply and recharge.
Ewa Golf Course (EP22)

(Well No. 1900-02)
An informal request for a Water Use Permit for EWA GOLF COURSE will be coming in to Mankon shortly. They want to meet with us on this so I requested they send WACP application so we could review. Source is existing OSLC well - caprock, I believe.

Ed