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 9-1-1:1
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 Puuola 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
Minutes July 12, 2006

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

12
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.

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

Presenter of non-action item: Neal Fujii
Minutes July 12, 2006

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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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-Waiawa, 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 Puuoloa, 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.
Staff Submittal July 12, 2006

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 Permittees)
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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Exhibit 1
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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.

EXHIBIT 3
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.
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 B
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.
### FIVE WELL VOLUMES\(^1\) PLUS 60 MINUTES
MINIMUM TIME BEFORE CHLORIDE SAMPLING

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<th>MINIMUM TIME (min.)</th>
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</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.

Attachment C
June 17, 2004

Ref: coral creek variance request.act

Mr. K.Y. Kang
Coral Creek
91-1111 Geiger Road
Ewa Beach, HI 96706

Dear Mr. Kang:

Notice of Commission Action
Request for a Variance from the 1,000 MG/I Chloride Limit
(Well Nos. 2001-13 & 2002-15,17,19)

This letter serves as your official notice of action taken by the Commission on Water Resource Management (Commission). By a unanimous vote of the Commission at their meeting on June 16, 2004, the Commission denied the subject request.

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

Sincerely,

YVONNE Y. IZU
Deputy Director

LN:ss
MINUTES
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: WEDNESDAY, JUNE 16, 2004
TIME: 9:00 A.M.
PLACE: KALANIMOKU BUILDING
CONFERENCE ROOM 132
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

CALL TO ORDER

Chairperson Peter Young called the meeting of the Commission on Water Resource Management to order at 9:04 a.m.

ROLL CALL

The following were in attendance:

MEMBERS

Mr. Peter Young
Mr. Clayton Dela Cruz
Dr. Chiyome Fukino

Mr. James Frazier
Ms. Stephanie Whalen

STAFF

Deputy Director Yvonne Izu, Roy Hardy, Ed Sakoda, Faith Ching, Kevin Gooding, Charley Ice, Lenore Nakama and Dean Nakano

COUNSEL

Jay Paige, Esq.

OTHERS

Koa Kaulukukui, Kat Brady, Dr. Jonathan Scheuer, Kapua Sproat, Neal Fukumoto, Melvyn Ho, Mel Lima, Manabu Tagomori, Kyun Kim, Rachael Oshiro, Lance Foster, Ben Ishii, Jason Yazawa and Barry Usagawa

All written testimonies submitted at the meetings are filed in the Commission office and are available for review by interested parties.
Minutes

June 16, 2004

APPROVAL OF MINUTES

Deputy Director Izu indicated that the dates in the header of the minutes were incorrect and should have read May 19, 2004 instead of June 16, 2004.

MOTION: (Whalen/Frazier)
To approve as amended, the minutes of the May 19, 2004 meeting as circulated.

SUBMITTALS


Deputy Director Izu stated that staff will be providing the Commissioners with a briefing on the history of the Ewa caprock and reuse issues prior to presentation of the submittal.

Kevin Gooding passed out documents to the Commissioners and also provided a map of the Ewa Caprock Aquifer. Mr. Gooding pointed out on the map that the formation of the caprock varies in size from 1000 feet thick and narrows down to nothing. He also pointed out the principal water-producing areas on the map. Mr. Gooding indicated that there are two general formations, the upper limestone and the lower limestone. He indicated that the lower limestone is salty. The upper limestone is brackish, is exploited for water use, and is also recharged by fresh water from either irrigation return, leakage from the basalt or from rainfall. Mr. Gooding indicated that it does not rain much (maximum 20-inches) over the caprock. Mr. Gooding also gave a brief history of the chlorides and indicated that all the issues regarding the caprock related to the chloride content of the ground water. He went on to discuss the chloride history starting from the 1930's when the plantations began producing water from the caprock. Additionally, imported irrigation water from old plantation basal wells was also being applied. Because the applied basal irrigation water was salty, the return irrigation water was salty, and the general water quality of the caprock was fairly brackish. He continued by indicating that around 1950, they sealed the old wells and brought on newer wells. Mr. Gooding indicated that in a thirty-year period, chloride levels were relatively low because return water was fresher. In November 1994, the plantation shut down, which stopped the pumping of the EP sources and the chlorides continued on up.

Mr. Gooding pointed out on the map a well that was recently installed near the Hawaii Prince source (EP-22) and also indicated that the well has been producing 1400 to 1800 parts per million (ppm) chloride. Mr. Gooding indicated that there are several Gentry wells that are located in sweet zones (chlorides are relatively
low, 500 to 700 ppm chloride). They are located in the vicinity of Coral Creek Golf Course. Mr. Gooding indicated that the Hawaii Prince source has generally been over 1,000 ppm whereas Gentry wells have been well below 1,000 ppm. Since the plantation closed, there has been almost no basal water irrigation return, significant land use changes and a change from sugarcane to weeds. Although water use has decreased since the plantation time, chlorides have been steadily increasing at many wells. Mr. Gooding indicated that the Gentry wells have been stable and some of the Coral Creek Golf Course wells are chloride-sensitive. Mr. Gooding said that before Coral Creek Golf Course had access to R-1 water, they pumped up to 1,500,000 gallons per day out of their caprock wells. In October 2001, they almost stopped pumping, when they began to receive R-1 water. The chloride content of Coral Creek’s well water has been as high as 4,000 ppm, and in more recent history, around 1,000 ppm when they are almost not pumping at all. Mr. Gooding continued by saying that the caprock was heterogeneous and that it changes a lot. Over a very short area, wells can have a much different chloride content.

Lenore Nakama continued by summarizing the history of reclaimed water and water issues surrounding the Ewa Caprock Aquifer. The following topics were covered:

- 1984 Ewa Water Master Plan
- Development of dual water systems
- 2020 potable and non-potable water demands forecasts
- Demonstration Recharge Trench
- 309 Consent Decree
- CWRM Reclaimed Water Policy
- CWRM Re-evaluation of the Ewa Caprock sustainable yield
- Puuloa Caprock Users Group
- CWRM Interim Management Plan Adoption
- Reclaimed Water Champions Group
- BWS Purchase of Honouliuli Wastewater Reclamation Facility

PRESENTATION OF SUBMITTAL: Lenore Nakama

RECOMMENDATION:

Based on the foregoing, staff recommends that the Commission deny Coral Creek Golf Course’s request for a variance from the 1,000 mg/L chloride cap.

DISCUSSION:

Commissioner Frazier asked the staff if the water features on the golf course were recycling the same water or if pumped water is going into the feature then percolating through. Mr. Gooding replied that some of the features are intersecting ground water and that there are signs that they may be plugged up by
Minutes

June 16, 2004

clay and they are not very efficient, but that they are at the ground water level. Ms. Nakama continued by stating that some of the water features are actually areas of recharge, where pumped water from a drilled well circulates down through a series percolation ponds. Therefore some of the sources are discharge points and some of them are functioning as recharge points.

Commissioner Whalen asked if the lined reservoirs were being used for storage for irrigation and if the other ones were aesthetic. Staff indicated that there is only one lined reservoir and that it is being used for storage. Commission Whalen asked if connecting to the aquifer means the salty aquifer and not the deep aquifer. Staff indicated that they were referring to the brackish aquifer in the upper limestone formation.

Commissioner Whalen asked if the request was for interim permits to use the wells and if there is a lot of use of the wells. Ms. Nakama indicated that the permits allow the use to continue until the Commissioners are scheduled to revisit the interim permits in July 2006 or when one of the other two triggers are met. At this time, all the interim permittees are allowed to pump their wells within their allocations, provided they do not exceed the chloride cap. Coral Creek Golf Course sources are extremely chloride-sensitive and they would like to exceed the chloride cap.

Commissioner Frazier asked if Coral Creek Golf Course is using the most efficient turf and plants. Ms. Nakama indicated that they understand that Coral Creek Golf Course is using the most salt-tolerant turf.

Commissioner Whalen asked if the rest of the landscaping on the golf course ground was also salt-tolerant, if Coral Creek Golf Course was getting enough R-1 water, and if there is a limit from Honolulu Board of Water Supply (BWS) as to the amount of R-1 water that is available to them. Ms. Nakama indicated that a representative from Coral Creek Golf Course and BWS was available for questions.

Commissioner Whalen asked if Coral Creek Golf Course is using drought-tolerant plant species in their non-turf areas. Mr. Kyun Kim, representing Coral Creek Golf Course, indicated that the grass that they are planting could sustain chloride levels greater than 4,000 ppm. Also the kiawe trees and other plantings can also sustain high chloride levels. Mr. Kyun also stated that approximately 70 to 80 percent of the non-turf areas are in drought-tolerant plants. Commissioner Whalen asked Mr. Kyun if Coral Creek Golf Course had enough R-1 water for irrigation and Mr. Kyun replied that they do.

Chairperson Young asked Mr. Kyun if he had any other questions in the event the Commission may not support their request. Mr. Kyun replied he had no other questions.
Mr. Barry Usagawa representing the BWS testified that they support the staff’s recommendation to deny the variance and also clarified that BWS and Coral Creek are currently in discussions to address the long-term affordability of R-1 water. Mr. Usagawa said that, under the current contract, R-1 water rates are scheduled to ratchet up to market rates on July 1, 2006; therefore, they are in discussions at this point. BWS is well aware of the issues of economic affordability. Mr. Usagawa also clarified that the non-residential water rate schedule, which shows an increase to $2.24 effective July 1, 2004, will remain at $1.98 per the Board’s decision in their May 2004 Board meeting.

Commissioner Whalen asked Mr. Usagawa if BWS is looking at land uses when negotiating water rates and if negotiations were being done on an individual case-by-case basis. Mr. Usagawa indicated that it is the intent of BWS to provide recycled water for agricultural lands. Mr. Usagawa said that it is a question of ability and rate for agricultural lands, as he understands that agricultural water users are not able to pay higher rates. Mr. Usagawa said that it is an individual negotiation process at this time and that BWS does not have set recycled water rates for different types of uses. Mr. Usagawa indicated that BWS is currently undergoing a rate study, but at this point, it is individually negotiated. If BWS can come to terms with all users, Mr. Usagawa indicated that they have enough recycled water to sell.

Commissioner Frazier asked about the experience of the recharge trench in the caprock. Ms. Nakama indicated that there hasn’t been any experience because it was targeted to be a pilot demonstration project and has not been utilized as yet.

MOTION: (Dela Cruz/Whalen)
To approve as presented by staff
UNANIMOUSLY APPROVED

B-1. Application for a Stream Channel Alteration Permit (SCAP-HA-368), County of Hawaii, Department of Public Works, Kawaihale Street Bridge Replacement, Waiakea Stream, South Hilo, Hawaii (TMK (3) 2-4-03: 022, 2-4-63: 120 & 121; 2-4-70:042)

PRESENTATION OF SUBMITTAL: Ed Sakoda

RECOMMENDATION:

That the Commission approve a stream channel alteration permit for a bridge replacement, lining, and channelizing of Waiakea Stream at Kawaihale Street, Hilo, Hawaii (TMK (3) 2-4-003: 022; 2-4-063: 120 & 121; 2-4-070:042). The stream channel alteration permit shall be valid for two years subject the Commission’s standard conditions in Exhibit 6, and the following special condition:
"The transition area between the bed of the lined channel and the bed of the natural channel shall be at the same invert elevation to provide for the migration of aquatic life."

DISCUSSION:

Commissioner Frazier indicated that he understands that the stream has been altered many times before. Mr. Sakoda said that he believes it has been but the low flow part of the channel is fairly new.

MOTION:  (Dela Cruz/Frazier)
To approve as presented by staff
UNANIMOUSLY APPROVED

C-1. Honolulu International Country Club, Mel's Water Works, APPARENT VIOLATIONS OF A PUMP INSTALLATION PERMIT, Honolulu International Country Club (Well No. 2154-01), TMK 1-1-75:87 Moanalua Ground Water Management Area, Oahu

PRESENTATION OF SUBMITTAL: Lenore Nakama

RECOMMENDATION:

Staff recommends that the Commission:

1. Find Honolulu International Country Club in violation of HRS §174C-85 and Standard Condition 5 of the Pump Installation Permit for Well No. 2154-01 for failure to submit a timely Well Completion Report – Part II in the Moanalua Ground-Water Management Area.

2. Impose a fine of $1000 on Honolulu International Country Club, as summarized in Exhibit 6, payable within thirty (30) days for the violation in Recommendation 1.

3. Issue a warning to Honolulu International Country Club that any future violations of Chapter 174C shall be considered repeat violations, subject to fines of up to $1000 per day.

4. Suspend any current, pending or future applications by Honolulu International Country Club until the fine is paid.


6. Impose no fines for the violation in Recommendation 5.
ref: coral creek variance.sub

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

June 16, 2004
Honolulu, Oahu

Coral Creek Golf Course REQUEST FOR A VARIANCE FROM THE 1,000 MG/L CHLORIDE LIMIT Well Nos. 2001-13 & 2002-15,17,19, TMKs 9-1-69:7,10 & 9-1-61:54, WUP Nos. 577 to 579 Puuloa Ground Water Management Area, Oahu

APPLICANT: Coral Creek Golf Course
91-1111 Geiger Road
Ewa Beach, HI 96706

LANDOWNER: Same

SUMMARY OF REQUEST:
Coral Creek Golf Course (CCGC) is requesting a variance from the 1,000 milligram per liter (mg/L) chloride limit that has been established as the sustainable capacity for all irrigation wells in the Puuloa Ground-Water Management Area. CCGC believes that approval of their variance request will not result in any harm to the aquifer or other existing users. CCGC asserts that denial of the variance request will cause financial hardship.

LOCATION MAP: See Exhibit 1

BACKGROUND:

CCGC first began constructing wells and using brackish well water in 1998 for their newly-developed golf course in Ewa, Oahu (the former proposed Gentry Golf Course). Currently, a total of twelve new wells have been constructed on CCGC’s property. Five of the wells are passive water features, two are observation wells, four are irrigation supply sources, and one is unused. Some of the wells are shallow dug wells that resemble lakes; other wells have been drilled. Exhibit 2 provides a summary of the existing wells.

Item A1
At the time of their first application for a new water use permit in 1996, the Commission had already been approving one-year interim permits for other caprock wells since 1993 because of the uncertainty in the long-term sustainability of the brackish Ewa Caprock aquifer. The Ewa Caprock aquifer had been artificially recharged with imported basal water for sugarcane irrigation since the 1930's. Development plans for the Second City indicated a significant nonpotable demand component, and the City and County of Honolulu passed an ordinance requiring the use of dual lines in all new developments. When Oahu Sugar Company announced its impending closure in 1993, the Commission realized this man-made aquifer would salt-up and began issuing one-year interim permits with special conditions to encourage users to convert to reclaimed water. Oahu Sugar Company ceased their sugarcane agriculture operations on the Ewa Plain in 1994.

Although the Ewa Caprock aquifer was officially designated a ground-water management area in 1985 under Chapter 177 by the Board of Land and Natural Resources, a sustainable yield for the Ewa Caprock aquifer was not established until 1997, when the Commission set a sustainable capacity per well at 1,000 mg/L of chloride for each pumped irrigation well water, in lieu of an aggregate sustainable yield flow figure.

In their 1997 action to adopt the 1,000 mg/L chloride cap as a sustainable yield, the Commission recognized that some users had no other source of irrigation water available until R-I water became available, so a provision was added for variances from the chloride cap on a case-by-case basis with the understanding that R-I would be used when it became available. By establishing a sustainable capacity for each irrigation well, degradation of the aquifer and well interference over the long-term should be precluded. This chloride cap is in addition to a pumpage cap based on 12-month moving average withdrawals.

In 1997, the Commission spearheaded the formation of a Reuse Champions Group to actively promote the reuse of treated wastewater on the Ewa Plain. Additional discussion on the Reuse Champions Group is contained in a following section.

The interim permits were last renewed on July 18, 2001. In that action, the Commission granted variances to several users, stipulating that the "variances shall expire 6 months after the first date of reclaimed water delivery". CCGC first received a variance in August 2001, based in part on the fact that an agreement to convert to reclaimed water had been signed.

In December 2003, staff confirmed with Honolulu Board of Water Supply (BWS) that CCGC had been receiving reclaimed water since October 2001. Therefore, their variance to the 1,000 mg/L chloride cap expired in April 2002. Staff sent a letter in December 2003 notifying CCGC that their variance had expired.

In February 2004, CCGC submitted a new request for a variance (Exhibit 3).

In a letter dated February 18, 2004, staff requested that CCGC provide their reasons why they should be exempt from the chloride limit (Exhibit 4).
On March 15, 2004, the Commission received CCGC's response. CCGC provided hydrologic and financial bases to support their request (Exhibit 5).

On April 7, 2004, staff forwarded CCGS's March 12, 2004 letter to BWS and requested BWS provide information on the R-1 water delivery system and purchase agreement (Exhibit 6).

On April 26, 2004, the Commission received BWS' response (Exhibit 7). BWS supports the renewal or extension of water use permits for CCGC's caprock wells for emergency use in the absence of sufficient volumes or quality of R-1 water. BWS also supports the 1,000 mg/L chloride limit as an appropriate management parameter. A discussion on the service agreement purchase rates is contained in a following section.

On May 4, 2004, a representative from the City Department of Environmental Services (DES) informed staff that DES is considering recharging the Ewa Caprock aquifer with R-1 water via an existing trench to meet the City's consent decree with the Environmental Protection Agency (EPA) to reuse 10 mgd of R-1 water by July 1, 2001. Although the City believed that they had met the terms and conditions of the Consent Decree, EPA is now questioning some of the end uses of R-1. As a result, the City is seeking other markets and beneficial uses of R-1, such aquifer recharge via a percolation trench. We are awaiting a written proposal from DES for our review and comment.

ANALYSIS/ISSUES:

I. Management Strategy for the Puuloa Ground-Water Management Area

The current sustainable yield for the Puuloa Ground-Water Management Area is defined by a 1,000 mg/L chloride cap at all irrigation wells. The rationale behind the chloride cap was to restrict 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. Sodium build-up in the soil will require flushing with fresh water. The Ewa Plain is a dry region with relatively low rainfall; natural flushing does not occur regularly. The basis for a chloride cap is to allow pumping to be self-regulating, since 1,000 mg/L of chloride is considered the upper limit of irrigation water quality. Enforcement of the chloride cap provides adequate protection for the aquifer.

Maximizing the utility of the caprock aquifer 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. 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.

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.
There has been some discussion between CCGC and staff regarding modification of the chloride cap to allow a higher chloride limit, for example 1,500 mg/L, and to require the chloride content of the blended irrigation water to be limited to 1,000 mg/L. However, staff feels that it is a "slippery slope" that would set a precedent for other caprock users to obtain variances now that R-1 water is available by proposing other blending schemes. Why not 1,800 mg/L or 2,000 mg/L? Reporting and enforcement are focused on withdrawals at the source, not the end-of-the-pipe delivery system. We are also concerned about the impact on nearby Gentry Homeowners Association wells, which are adjacent to CCGC. BWS has stated that they will not supply R-1 water to these residential developments that rely on caprock well water to maintain landscape irrigation in common areas. These users have no other alternate non-potable source available, except for potable water from the municipal system, which is discouraged. CCGC may have salt-tolerant turf, but the Gentry common areas do not. Lastly, the management strategy will be impacted by the recharge trench right next to CCGC discussed in Section VI of this submittal. For these reasons, staff is not recommending modification of the chloride cap.

II. Ewa Caprock Water Use Permit Special Conditions

The interim water use permits were last renewed on July 18, 2001. Special Conditions attached to the permits to support the Commission's management strategy include:

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

Special Condition 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.*

Special Condition 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.

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

It should be noted that the original staff recommendation in an October 22, 1998 submittal to renew the interim permits was to have the duration be "...b) until treated wastewater is available, affordable, and acceptable for use ..." [emphasis added]. However, the Commission amended staff's recommendation to delete the word "affordable". This special condition language carried over to the subsequent July 18, 2001 renewal action.
III. CCGC Justification for Request

CCGC has provided their reasons why a variance should be granted (Exhibit 5). The reasons are grouped into two general categories: 1) hydrologic and 2) financial.

Hydrologic Basis:

CCGC's position is that the management test should be whether or not pumpage by the wells is a threat to the integrity of the aquifer or impairs the use of the aquifer by others. CCGC has provided data from 2 monitor wells that show consistent, yet opposite trends in salinity throughout the period of high-chloride well water application (11/98 – 10/01) and R-I water application (11/01 – present). Chlorides in CCGC’s caprock irrigation wells have ranged from about 500 mg/L to as much as 4,000 mg/L, while the chloride content of the R-I water is about 250 mg/L. CCGC believes the data indicate that regardless of the chloride content of the applied irrigation water, the onsite monitor wells are not affected.

However, staff believes that the contradictory monitor well data trends and the heterogeneity within the caprock, as CCGC also acknowledges exists, renders the monitor well data inconclusive. A field investigation by staff on April 14, 2004 confirmed the monitor wells are both located in the golf course. However, much more analysis needs to be done before the monitor well data can be fully understood. Such analysis would include studying the history and effects of rainfall, drainage, and R-I water application; the degree of sedimentation in the dug monitor well, which can affect the degree to which the water stored in the lake communicates with the aquifer; and the actual elevations of the dug well water level in relation to other wells (the dug wells do not have an established elevation benchmark). There is uncertainty regarding the long-term impacts of pumping. Because of this uncertainty and in light of the Commission’s public trust responsibilities and the precautionary principle, the Commission has adopted a unique, proactive management approach, based on the best available data, which seeks to provide adequate protection for the aquifer for irrigation and other nonpotable uses. CCGC’s request is basically to ignore the sustainable yield that the Commission has established. It is analogous to a new user requesting water from an over-allocated aquifer.

Financial Basis:

CCGC’s pumping cost is about $0.10/1,000 gallons. Currently, under the terms of their agreement with BWS, CCGC pays $0.25/1,000 gallons of R-I water. Under the agreement, CCGC’s rate will increase to $0.40/1,000 gallons beginning on July 1, 2004. Assuming an irrigation demand of 700,000 gpd and 100% R-I supply, the annual difference in cost from this rate increase would be about $38,300. This is a conservative estimate because CCGC will be able to supplement the R-I with pumped well water that is less than 1,000 mg/L of chloride. CCGC’s letter cites an annual cost increase of about $230,000, but that is based on an anticipated market rate of $1.00/1,000 gallons, which isn’t scheduled to kick in until July 1, 2006. In addition, there is an option to extend the current rate of $0.25/1,000 gallons and CCGC’s commitment of 100% R-I water use indefinitely.

IV. Water Rate Comparison

R-I water is automatically delivered to a lined onsite reservoir via a permanent distribution pipeline using an on-demand control methodology driven by reservoir water level sensing instrumentation. The R-I service agreement purchase rates for CCGC are shown in Exhibit 7.
To provide some perspective and for comparative purposes, staff researched the irrigation water costs to other golf courses on Oahu. BWS is charging Mid-Pacific, Olomana, and other golf courses using municipal water for irrigation $1.98/1,000 gallons. This municipal non-residential rate is scheduled to increase to $2.24/1,000 gallons on July 1, 2004. The city golf courses in Ewa, West Loch and Ewa Villages, currently pay $1.20/1,000 gallons for the same R-1 water from the Honouliuli Wastewater Treatment Plant. Staff also notes that farmers in Leeward Oahu that receive irrigation water from the Waiahole Ditch system pay over $0.40/1,000 gallons. For easier visual comparison, water rates for select projects as of July 1, 2004 are summarized in the following table.

<table>
<thead>
<tr>
<th>Project</th>
<th>7/1/04 Price / 1,000 gallons</th>
<th>Supply Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCGC</td>
<td>$0.40</td>
<td>R-1 from Honouliuli WWTP</td>
</tr>
<tr>
<td>Ewa Villages Golf Course</td>
<td>$1.20</td>
<td>R-1 from Honouliuli WWTP</td>
</tr>
<tr>
<td>West Loch Golf Course</td>
<td>$1.20</td>
<td>R-1 from Honouliuli WWTP</td>
</tr>
<tr>
<td>Mid-Pacific Golf Course</td>
<td>$2.24</td>
<td>BWS Municipal System</td>
</tr>
<tr>
<td>Leeward Agriculture</td>
<td>$0.40</td>
<td>Waiahole Ditch</td>
</tr>
</tbody>
</table>

V. Evaporative Losses from Dug Wells

There are a total of seven dug wells onsite. The development plan called for water from drilled wells to move downgradient into the “lakes” that are excavated exposures of the ground water table in the caprock and will function as percolation basins. An issue is the potential salting up of the ground water near the man-made lakes. Pan evaporation in the vicinity of CCGC is estimated to be about 85 inches per year (Eckern and Chang, 1985). The following table provides the dimensions, areas, and depths of the existing lakes.

<table>
<thead>
<tr>
<th>State Well No.</th>
<th>Dimensions (feet)</th>
<th>Surface Area (acres)</th>
<th>Evaporative Loss @ 85”/year (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max Length</td>
<td>Max Width</td>
<td></td>
</tr>
<tr>
<td>1902-06</td>
<td>630</td>
<td>325</td>
<td>3.50</td>
</tr>
<tr>
<td>1902-07</td>
<td>210</td>
<td>100</td>
<td>0.32</td>
</tr>
<tr>
<td>1902-08</td>
<td>240</td>
<td>75</td>
<td>0.30</td>
</tr>
<tr>
<td>2001-14</td>
<td>1050</td>
<td>920</td>
<td>15.84</td>
</tr>
<tr>
<td>2001-15</td>
<td>315</td>
<td>80</td>
<td>0.46</td>
</tr>
<tr>
<td>2002-19</td>
<td>640</td>
<td>340</td>
<td>4.32</td>
</tr>
<tr>
<td>2002-20</td>
<td>195</td>
<td>80</td>
<td>0.26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25.0</strong></td>
<td></td>
<td><strong>0.156</strong></td>
</tr>
</tbody>
</table>

1 Surface areas provided by Tom Nance.
2 Adjustment factor of 0.72 used to approximate difference between rectangle and actual lake shape.
Based on the combined surface area of the lakes, 25 acres, about 0.156 mgd will be lost to evaporation, as the water moves down the creeks, into the lakes and eventually the caprock aquifer through percolation. As a result, the water that will recharge the aquifer via the man-made lakes will have higher chloride concentrations. CCOC’s golf course design is contributing to their chloride problems. (The evaporative losses are accommodated in the current water use permit allocations.)

VI. Recharge Trench

The City Department of Environmental Services (DES) is currently considering recharging the Ewa Caprock aquifer with R-1 water via existing seepage trenches. In 1996, the Commission and the former Department of Wastewater Management (now integrated within DES) jointly funded the development of a Nonpotable Water Plan for Oahu. The report recommended caprock recharge by a subsurface infiltration and percolation system. The trenches, which were constructed but never used, are located at the Honouliuli Wastewater Treatment Plant. DES staff are anticipating the freshening effects on the caprock aquifer will occur immediately downgradient and at the adjacent Coral Creek and Gentry homeowners sites. This would make it easier for CCOC to meet the chloride cap.

VII. The Commission is a Champion of Reuse

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.”

Beginning in 1997, the Commission participated in the formation of a Reuse Champions Group. The members included representatives from the Department of Health, Board of Water Supply, and the City Departments of Environmental Services, Design and Construction, and Planning and Permitting. The group met regularly to champion the cause of reuse, by identifying regulatory barriers and challenges as well actions to promote and implement water reclamation projects.

A significant change in the water supply picture has been the acquisition of the Honouliuli Wastewater Reclamation Facility by the BWS on July 20, 2000 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.
VIII. Summary

To summarize, staff is recommending that the variance request be denied at this time for the following reasons:

- Adherence to the chloride cap will help prevent the degradation of the aquifer's water quality over the long-term so that the aquifer may remain a source of irrigation water to those users who have no other alternative, and it will also prevent the possible salting up of other nearby wells, whose landscaping may have a lower chloride tolerance than CCGC’s.

- The Commission is not denying CCGC use of their wells; CCGC may continue to pump their wells within their allocation as long as the chlorides do not exceed 1,000 mg/L.

- The Commission has always been clear that use of the brackish wells should be considered an interim measure pending the availability of an alternate supply source, such as R-1.

- There are many other users in the caprock who may also request new or continued variances even though an R-1 alternative is available (see Exhibit 8 for a current list of irrigation water use permit holders). Granting a variance to CCGC, which has not provided any compelling or unique circumstance to support their request, would set a precedent in that the Commission would have no basis to deny any other user. This would, in effect, negate the sustainable yield that the Commission established and discourage switching to the R-1 alternative.

- CCGC’s has not satisfactorily demonstrated financial hardship resulting from a rate increase of $0.15/1,000 gallons, beginning on July 1, 2004. Additionally, there is an option that can be exercised in the agreement to keep the current R-1 rate the same.

- CCGC constructed a series of unlined dug wells which function as water features as well as potential irrigation supply sources. Chloride levels may be exacerbated by these features, which essentially expose groundwater to surface evaporation, thereby increasing the salinity of ground water in the vicinity of these features.

- The City DES is proposing to recharge the Ewa Caprock Aquifer via a percolation trench. If this project comes to fruition, it is expected to result in a freshening of the caprock aquifer in the vicinity of CCGC and facilitate their meeting the 1,000 mg/L chloride cap.

- The Commission is a champion of reuse and has adopted a policy to promote and encourage the utilization of reclaimed water when it is available and acceptable for the proposed end use.
RECOMMENDATION:

Based on the foregoing, staff recommends that the Commission deny Coral Creek Golf Course's request for a variance from the 1,000 mg/L chloride cap.

Respectfully submitted,

YVONNE Y. IZU
Deputy Director

Exhibit(s):
1 (Location Map)
2 (Summary of Coral Creek Wells)
3 (January 29, 2004 Letter from Ron Huffman to Ernest Y.W. Lau)
4 (February 18, 2004 Letter from Ernest Y.W. Lau to Ron Huffman)
5 (March 12, 2004 Letter from Ron Huffman to Ernest Y.W. Lau)
6 (April 7, 2004 Letter from Ernest Y.W. Lau to Clifford S. Jamile)
7 (April 23, 2004 Letter from Clifford S. Jamile to Ernest Y.W. Lau)
8 (Current Permitted Irrigation Uses in the Puuloa Ground-Water Management Area)

APPROVED FOR SUBMITTAL:

PETER T. YOUNG
Chairperson
Honouliuli Wastewater Treatment Plant

EWA CAPROCK WELLS
(INTERIM PERMITS)

Exhibit 1
ref: 2001-13, 2002-15,17,19 variance.fi.tab

Coral Creek Wells

<table>
<thead>
<tr>
<th>Well No.</th>
<th>Well Name</th>
<th>Well or Lake?</th>
<th>Approved WUPs</th>
<th>Active WUPs</th>
<th>Variance Requested?</th>
<th>Use</th>
<th>Pump Capacity</th>
<th>Pump Test Chlorides</th>
<th>Initial Chlorides</th>
<th>Current Reported Chlorides</th>
<th>4/14/04 Chlorides</th>
</tr>
</thead>
<tbody>
<tr>
<td>1902-05</td>
<td>Coral Creek 5</td>
<td>Well</td>
<td>498</td>
<td>579</td>
<td>Yes</td>
<td>Observation</td>
<td></td>
<td></td>
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<tr>
<td>1902-06</td>
<td>Holes 12,13,14</td>
<td>Lake</td>
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<td>Water feature</td>
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<td>Water feature</td>
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<td>1385</td>
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<td>Water feature</td>
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<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>9</strong></td>
<td><strong>3</strong></td>
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</tr>
</tbody>
</table>

1. WUP No. 578=0.800
   WUP No. 579=0.892
   WUP No. 577=0.498
   TOTAL WUPs = 2.190

2. Reported chlorides for 12/03

R-1 Water tested on 4/14/04 from the lined irrigation reservoir was 245 ppm.

Exhibit 2
Mr. Ernest Y.W. Lau
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. Lau:

Request for Variance on the 1000 MG/L Chloride Limit for the Coral Creek Golf Course Caprock Wells

By this letter, we respectfully request a variance from the 1000 MG/L chloride limit for Coral Creek Golf Course Wells 1 (2002-15), 2 (2002-17), and 4 (2001-13) and Lake 1 (2002-19). At the present time, only Well 4 is run on a daily basis. It supplies water to the water feature at the 10th green. As the attached graph shows, its chlorides generally range between 900 and 1300 MG/L. Its pumped water is discharged into the adjacent unlined lake. Since this lake is an exposure of the caprock water, the water is being returned to the caprock aquifer with negligible consumptive use.

The other two wells and Lake 1 are sources of irrigation supply. Since late 2001, that supply has been R-1 treated Honolulu WWTP effluent rather than our caprock sources. The wells are presently only operated once a month to keep their pumps operational and to obtain samples for chloride analysis. As the attached graphs show, their chlorides have generally been less than 1000 MG/L since use of the R-1 effluent was implemented. However, under continuous use, past performance has shown that their chlorides will rise above 1000 MG/L.

Our agreement to purchase R-1 effluent from BWS is for a period of five years beginning on July 1, 2001. For the first three years, ending on June 30, 2004, we are committed to irrigating entirely by R-1 effluent. For the last two years of the agreement, from July 1, 2004 to June 30, 2006, the irrigation supply will be a blend of R-1 effluent and our caprock wells. So beginning in July 2004, greater use of our caprock wells will occur and this use is expected to cause their chloride levels to rise above 1000 MG/L.
Please feel free to call me or our consultant, Tom Nance (537-1141), if you have any questions on this variance request. Thank you for your consideration on this matter.

Sincerely,

Ron Huffman

Attachments

cc: Tom Nance
CORAL CREEK GOLF COURSE WELLS
CHLORIDES FROM JANUARY 1999 TO DATE

YEAR

CHLORIDES (MG/L)

WELL 1 @ NO. 2 TEE - WELL 2 ALONG HOLE 3 - WELL 4 @ HOLE 10
CORAL CREEK GOLF COURSE LAKES
CHLORIDES FROM JANUARY 1999 TO DATE

YEAR

CHLORIDES (MGAL)

1999 2000 2001 2002 2003 2004 2005

LAKE A @ NO. 1 TEE   IRRIGATION LAKE
February 18, 2004

Mr. Ron Huffman
Coral Creek
91-1111 Geiger Road
Ewa Beach, HI 96706

Dear Mr. Huffman:

This is in response to your January 29, 2004 letter, requesting a variance from the 1000 mg/l chloride limit for Well Nos. 2001-13 and 2002-15,17,19. From your letter, we understand that only Well No. 2001-13 is being run at this time, with chlorides generally ranging between 900 and 1300 mg/l. However, you anticipate resuming pumping at the other three wells beginning in about July 2004, and past performance has shown that chlorides will rise above 1000 mg/l under continuous use. R-I effluent has been available as an alternate nonpotable water supply source since July 1, 2001 through an agreement with the Board of Water Supply.

The chloride limit was established by the Commission in lieu of an aggregate sustainable yield number for the aquifer. The 1000 mg/l chloride limit at individual irrigation wells is considered the sustainable capacity of each irrigation well and is, in effect, the established sustainable yield for the Puuloa Aquifer System. The Commission established a 1000 mg/l chloride limit for all irrigation wells to provide adequate protection for the aquifer and other irrigation water users.

Variances from the chloride cap were granted by the Commission in recognition of hardship that would be encountered during the interim period when no other nonpotable alternatives were available. Water Use Permit Special Condition f. specifically states that “[t]his permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source”. Now that reclaimed water is available as an alternative, please provide your reasons why Coral Creek should be exempt from the chloride limit. Please respond to this letter by March 15, 2004.

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

Sincerely,

[Signature]
ERNEST Y.W. LAU
Deputy Director

LN:ss

Exhibit 4
March 12, 2004
04/123 (97-43)

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

Dear Mr. Lau:

Requested Chloride Variance for the
Coral Creek Golf Course Wells in the Puuloa Sector of the
Ewa Caprock Aquifer

This letter responds to your February 18, 2004 request to provide additional reasons why our golf course’s caprock wells should receive a variance from the 1000 MG/L chloride limit now that R-1 effluent is available as an alternative. The reasons can be grouped into two categories, hydrologic and financial, and they are discussed under these heading in the paragraphs following:

Hydrologic Basis for the Requested Chloride Variance

As an alternative to adopting a sustainable yield, the Commission elected to set a 1000 MG/L limit for chlorides as its management tool for preserving the integrity of the aquifer. However, as extensively detailed in the January 22, 1997 report prepared for the Puuloa Caprock Users Group and presented to the CWRM at that time, chloride levels throughout the Puuloa Sector do not fit into the typical predictable pattern for a thin basal
lens. Our wells, for example, produce chlorides which are much higher than wells on either side of us – the formerly used caprock wells at the Honoensi Treatment Plant to the west and the Ewa by Gentry wells to the east. Depending on where you are situated in the aquifer, you may be fortunate to have chloride levels substantially less than 1000 MG/L or unavoidably higher than that threshold. Our golf course has a number of water features which are exposures of the groundwater table. These are not pumped and their chloride levels, except following substantial rainstorms such have occurred recently, have and remain above 1000 MG/L. It is an unavoidable consequence of our location within the aquifer.

For situations such as we face, the management test should be whether or not pumpage by the wells in question is a threat to the integrity of the aquifer or that it impairs the use of the aquifer by others. Our reliance on our caprock wells from November 1998 through October 2001 when R-1 effluent became available, while pumping water with chlorides almost always in excess of 1000 MG/L, did not harm the aquifer or impair its use by others. Among the most compelling evidence of this are the salinity trends in our two monitoring wells which are plotted on the attached graphs. Salinity has gone steadily up in Well 3 (State No. 2002-18) and steadily down in Well 5 (State No. 1902-05) since monitoring began in May 1999. Conversion to R-1 effluent in October 2001, which ended use of our wells at that time, has made no impact on these trends. It has also made no impact on the chloride levels of the nearby Ewa by Gentry wells.

Financial Basis of the Requested Chloride Variance

Coral Creek Golf Course, along with two other caprock irrigated golf course in Ewa, entered into a five-year R-1 effluent purchase agreement with the Honolulu Board of Water Supply (BWS) which runs from mid-2001 to mid-2006. Key features of this agreement are:

- The purchase price for the R-1 effluent was adjusted in recognition of the disparity between the cost for the golf courses to continue to use caprock groundwater and the "market" price for the R-1 effluent. We can pump groundwater into our irrigation lake alongside the No. 1 green for about $0.10 per thousand gallons. The market price for R-1 effluent is more than $1.00. At an average irrigation use of 700,000 GPD, that is a difference of about $230,000 annually.
- In exchange for a commitment to do all of our irrigation with R-1 effluent for the first three years of the agreement, its purchase price was fixed during the period. BWS has the option to extend this fixed price and our commitment for 100 percent effluent use indefinitely at its discretion. Coral Creek is amenable to such an extension if it were offered.
- For the 4th and 5th years of the agreement, BWS has the option to increase the purchase price. In recognition of the financial burden this would create, the agreement also allows us to cut back from 100 percent R-1 effluent use and supplement the supply with well water. The intent was to make the combined cost of R-1 effluent and brackish groundwater be comparable to 100 percent R-1
effluent use at a lesser purchase price. This option can be exercised by BWS starting on July 1, 2004. BWS has not yet indicated if it will do so.

The plain facts are that Coral Creek is not opposed to the use of R-1 effluent for all or a portion of its irrigation supply as long as it is affordable, that denying our chloride variance would give us no other choice but to use R-1 effluent at a price that we cannot afford, that using our caprock wells along with R-1 effluent will enable us to keep the cost of irrigation at affordable levels, and that use of our caprock wells will not threaten the integrity of the aquifer or impair its use by others.

We hope that the Commission will consider the foregoing and approve our variance request. Preventing our use of caprock water does not conserve it for other "higher" uses. We are not, for example, utilizing groundwater that might otherwise be conserved for future potable use. We are simply seeking the right to blend this water with R-1 effluent to achieve an irrigation supply which best balances salinity and affordability.

Sincerely,

[Signature]

Coral Creek Golf Course
TRENDS OF SALINITY 10 FEET INTO GROUNDWATER
AT CORAL CREEK WELLS 3 AND 5 SINCE MAY 1999

YEAR
1999 2000 2001 2002 2003 2004 2005

SALINITY (PPT)
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2

O--WELL 3 (2002-18)  ■ WELl 5 (1902-05)
TRENDS OF SALINITY TWO FEET INTO GROUNDWATER AT CORAL CREEK WELLS 3 AND 5 SINCE MAY 1999
April 7, 2004

Ref: 2001-13, 2002-15,17,19 variance.bws.let

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

Dear Mr. Jamile:

Coral Creek is requesting a variance from the 1,000 mg/l chloride cap that was established as the sustainable capacity for irrigation wells in the Ewa Caprock aquifer. Please find attached a copy of Coral Creek's request and a second letter that provides further justification for their request. One of the reasons that Coral Creek cites is the uncertainty in the rates for R-1 water. In order to help the Commission reach a decision on Coral Creek's request, we would like some information on the R-1 delivery system and purchase agreement:

- We understand that R-1 delivery began in October 2001. To your knowledge, has Coral Creek been irrigating solely with R-1 since then?
- How is the R-1 water delivered? Is it stored in one of their unlined lakes or a lined reservoir, or is it piped directly into the irrigation system?
- What will the purchase rate for R-1 water be in the fourth and fifth years of your purchase agreement? Will the rate remain constant thereafter or be subject to change?

Lastly, we are interested in any comments Board of Water Supply may have on Coral Creek's variance request.

We are planning to submit Coral Creek's request for action at the May 19, 2004 Commission meeting. Therefore, we would appreciate your response to this letter by April 26, 2004.

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

Sincerely,

ERNEST Y.W. LAU
Deputy Director

Exhibit 6
Mr. Ernest Y. W. Lau, Deputy Director
Commission on Water Resource Management
State Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Subject: Requested Chloride Variance Coral Creek Golf Course Wells Puuloa Sector of the Ewa Caprock Aquifer

Dear Mr. Lau:

We are pleased to respond to your request for comments and information in the matter of R-1 water supply to the Coral Creek Golf Course (CCGC). The Honolulu Board of Water Supply (BWS) is proud of its leadership role in the production and distribution of recycled water on O'ahu. Recycled water is an important alternative water resource in our overall groundwater conservation strategy for the island especially in the Ewa plain region.

CCGC R-1 Water Consumption History

R-1 water delivery to the CCGC began on October 29, 2001. According to the terms of the service agreement executed on April 5, 2001, CCGC is required to meet 100% of their irrigation needs with R-1 water until June 30, 2004. According to the agreement, CCGC may utilize nominal amounts of caprock well water to maintain the viability of their well pumps or to meet demand should BWS be unable to deliver sufficient quantity or quality water.

BWS has no direct knowledge of CCGC utilizing caprock well water outside the terms of the agreement. Since service initiation, the Honouliuli Water Reclamation Facility (HWRF) R-1 production capacity has been sufficient to meet all of the service demands of the CCGC as well as several other R-1 users in the vicinity. We expect the HWRF production capacity to remain sufficient well into the future. Attached are time-series R-1 water consumption data for CCGC (Exhibit A), the Hawaii Prince Golf Course (Exhibit B), and the Kapolei Golf Course (Exhibit C).

CCGC R-1 Water Delivery Method

R-1 water is automatically delivered to CCGC via a permanent distribution pipeline using an on-demand control methodology driven by reservoir water level sensing instrumentation. R-1 water is stored in a lined reservoir at the CCGC site. It is not piped directly into the irrigation system.
Service Agreement Purchase Rates

The service agreement provides for periodic rate adjustments and corresponding R-1 water use levels agreed to by CCGC.

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* The July 1, 2006 market rate at the time of CCGC service agreement execution was anticipated to be $1.00 / 1,000 gallons. The market rate may be adjusted annually or less frequently according to BWS rate adjustment policies and procedures. BWS rate setting philosophy rests in part on rate stability for predictable cost of supply for all its customers. The current rate for government R-1 water users is $1.20 / 1,000 gallons.

**HWRF R-1 Water Quality**

The HWRF R-1 water quality is superior to caprock water both in terms of chloride content (< 300 mg/l) and nutrient content. Our landscape irrigation customers report varying reductions in the amounts of required supplemental fertilizers and their attendant cost to maintain desired vegetation quality. Nutrient analysis data for R-1 water from the HWRF are shown in Exhibit D.

**Variance Request Comments**

The service agreement with CCGC recognizes the importance of sustaining CCGC’s water use permits for its caprock wells for emergency use in the absence of sufficient volume or quality of R-1 water should that occur. For this purpose, we support the renewal or extension of its water use permits and any efforts by CCGC to prevent the revocation or modification of its permits based on non-use as provided in HRS § 174C-38 (1993).

However, BWS has not conducted any definitive research that would contradict either the use of chloride limits as a management technique or the specific chloride limits currently identified as prudent for aquifer protection. Therefore, in the public interest, BWS supports the 1,000 mg/l chloride limit as an appropriate management parameter in lieu of sustainable yield for the Ewa caprock aquifer.
BWS stands ready to work with CCGC to resolve its concerns regarding the cost-effective use of R-1 water within the confines of the service agreement and CWRM aquifer management policy.

Please feel free to contact us for additional information in this matter.

Very truly yours,

CLIFFORD S. JAMILE
Manager & Chief Engineer
Honolulu Board of Water Supply

c Donna Kiyosaki
   Jan Gouveia
   Barry Usagawa
   Joe Myers

Attachments
Exhibit C
Kapolei Golf Course.
R-1 Water Consumption

Daily Flow
7 Day Moving Average
Aquifer System Water Use Permit Index (non-saltwater)

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Summary for 'SYSTEM' = PUULOA (38 detail records)

Totalling 12.803
Coral Creek Site Visit
April 14, 2004

Water Use Reports:
- Are all sources metered? Type of meter? (take photos) / Yes, totalizers
- Protocol for chloride sampling? Following CWRM protocol.
- Method for determining chlorides? Tom Nance

R-1 Water:
- Has R-1 been the sole source of irrigation water since 10/01? (99.5%) Just few pumps to carry over
- How is R-1 delivered? Where is it stored? Delivery schedule? - Same reservoir as regular irrigation system
- Has R-1 storage or application led to freshening of any of the wells? No change
- What is the maximum rate that Coral Creek could pay for R-1 water and remain financially viable? Can't even make a profit right now.
- What is the chloride content of the R-1? 2,000
- Problems/constraints with R-1 water?

Caprock Wells:
- Why can't other wells be pumped? (Obs. water feature) Out 3
- What wells are connected to the irrigation distribution system? All except for 2002-19
- Any plans to line the lakes/ponds? No ponds
- What is the maximum chloride content that the turf can handle? Part Pallon - 1,000 - 1,500 Landscaping would require fertilization
- What does Coral Creek want the new chloride cap to be? 1,500 is good.
- (CWRM to verify well nos. with well names) - OBS 1902-05 need to confirm w/ Nance

General:
- How is irrigation need determined? Timer? soil moisture sensors? at night (handout)
- Description of distribution system(s) for R-1 water & well water, if separate

EQUIPMENT:
- Sample bottles 12+
- Conductivity meter
- Digital camera
- GPS
- Gallon container
- Fishing pole

Other Background Material (Roy has 1 copy):
- CWRM Chloride sampling protocol
- Database printouts (Puuloa WUPS, Coral Creek WUPs, Well Index)
- Maps (topographic & Ingrid's)
- Coral Creek's Request for Variance
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<td>275</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-1</td>
<td>10</td>
<td>13.0</td>
<td>18.10</td>
<td>5.10</td>
<td>4.90</td>
<td>50</td>
<td>245</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
04-12-2004

Total Flow: 749610 gallons
Coral Creek 2002-15

Date

Chloride (mg/L)
0 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90

Pumpage (mgd)
4000 3500 3000 2500 2000 1500 1000 500 0

- CI (mg/L) 2002-15
- Pumpage (mgd) 2002-15
Coral Creek Wells Pumpage and Chloride

- CI (mg/L) 2002-15
- CI (mg/L) 2002-19
- CI (mg/L) 2002-17
- CI (mg/L) 2001-13
- Pumpage (mgd) 2002-15
- Pumpage (mgd) 2002-19
- Pumpage (mgd) 2002-17
- Pumpage (mgd) 2001-13
Coral Creek 2002-17

- Chloride (mg/L)
- Pumpage (mgd)

Date:
- Dec-97
- Jun-98
- Dec-98
- Jun-99
- Dec-99
- Jun-00
- Dec-00
- Jun-01
- Dec-01
- Jun-02
- Dec-02
- Jun-03
- Dec-03
- Jun-04

Legend:
- □ Cl (mg/L) 2002-17
- — pumpage (mgd) 2002-17
Coral Creek 2001-13

Date

Chloride (mg/L)
0 200 400 600 800 1000 1200 1400

Pumpage (mgd)
0 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90

- CI (mg/L) 2001-13
- Pumpage (mgd) 2001-13
Mr. Ernest Y. W. Lau, Deputy Director
Commission on Water Resource Management
State Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Subject: Requested Chloride Variance Coral Creek Golf Course Wells Puuloa Sector of the Ewa Caprock Aquifer

Dear Mr. Lau:

We are pleased to respond to your request for comments and information in the matter of R-1 water supply to the Coral Creek Golf Course (CCGC). The Honolulu Board of Water Supply (BWS) is proud of its leadership role in the production and distribution of recycled water on O‘ahu. Recycled water is an important alternative water resource in our overall groundwater conservation strategy for the island especially in the Ewa plain region.

**CCGC R-1 Water Consumption History**

R-1 water delivery to the CCGC began on October 29, 2001. According to the terms of the service agreement executed on April 5, 2001, CCGC is required to meet 100% of their irrigation needs with R-1 water until June 30, 2004. According to the agreement, CCGC may utilize nominal amounts of caprock well water to maintain the viability of their well pumps or to meet demand should BWS be unable to deliver sufficient quantity or quality water.

BWS has no direct knowledge of CCGC utilizing caprock well water outside the terms of the agreement. Since service initiation, the Honolulu Water Reclamation Facility (HWRF) R-1 production capacity has been sufficient to meet all of the service demands of the CCGC as well as several other R-1 users in the vicinity. We expect the HWRF production capacity to remain sufficient well into the future. Attached are time-series R-1 water consumption data for CCGC (Exhibit A), the Hawaii Prince Golf Course (Exhibit B), and the Kapolei Golf Course (Exhibit C).

**CCGC R-1 Water Delivery Method**

R-1 water is automatically delivered to CCGC via a permanent distribution pipeline using an on-demand control methodology driven by reservoir water level sensing instrumentation. R-1 water is stored in a lined reservoir at the CCGC site. It is not piped directly into the irrigation system.
Service Agreement Purchase Rates

The service agreement provides for periodic rate adjustments and corresponding R-1 water use levels agreed to by CCGC.

<table>
<thead>
<tr>
<th>Year</th>
<th>Price / 1,000 gallons</th>
<th>Percentage of then current irrigation use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Until June 30, 2004</td>
<td>$0.25</td>
<td>Not less than 1.00</td>
</tr>
<tr>
<td>July 1, 2004 - June 30, 2005</td>
<td>$0.40</td>
<td>Not less than .50</td>
</tr>
<tr>
<td>July 1, 2005 - June 30, 2006</td>
<td>$0.55</td>
<td>Not less than .40</td>
</tr>
<tr>
<td>July 1, 2006 - thereafter</td>
<td>Market rate*</td>
<td>CCGC specified amount</td>
</tr>
</tbody>
</table>

The July 1, 2006 market rate at the time of CCGC service agreement execution was anticipated to be $1.00 / 1,000 gallons. The market rate may be adjusted annually or less frequently according to BWS rate adjustment policies and procedures. BWS rate setting philosophy rests in part on rate stability for predictable cost of supply for all its customers. The current rate for government R-1 water users is $1.20 / 1,000 gallons.

HWRF R-1 Water Quality

The HWRF R-1 water quality is superior to caprock water both in terms of chloride content (< 300 mg/l) and current content. Our landscape irrigation customers report varying reductions in the amounts of required supplemental fertilizers and their attendant cost to maintain desired vegetation quality. Nutrient analysis data for R-1 water from the HWRF are shown in Exhibit D.

Vacant Lot Request Comments

The service agreement with CCGC recognizes the importance of sustaining CCGC’s water use permits for its caprock wells for emergency use in the absence of sufficient volumes or quality of R-1 water should that occur. For this purpose, we support the renewal or extension of its water use permits and any efforts by CCGC to prevent the revocation or modification of its permits based on non-use as provided in HRS § 174-38 (1993).

However, BWS has not conducted any definitive research that would contradict either the use of chloride limits as a management technique or the specific chloride limits currently identified as prudent for aquifer protection. Therefore, in the public interest, BWS supports the 1,000 mg/l chloride limit as an appropriate management parameter in lieu of sustainable yield for the Ewa caprock aquifer.
BWS stands ready to work with CCGC to resolve its concerns regarding the cost-effective use of R-1 water within the confines of the service agreement and CWRM aquifer management policy.

Please feel free to contact us for additional information in this matter.

Very truly yours,

CLIFFORD S. JAMILE
Manager & Chief Engineer
Honolulu Board of Water Supply

c  Donna Kiyosaki
    Jan Gouveia
    Barry Usagawa
    Joe Myers

Attachments
Exhibit C
Kapolei Golf Course
R-1 Water Consumption

Daily Flow
7 Day Moving Average

Date

Use (gpd)
April 7, 2004

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

Dear Mr. Jamile:

Coral Creek is requesting a variance from the 1,000 mg/l chloride cap that was established as the sustainable capacity for irrigation wells in the Ewa Caprock aquifer. Please find attached a copy of Coral Creek’s request and a second letter that provides further justification for their request. One of the reasons that Coral Creek cites is the uncertainty in the rates for R-1 water. In order to help the Commission reach a decision on Coral Creek’s request, we would like some information on the R-1 delivery system and purchase agreement:

• We understand that R-1 delivery began in October 2001. To your knowledge, has Coral Creek been irrigating solely with R-1 since then?

• How is the R-1 water delivered? Is it stored in one of their unlined lakes or a lined reservoir, or is it piped directly into the irrigation system?

• What will the purchase rate for R-1 water be in the fourth and fifth years of your purchase agreement? Will the rate remain constant thereafter or be subject to change?

Lastly, we are interested in any comments Board of Water Supply may have on Coral Creek’s variance request.

We are planning to submit Coral Creek’s request for action at the May 19, 2004 Commission meeting. Therefore, we would appreciate your response to this letter by April 26, 2004.

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

Sincerely,

ERNEST Y.W. LAU
Deputy Director

LN:ss
Attachments
March 12, 2004
04/123 (97-43)

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

Dear Mr. Lau:

Requested Chloride Variance for the
Coral Creek Golf Course Wells in the Puuloa Sector of the
Ewa Caprock Aquifer

This letter responds to your February 18, 2004 request to provide additional reasons why our golf course's caprock wells should receive a variance from the 1000 MG/L chloride limit now that R-1 effluent is available as an alternative. The reasons can be grouped into two categories, hydrologic and financial, and they are discussed under these heading in the paragraphs following:

Hydrologic Basis for the Requested Chloride Variance

As an alternative to adopting a sustainable yield, the Commission elected to set a 1000 MG/L limit for chlorides as its management tool for preserving the integrity of the aquifer. However, as extensively detailed in the January 22, 1997 report prepared for the Puuloa Caprock Users Group and presented to the CWRM at that time, chloride levels throughout the Puuloa Sector do not fit into the typical predictable pattern for a thin basal
lens. Our wells, for example, produce chlorides which are much higher than wells on either side of us – the formerly used caprock wells at the Honouliuli Treatment Plant to the west and the Ewa by Gentry wells to the east. Depending on where you are situated in the aquifer, you may be fortunate to have chloride levels substantially less than 1000 MG/L or unavoidably higher than that threshold. Our golf course has a number of water features which are exposures of the groundwater table. These are not pumped and their chloride levels, except following substantial rainstorms such have occurred recently, have and remain above 1000 MG/L. It is an unavoidable consequence of our location within the aquifer.

For situations such as we face, the management test should be whether or not pumpage by the wells in question is a threat to the integrity of the aquifer or that it impairs the use of the aquifer by others. Our reliance on our caprock wells from November 1998 through October 2001 when R-1 effluent became available, while pumping water with chlorides almost always in excess of 1000 MG/L, did not harm the aquifer or impair its use by others. Among the most compelling evidence of this are the salinity trends in our two monitoring wells which are plotted on the attached graphs. Salinity has gone steadily up in Well 3 (State No. 2002-18) and steadily down in Well 5 (State No. 1902-05) since monitoring began in May 1999. Conversion to R-1 effluent in October 2001, which ended use of our wells at that time, has made no impact on these trends. It has also made no impact on the chloride levels of the nearby Ewa by Gentry wells.

Financial Basis of the Requested Chloride Variance

Coral Creek Golf Course, along with two other caprock irrigated golf course in Ewa, entered into a five-year R-1 effluent purchase agreement with the Honolulu Board of Water Supply (BWS) which runs from mid-2001 to mid-2006. Key features of this agreement are:

- The purchase price for the R-1 effluent was adjusted in recognition of the disparity between the cost for the golf courses to continue to use caprock groundwater and the “market” price for the R-1 effluent. We can pump groundwater into our irrigation lake alongside the No. 1 green for about $0.10 per thousand gallons. The market price for R-1 effluent is more than $1.00. At an average irrigation use of 700,000 GPD, that is a difference of about $230,000 annually.

- In exchange for a commitment to do all of our irrigation with R-1 effluent for the first three years of the agreement, its purchase price was fixed during the period. BWS has the option to extend this fixed price and our commitment for 100 percent effluent use indefinitely at its discretion. Coral Creek is amenable to such an extension if it were offered.

- For the 4th and 5th years of the agreement, BWS has the option to increase the purchase price. In recognition of the financial burden this would create, the agreement also allows us to cut back from 100 percent R-1 effluent use and supplement the supply with well water. The intent was to make the combined cost of R-1 effluent and brackish groundwater be comparable to 100 percent R-1
effluent use at a lesser purchase price. This option can be exercised by BWS starting on July 1, 2004. BWS has not yet indicated if it will do so.

The plain facts are that Coral Creek is not opposed to the use of R-1 effluent for all or a portion of its irrigation supply as long as it is affordable, that denying our chloride variance would give us no other choice but to use R-1 effluent at a price that we cannot afford, that using our caprock wells along with R-1 effluent will enable us to keep the cost of irrigation at affordable levels, and that use of our caprock wells will not threaten the integrity of the aquifer or impair its use by others.

We hope that the Commission will consider the foregoing and approve our variance request. Preventing our use of caprock water does not conserve it for other "higher" uses. We are not, for example, utilizing groundwater that might otherwise be conserved for future potable use. We are simply seeking the right to bend this water with R-1 effluent to achieve an irrigation supply which best balances salinity and affordability.

Sincerely,

Ron Huffman
Coral Creek Golf Course
TRENDS OF SALINITY 10 FEET INTO GROUNDWATER AT CORAL CREEK WELLS 3 AND 5 SINCE MAY 1999
TRENDS OF SALINITY TWO FEET INTO GROUNDWATER AT CORAL CREEK WELLS 3 AND 5 SINCE MAY 1999

YEAR

1999 2000 2001 2002 2003 2004 2005

SALINITY (PPT)

0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2

WELL 3 (2002-18) — WELL 5 (1902-05)
February 18, 2004

Mr. Ron Huffman
Coral Creek
91-1111 Geiger Road
Ewa Beach, HI 96706

Dear Mr. Huffman:

This is in response to your January 29, 2004 letter, requesting a variance from the 1000 mg/l chloride limit for Well Nos. 2001-13 and 2002-15,17,19. From your letter, we understand that only Well No. 2001-13 is being run at this time, with chlorides generally ranging between 900 and 1300 mg/l. However, you anticipate resuming pumping at the other three wells beginning in about July 2004, and past performance has shown that chlorides will rise above 1000 mg/l under continuous use. R-1 effluent has been available as an alternate nonpotable water supply source since July 1, 2001 through an agreement with the Board of Water Supply.

The chloride limit was established by the Commission in lieu of an aggregate sustainable yield number for the aquifer. The 1000 mg/l chloride limit at individual irrigation wells is considered the sustainable capacity of each irrigation well and is, in effect, the established sustainable yield for the Puuloa Aquifer System. The Commission established a 1000 mg/l chloride limit for all irrigation wells to provide adequate protection for the aquifer and other irrigation water users.

Variances from the chloride cap were granted by the Commission in recognition of hardship that would be encountered during the interim period when no other nonpotable alternatives were available. Water Use Permit Special Condition f. specifically states that “[t]his permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source”. Now that reclaimed water is available as an alternative, please provide your reasons why Coral Creek should be exempt from the chloride limit. Please respond to this letter by March 15, 2004.

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

Sincerely,

[Signature]

ERNEST Y. W. LAU
Deputy Director

LN:ss
January 29, 2004
04/041 (97-43)

Mr. Ernest Y.W. Lau  
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. Lau:

Request for Variance on the 1000 MG/L Chloride Limit  
for the Coral Creek Golf Course Caprock Wells

By this letter, we respectfully request a variance from the 1000 MG/L chloride limit for Coral Creek Golf Course Wells 1 (2002-15), 2 (2002-17), and 4 (2001-13) and Lake 1 (2002-19). At the present time, only Well 4 is run on a daily basis. It supplies water to the water feature at the 10th green. As the attached graph shows, its chlorides generally range between 900 and 1300 MG/L. Its pumped water is discharged into the adjacent unlined lake. Since this lake is an exposure of the caprock water, the water is being returned to the caprock aquifer with negligible consumptive use.

The other two wells and Lake 1 are sources of irrigation supply. Since late 2001, that supply has been R-1 treated Honouliuli WWTP effluent rather than our caprock sources. The wells are presently only operated once a month to keep their pumps operational and to obtain samples for chloride analysis. As the attached graphs show, their chlorides have generally been less than 1000 MG/L since use of the R-1 effluent was implemented. However, under continuous use, past performance has shown that their chlorides will rise above 1000 MG/L.

Our agreement to purchase R-1 effluent from BWS is for a period of five years beginning on July 1, 2001. For the first three years, ending on June 30, 2004, we are committed to irrigating entirely by R-1 effluent. For the last two years of the agreement, from July 1, 2004 to June 30, 2006, the irrigation supply will be a blend of R-1 effluent and our caprock wells. So beginning in July 2004, greater use of our caprock wells will occur and this use is expected to cause their chloride levels to rise above 1000 MG/L.
Please feel free to call me or our consultant, Tom Nance (537-1141), if you have any questions on this variance request. Thank you for your consideration on this matter.

Sincerely,

Ron Huffman

Attachments

c: Tom Nance
CORAL CREEK GOLF COURSE LAKES
CHLORIDES FROM JANUARY 1999 TO DATE

YEAR

CHLORIDES (MG/L)

LAKE A @ NO. 1 TEE
IRRIGATION LAKE
December 29, 2003

Ref: 2002-15,17,19 & 2001-13,14

Mr. Ron Huffman
Coral Creek Golf Course, Inc.
91-1111 Geiger Road
Ewa Beach, HI 96706

Dear Mr. Huffman:

We have recently confirmed with the Honolulu Board of Water Supply that the Coral Creek Golf Course began receiving reclaimed water for irrigation supply on October 29, 2001. This is a reminder that the variance from the 1,000 mg/l chloride limit expired on April 29, 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

c: Teri Kondo, Watanabe Ing & Kawashima
Ms. Teri Y. Kondo  
Watanabe Ing & Kawashima  
First Hawaiian Center  
999 Bishop Street, 23rd Floor  
Honolulu, HI 96813

Dear Ms. Kondo:

This is in response to your July 20, 2001 letter requesting relief from the weekly chloride monitoring requirement for Hawaii Prince Golf Club and Coral Creek Golf Course.

Based on our review of the historic data and your reasons for requesting relief, your request is hereby approved. Chlorides may be reported on a regular monthly basis along with the pumpage, water levels, and temperature.

Aloha,

GILBERT COLOMA-AGARAN  
Chairperson

LN:ky
MEMORANDUM FOR THE RECORD

From: Lenore Nakama
Subject: Typographical Error in 8/13/01 CWRM Letter

8/16/01 Left a message for Ron Huffman that our 8/13/01 letter (approving variances from the weekly reporting requirement and chloride cap) contained a typographical error. The variances were approved for 2002-13 & 14 (not 2002-13 & 14). Asked him to correct his copy of our letter.
Ref: coral1.let

AUG 13 2001

Mr. Ron Huffman
Coral Creek Golf Course, Inc.
91-1111 Geiger Road
Ewa Beach, HI 96706

Dear Mr. Huffman:

This is in response to your July 20, 2001 letter requesting: 1) monthly, rather than weekly, reporting of chlorides, and 2) a variance from the 1000 mg/l chloride limit for Well Nos. 2002-15, 17, & 19 & 2002-13 & 14.

Based on our review of the historic data, the wells' proximity to the ocean, and recognizing that you have signed an agreement to convert to reclaimed water, both of your requests are hereby approved. Chlorides may be reported on a regular monthly basis along with the pumpage, water levels, and temperature. The chloride limitation of 1000 mg/l is waived; this variance shall expire six (6) months after the first date of reclaimed water service delivery. (The Chairperson may extend future variance requests.)

Aloha,

GILBERT COLOMA-AGARAN
Chairperson

LN:ky
Ref:ewa_13k.act
CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Ron Huffman
Coral Creek Golf, Inc.
91-1111 Geiger Road
Ewa Beach, HI 96706

Dear Mr. Huffman:

Notice of Action
Extension of Interim Water Use Permits
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 permits (WUP Nos 577, 578, & 579; Well Nos. 2001-13-01, 2001-13-02, & 2001-13-03), 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.
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. Suspended the four-year period of nonuse for Well Nos. 2001-13, 2001-14, 2002-15, 2002-17, & 2002-19, 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 these interim permits 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
SENDERS:
- 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.

3. Article Addressed to: LN:ky
   Mr. Ron Huffman
   Coral Creek Golf, Inc.
   91-1111 Geiger Road
   Ewa Beach, HI 96706
   ewa_13k.act

4a. Article Number
   P 354 448 618

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

5. Received By: (Print Name)
   Suparn L. Au

6. Signature (Of addressee or agent)
   X

7. Date of Delivery
   8/10/95

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

---

P 354 448 618

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Mr. Ron Huffman
Coral Creek Golf, Inc.
91-1111 Geiger Road
Ewa Beach, HI 96706

Postage $ .57
Certified Fee $ 2.10
Special Delivery Fee
Restricted Delivery Fee
Return Receipt showing to whom and Date Delivered $ 1.50
Return Receipt showing to whom, Date, and Address of Delivery
TOTAL Postage and Fees $ 4.17

Postmark or Date: JUNE 8/58

PS Form 3811, December 1994

102595-96-B-0229 Domestic Return Receipt
July 20, 2001

Mr. Gilbert S. Coloma-Agaran  
Chairperson  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, HI 96809  

Dear Mr. Coloma-Agaran:

Coral Creek Golf Course Wells in the  
Puuloa Sector of the Ewa Limestone (Caprock) Aquifer

Based on the decisions of the Commission in extending the Interim Water Use Permits for the caprock aquifer wells on July 18, 2001, Coral Creek Golf Course respectfully makes the following two requests: (1) that chloride data for our wells be taken on a monthly basis; and (2) that our Wells 1, 2, 4, and Lake A (State Nos. 2002-15, 17, and 19, and 2001-13 and 14) be granted a variance from the 1000 MG/L chloride limit.

The reason for chloride to be taken monthly rather than weekly is that we have committed to the fullest use possible of Honolulu WWTP effluent. With the exception of Well 4 which supplies the water feature at our 10th hole, we do not plan to operate our wells on a weekly basis. They will only be run for short intervals at three- or four-week intervals to ensure their electrical and mechanical viability. Monthly sampling for chlorides could be worked into this pump maintenance schedule.

The requests for a variance from the 1000 MG/L limit is based on past performance of the wells. Although we do expect chloride levels to improve when effluent reuse is implemented, maintaining levels below 1000 MG/L cannot be assured. It should be noted that no adverse impact of our groundwater use to nearby wells throughout the Ewa by Gentry project has occurred.
Thank you for your consideration of these two requests. Feel free to call me or our consultant, Tom Nance, if you need additional information.

Sincerely,

Coral Creek Golf Course, Inc.

[Signature]
Ron Huffman
Director of Golf
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

YEAR

CHLORIDES (Mg/L)
1900 1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800 700

WELL 1 □ WELL 2 □- WELL 3 □
□- WELL 4 □- WELL 5 ▲ EP-22

1-900 1-1000 1-1100 1-1200 1-1300 1-1400 1-1500 1-1600 1-1700 1-1800 1-1900

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.
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. The authority to approve variances from the weekly reporting requirements is delegated to the Chairperson.

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 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
Minutes

July 18, 2001

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 so 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 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 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 Honouliuli 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
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 Barbers 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 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.

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, its 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 Barber's Point 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
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.
## PERMITTEES AND LANDOWNERS

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<tr>
<th>PERMITTEE</th>
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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**

<table>
<thead>
<tr>
<th>WUP No</th>
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<th>Applicant</th>
<th>Well No.</th>
<th>Well Name</th>
<th>WUP (mgd)</th>
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### WMA Aquifer System: KAPOLEI

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**Summary for 'SYSTEM' = KAPOLEI** (8 detail records)

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**Totaling** 2.033 1.552

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**Monday, May 21, 2001**

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**EXHIBIT 4**
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Summary for 'SYSTEM' = PUULO (25 detail records)

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

EXHIBIT 5.

--- 12-MAV
--- WUP
--- combined monthly withdrawal

Date (latest lata 04/01)
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)

- Monthly values
- Requested amount
- 12-MAV

Date (latest data 11/00)
Palm Villa II Homeowners Association
Palm Villa II Well (Well No. 2001-08)

EXHIBIT 5

date (latest data 04/01)

pumpage (mgd)

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

Date (latest data 12/00)

Pumpage (mgd)

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

pumpage (mgd) | 12-MAV | max chloride level

pumpage (mgd) | 12-MAV | max chloride level

date (latest data 4/01)
Coral Creek Golf Course Withdrawals
Lake A (2002-19)
State HCDCH Kapolei Wells
Well Nos. 2003-04,07 Combined

Graph showing pumpage (mgd) and chloride (mg/L) over time (latest data 4/01). The graph includes monthly pumpage, 12-MAV, 2003-04 CI, 2003-07 CI, and WUP data.
Chloride and Pumpage of Ewa Plantation
Shallow Wells, Ewa Caprock, Oahu

Chloride Concentration (mg/l)

Initial caprock CI (average year)

Average Yearly pumpage (mgd)

Average Monthly pumpage (mgd)

Start
Basal (high CI) irrigation
Basal (low CI) irrigation
Stop

Year

EP-20
EP-21
EP-22
EP-23
EP-24
Gentry Palm Villa 1
Kapolei Golf B

Ref: CWRM, BWS files, & R-79
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
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-1 (well nos. 2003-01-05, 07). Well C-1 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 $\geq 1,000$ 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:


Ewa Beach International Golf Club
Pumpage and Chlorides

Average Monthly Pumpage (mgd)

Month/Year

1,000 Cl Cap

Well 1900-21 (Pond E)
Hawaii Prince Golf Course
Pumpage and Chlorides

Average Monthly Pumpage (mgd)

Monthly Chloride (mg/l)

Month/Year

1,000 CI 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
Haseko EP 27
Pumpage and Chlorides

Graph showing average monthly pumpage (mgd) and monthly chloride (mg/l) data from 1994 to 2002.

1,000 Cl Cap  ■ EP27 Pit  ■ EP 27 Pipe
Coral Creek Golf Course
Pumpage and Chlorides

Average Monthly Pumpage (mgd)

Month/Year

1,000 Cl Cap  ● Lake Well 1  ■ Well 2  ▼ Well 1  ◇ Well 4

Monthly Chloride (mg/l)
HFDCH Kapolei Golf Course
Pumpage and Chlorides

Average Monthly Pumpage (mgd)

Month/Year

1,000 Cl Cap • Irr. Well A □ Irr. Well B ▼ Irr. Well C
✘ Irr. Well C-1 ▲ Irr. Well D + Irr. Well E
Kapolei City Wells (Campbell Estate)
Pumpage and Chlorides

Average Monthly Pumpage (mgd)

Month/Year

1,000 Cl Cap

Well 1905-10 (West Well)
Well 1905-08 (East Well)
GUIDELINES FOR CHLORIDE CONCENTRATION SAMPLING FOR EWA 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.
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>
<tbody>
<tr>
<td>6</td>
<td>10-20</td>
<td>140</td>
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<tr>
<td></td>
<td>20-50</td>
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<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 9
Mr. Ron Huffman
Coral Creek Golf Course, Inc.
91-1111 Geiger Road
Ewa Beach, HI 96706

Dear Mr. Huffman:

Modification of Water Use Permit for Well Nos. 2001-14, 2002-15, 2002-17, and 2002-19
Puuloa Ground-Water Management Area, Oahu

This letter transmits your water use permit for Well Nos. 2001-14, 2002-15, 2002-17, and 2002-19 for use of 0.892 million gallons per day (mgd) of water on a 12-month moving average basis that has been administratively modified pursuant to your September 9, 2000 letter and Declaratory Ruling DEC-ADM97-A1. As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Standard Permit Condition 18:

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. The applicant shall contact the Environmental Management Division, State Department of Health, at 586-4304, concerning "GUIDELINES APPLICABLE TO GOLF COURSES IN HAWAII" dated August, 1994 (version 5). The applicant shall obtain a written statement from the Department of Health indicating that their concerns have been addressed, and a copy of that statement shall be sent to the Commission.

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

e. The duration of the interim permit shall be:
   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.

f. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.
If effluent is used for irrigation, the applicant is required to conform with Department of Health requirements for effluent reuse.

Require adherence to the chloride sampling protocol (attached) and the submittal of weekly chloride data.

Require adherence to the Conservation Conditions (attached).

WUP No. 508 is revoked. This water use permit, WUP No. 579, shall supersede WUP No. 508.

The Commission shall stay enforcement of the permitted use quantity through the grow-in period (to December 31, 1999).

Enclosed with this letter of approval are the following:

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

Please be sure to read the conditions of your approved permit.

We draw your attention to two key conditions of your permit that require your response. First, you are required 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 weekly 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 Pualoa 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 Lenore Nakama of the Commission staff at 587-0218.

Aloha,

TIMOTHY E. JOHNS
Chairperson

Attachments
# GROUND-WATER USE PERMIT

**WUP NO. 579**

## PERMITTEE

<table>
<thead>
<tr>
<th>Permittee/Water User</th>
<th>Landowner of Source</th>
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<tbody>
<tr>
<td>Address</td>
<td>Address</td>
</tr>
<tr>
<td>Coral Creek Golf Course, Inc.</td>
<td>Coral Creek Golf Course, Inc.</td>
</tr>
<tr>
<td>91-1111 Geiger Road</td>
<td>91-1111 Geiger Road</td>
</tr>
<tr>
<td>Ewa Beach, HI 96706</td>
<td>Ewa Beach, HI 96706</td>
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</table>

## PERMITTED SOURCE INFORMATION

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<thead>
<tr>
<th>Island</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Management Area</td>
<td>Ewa Caprock</td>
</tr>
<tr>
<td>Aquifer Sector</td>
<td>Puuloa</td>
</tr>
<tr>
<td>System Sustainable Yield</td>
<td>1000 mg/l Chloride Cap</td>
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<tr>
<td>Well Name</td>
<td>Lake 10</td>
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<tr>
<td>State Well No.</td>
<td>2001-14</td>
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</table>

## PERMITTED USE INFORMATION

<table>
<thead>
<tr>
<th>Reasonable beneficial use</th>
<th>Golf Course Landscaping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawal (12 month moving ave.)</td>
<td>0.892 mgd</td>
</tr>
<tr>
<td>Location of water use</td>
<td>9-1-61:2, 7, 10</td>
</tr>
<tr>
<td>TMK #</td>
<td>91-1111 Geiger Road, Ewa Beach, HI 96706</td>
</tr>
<tr>
<td>Address</td>
<td>Urban</td>
</tr>
<tr>
<td>State land use classification</td>
<td></td>
</tr>
<tr>
<td>County zoning classification</td>
<td>P-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 permittee 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 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.

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 weekly basis (attached).

11. 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.

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.

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 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.

TIMOTHY E. JOHNS, Chairperson
Commission on Water Resource Management

Attachment
Ms. Linnel T. Nishioka  
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 Use Permit Application for Coral Creek Lake No. 1 (2002-19), Well 1 (2002-15), and Well 2 (2002-17) at the Coral Creek Golf Course in Ewa Beach, Oahu

Dear Ms. Nishioka:

On June 17, 2000, Coral Creek Golf Course, Inc. submitted an Application for Water Use Permit for Coral Creek Lake No. 1 (2002-19), Well 1 (2002-15), and Well 2 (2002-17) at the Coral Creek Golf Course in Ewa Beach. The request sought an increase in permitted use from 0.69 to 0.89 mgd. Coral Creek hereby withdraws that water use application.

Pursuant to Declaratory Ruling No. DEC-ADM97-A1, Coral Creek Golf Course seeks as an alternative, the modification of the terms of its existing water use permits. These permits are as follows:
Coral Creek Golf Course would like to rebalance its utilization of water among its existing permits and the allowed usage. By reducing the usage at certain permitted sources and increasing usage at other permitted sources, no net change will occur. Thus, the net change in permitted use within the permitted wells is zero. The proposed modification would result in more efficient and optimal operation of multiple sources under a single operator. Please see the attached report and justification regarding the background and use of the existing permitted sources.

No adverse impacts to the caprock aquifer or other existing legal uses of this resource are anticipated. The proposed modification will better distribute the water withdrawal to achieve better water quality and less potential impact. The ultimate use of the water, landscaping and irrigation, remains unchanged. The Commission’s Declaratory Ruling No. DEC-ADM97-A1 allows for such modifications. The proposed modifications are as follows:

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<thead>
<tr>
<th>Permit No.</th>
<th>Well</th>
<th>Usage (MGD)</th>
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<tr>
<td>496</td>
<td>Well 2 (2002-17)</td>
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<tr>
<td>497</td>
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</tbody>
</table>
Based upon the foregoing and the attached report, Coral Creek requests that this modification be administratively processed. Should you have any questions or need any additional information, please contact the undersigned or our consultant, Tom Nance.

Sincerely,

Ron Huffman, Manager
Coral Creek Golf Club

Enclosure

cc: Tom Nance
Analysis of the Use and Performance of the Coral Creek Golf Course's Caprock Wells in Support of the Proposed Modifications of Water Use Permit Nos. 496, 497, and 508 in the Puuloa Caprock Aquifer System

September 2000
Analysis of the Use and Performance of the Coral Creek Golf Course's Caprock Wells in Support of the Proposed Modifications of Water Use Permit Nos. 496, 497, and 508 in the Puuloa Caprock Aquifer System

September 2000
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Introduction

Coral Creek has three water use permits (WUPs) for wells which enable it to draw from the Puuola (Caprock) Aquifer System (refer to the tally below). WUP 508 for irrigation use of 0.69 MGD was based on a turf evapotranspiration calculation that did not adequately account for application inefficiencies (wind) and the need to periodically leach salts. The amount also did not account for greater water use during the course's grow-in and maturation. The permit modifications proposed herein (also in the tally below) will rectify this situation without resulting in an increase in total water use by the golf course.

<table>
<thead>
<tr>
<th>Permit No.</th>
<th>Well(s)</th>
<th>Permitted Use (MGD)</th>
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<tbody>
<tr>
<td></td>
<td>State No.</td>
<td>Name</td>
</tr>
<tr>
<td>508</td>
<td>2001-14</td>
<td>Lake 10</td>
</tr>
<tr>
<td></td>
<td>2002-15</td>
<td>Well 1</td>
</tr>
<tr>
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<td>2002-17</td>
<td>Well 2</td>
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<tr>
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<td>Well 2</td>
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<td>497</td>
<td>2001-13</td>
<td>Well 4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grow-In and Maturation of the Golf Course

Grow-in of the golf course began in August 1998. The 18-month to two-year process of grow-in and maturation, when water use is at greater rate than for a fully matured course, is just now coming to an end. A number of factors led to greater water use and a longer maturation period than might otherwise be expected:

- The weather has been unusually hot and dry and is just now starting to cool off (the course's paspallum grass is sensitive to temperature).
- Soils which were compacted during mass grading were not properly prepared prior to planting. Aerifying equipment had to be purchased to break up the soil, thereby allowing proper root establishment. Until this was initiated, the compacted soil retarded the growth of the grass and required more water to be applied.
- Unlike the choice of paspallum grass, most of the course's other landscaping was incompatible with the irrigation water quality. This landscaping had to be changed, requiring more water for this second grow-in of landscaping.
A sod farm was constructed in May 2000 to replenish damaged turf. During its establishment period, it also required greater water use.

Now that most of these problems have been satisfactorily addressed, irrigation water use has been significantly reduced and will remain within the requested 0.892 MGD amount.

**Specifics on the Use and Performance of the Coral Creek Puuloa (Caprock) Aquifer Wells**

Under WUP 508, Coral Creek has used three of the four wells permitted. These three are Well 1 (2002-15), Well 2 (2002-17), and Lake 1 (2002-19). The fourth well listed under this permit, Lake 10 (2001-14), has not been used to date. Combined use of the three actively used irrigation wells since August 1998 is presented on Figure 1. During the golf course's grow-in and maturation, the 12-month moving average of pumpage exceeded the course's 0.69 MGD permitted irrigation use. As the course has gradually matured this year, irrigation use has been correspondingly reduced. It is anticipated that the 12-MAV of future irrigation use will remain within the requested 0.892 MGD.

The water feature well next to Lake 10 (Well 4, State No. 2001-13) is operated under WUP 497. Its use has been greater than its 0.6 MGD permitted amount (Figure 2). The proposed modification will enable the well's use to conform to the permit. To date, there has been essentially no use of Well 2 (2002-17) under permit 496. The requested modification moves portions of this permitted use to the course's two other permits.

During the golf course's initial period of high irrigation use under WUP 508, Wells 1 and 2 have performed relatively poorly. Their chlorides are sensitive to the amount of use (Figures 3 and 4). Lake 1, which has actually provided most of the irrigation supply, has performed significantly better. Its chlorides rose above 1000 MG/L for a short period in mid-2000 but have dropped back under that level in recent weeks (Figure 5). Chlorides of Well 4 next to Lake 10 have generally been below 1000 MG/L, although this level has been exceeded several times during periods of recent high use (Figure 6).

**Basis of the Proposed Modification of Coral Creek's Groundwater Use**

Modifications of the use of the course's wells and lakes are proposed based on the performance of the wells to date and a more realistic assessment of the course's irrigation requirements. Specifics of these proposed changes are as follows:

1. Lake 1 (2002-19) will continue to provide about one-half to two-thirds of the irrigation requirement, essentially the same share of the irrigation requirement that it has provided to date.

2. A pump will be installed in Lake 10 (2001-14), the fourth and as-yet unused well under WUP 508. The pump will skim the lake's water to provide the remainder of the irrigation supply. Prior to this, this 3.8-acre lake has only been used as a water and landscaping feature.
FIGURE 1. PUMPAGE OF THE CORAL CREEK GOLF COURSE IRRIGATION WELLS

MONTHLY AVERAGE PUMPAGE (MGD)

REQUESTED USE (0.89 MGD)

PRESENT WUP (0.69 MGD)

YEAR

MONTHLY PUMPAGE
12-MO. MOVING AVG.
FIGURE 2. PUMPAGE OF THE WATER FEATURE
WELL, STATE NO. 2001-13

MONTHLY AVERAGE PUMPAGE (MGD)

YEAR

MONTHLY PUMPAGE PERMITTED USE
FIGURE 3. USE AND PERFORMANCE OF CORAL CREEK WELL 1 (STATE NO. 2002-19)

WEEKLY CHLORIDES (MG/L)

MONTHLY PUMPAGE (MGD)

1998.5

1999

1999.5

2000

2000.5

1988.5

YEAR

CHLORIDES

PUMPAGE
FIGURE 4. USE AND PERFORMANCE OF CORAL CREEK WELL 2 (STATE NO. 2002-17)
FIGURE 5. USE AND PERFORMANCE OF CORAL CREEK LAKE 1 (STATE NO. 2002-19)
FIGURE 6. USE AND PERFORMANCE OF CORAL CREEK WELL 4 (STATE NO. 2001-13)
3. Wells 1 and 2 (2002-15 and 17) will provide back-up capacity, to be used in the event that one or the other of the lake pumps malfunctions or as needed to manage chloride levels. Experience has shown that if these wells are used infrequently for relatively short periods, their chlorides will stay at reasonable levels. The spikes of high chlorides in these wells shown on Figures 3 and 4 occurred during periods of extended continuous pumping.

4. Use of Well 4 (2001-13) for the water and landscaping feature at Lake 10 will be kept within the 0.8 MGD requested amount. If it proves necessary to manage chlorides, the running time of the well can be curtailed.

Analysis of the Effects of Coral Creek's Groundwater Use on the Puuloa Aquifer and Other Users of the Resource

 Particularly in view of the spikes of high chlorides in Wells 1 and 2, it is appropriate to investigate whether or not Coral Creek's groundwater use has affected the aquifer beyond the golf course boundaries and/or the use of the aquifer by others. There are a number of small to moderate capacity caprock wells in nearby Ewa by Gentry and HASEKO's EP-27 well (1902-01), which is used at a relatively high rate, is about 6000 feet makai of the closest Coral Creek well. Potential effects on the aquifer can be tracked with Coral Creek's two monitoring wells. Effects on use of the aquifer by others is best shown by their chloride levels before August 1998 (the start of Coral Creek's groundwater use) and since that time.

Trends in Coral Creek's Monitoring Wells. Salinity profiles in Coral Creek's Wells 3 and 5 (2002-18 and 1902-05) are made on a regular basis (typical profiles are shown on Figure 7). These results are then translated into a trend of salinity at depths of two and 10 feet (Figure 8). There has been a slight salinity increase in Well 3 which is located to the east of Coral Creek's pumping wells. In Well 5, which is directly makai of Lake 1 and the course's two other irrigation wells, the salinity has actually decreased. These changes are generally consistent with longer-term adjustments in the aquifer's thickness and surface salinity resulting from the end of Oahu Sugar Company's use of the caprock in October 1994 and the substantial rainstorms in November 1996 (Figure 9). No significant changes attributable to Coral Creek's use of groundwater are evident in these data. However, the monitoring will be continued to ensure that this continues to be the case.

Chlorides in Nearby Wells. Chlorides and pumpage of wells in Ewa by Gentry, as portrayed by the data filed by the users with the CWRM, are depicted on Figures 10 to 16. All of these wells are to the east and northeast of the wells pumped by Coral Creek and at distances of 1500 to 4000 feet. None of these wells show a trend of increasing chlorides since the start of Coral Creek's use of the caprock.

Pumpage and chloride data from EP 27 (1902-01) in HASEKO's Ocean Pointe project are presented on Figure 17. As with the Ewa by Gentry wells, no trend of increasing chlorides since the start of Coral Creek's use of the caprock aquifer is evident.
Figure 7
Salinity and Temperature Profiles in Coral Creek Wells 3 and 5
Figure 8

Trends in Surface Water Salinity in Coral Creek Wells 3 and 5
Figure 9

FIGURE 10. CHLORIDES AND PUMPAGE OF THE SUNRISE WELL (2001-04)
FIGURE 11. CHLORIDES AND PUMPAGE OF THE SODA CREEK III WELL (2001-05)
FIGURE 12. CHLORIDES AND PUMPAGE OF THE PALM VILLA I WELL (2001-06)
FIGURE 13. CHLORIDES AND PUMPAGE OF THE ARBORS WELL (2001-07)
FIGURE 14. CHLORIDES AND PUMPAGE OF THE PALM VILLA II WELL (2001-08)
FIGURE 15. CHLORIDES AND PUMPAGE OF THE CORONADO WELL (2001-09)
FIGURE 16. CHLORIDES AND PUMPAGE OF THE SUNCREST WELL (2001-10)
FIGURE 17. CHLORIDES AND PUMPAGE OF HASEKO'S EP 27 (1902-01)
April 5, 1999

Mr. Joseph Livingood  
Regional Operations Manager  
Coral Creek Golf Course  
91-111 Geiger Road  
Ewa Beach, Hawaii 96706  

Dear Mr. Livingood:

SUBJECT: CORAL CREEK GOLF COURSE  
GUIDELINES APPLICABLE TO GOLF COURSES IN HAWAII  
STATE DEPARTMENT OF HEALTH

This is a follow-up to our letter to you dated March 25, 1999. Please submit the following items for our review.

1. A groundwater monitoring plan to monitor and discern subsurface and groundwater impacts due to irrigation and chemical (fertilizer, pesticide, herbicide) use on the golf course.

2. A maintenance manual, often called a Best Management Practices (BMP) plan, that describes the elements and procedures for irrigation, chemical use, processing and reuse of green wastes, other applicable environmental concerns covered in the golf course guidelines, and related worker safety. Descriptive maps and chemical lists should be included.

The maintenance manual or BMP should be primarily tailored for the golf course's maintenance staff. An effective BMP will turn out as a good, well used working reference manual for workers, and the manual can be revised, if needed, to address changing needs or concerns to improve the BMP's purpose.

Examples of a groundwater monitoring plan and a BMP are available at the Safe Drinking Water Branch. You or your consultant are welcome to review the information.
Mr. Joseph Livingood  
April 5, 1999  
Page 2

If you have any questions about this subject, please call Chauncey Hew of the Safe Drinking Water Branch at 586-4258.

Sincerely,

WILLIAM WONG, P.E., Chief  
Safe Drinking Water Branch  
Environmental Management Division

CH:chl
Mr. Timothy E. Johns, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Re: Water Use Permit Application, Coral Creek Golf Course, for Well Nos. 2001-14, 2002-15, 17, 19, Puuloa GWM Area, Oahu

Gentlemen:

On behalf of Coral Creek we are responding to certain comments made by the City and County of Honolulu in its letter to you dated July 25, 2000. The city had concerns about the water use permit application for an increase of 0.202 mgd for the following stated reasons:

1. First, the Commission may want to ensure that the applicant is using best management irrigation practice on the golf course.

2. Second, the Commission may want to evaluate the impact on the caprock aquifer and downgradient wells.

3. Third, if the application is approved after having considered the foregoing, . . . that a temporary permit be issued until the reclaimed water from the Honolulu Wastewater Treatment Plant becomes available.

Coral Creek would like to respond to each of the concerns raised by the city. These are addressed below.
We believe the request constitutes a reasonable/beneficial use as defined by H.R.S. Section 174C-3, which defines reasonable/beneficial as:

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

Justification for additional allocation is derived from information which supports an irrigation requirement comprised of 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 nature of the Ewa Plain, plus an additional 20% for leaching to avoid salt build-up. (See Staff Submittal for the CWRM January 14, 1998, Agenda 3, Item 6, Hawaii Prince Golf Club Application for WUP).

In addition, H.R.S. Section 174C-2 provides 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. There have been no complaints by adjacent landowners or adjacent users as a result of the present pumpage from the area. The use of the water is consistent with state and county general plans and land use designations. It is also consistent with the county land use plans and zoning policies.

In addition to the foregoing, the source of supply is non-potable water from a brackish aquifer. Coral Creek is not asking the Commission to utilize potable water or water from the basalt aquifer. While the water is brackish, it does have beneficial uses. It is of a lower class water than even reuse water. Use of this brackish water for irrigation purposes preserves and protects the integrity of the basalt aquifer and potable water reserves. That makes it consistent with state policies which promote and preserve the valuable nature of the state’s potable water resources.
It has been suggested that permits to use the caprock aquifer should be restricted so as to require the use of reclaimed wastewater from the Honouliuli treatment plant when it is available. There are two points to make regarding this assertion. First, the purpose of the effluent reuse project is to replace use of potable water for non-potable uses. Forcing users to forego their right to use the non-potable caprock aquifer does not accomplish this goal. The effluent is actually a higher class of water than is the supply from the caprock. Second, requiring use of effluent would impose a financial hardship, as the prices that have been discussed by Wastewater Management, US Filter, and the Board of Water Supply range from 10 to 20 times higher than the cost to pump caprock water into our irrigation lakes. Such a cost increase simply could not be absorbed by any of the four golf courses currently using the caprock aquifer.

In summary, Coral Creek’s request falls within the policies and provisions of the state Water Code and Coral Creek asks the Commission to grant its request.

Sincerely,

Ron Huffman, Manager
Coral Creek Golf Club

cc: Linnel T. Nishioka

248078.1
Mr. Ron Huffman
Coral Creek Golf Course, Inc.
91-1111 Geiger Road
Ewa Beach, HI 96706

Dear Mr. Huffman:

Water Use Permit Application
Lake No. 10, Wells 1 & 2, Lake No. 1 (Well Nos. 2001-14, 2002-15, 17, 19)
Puuloa Ground Water Management Area, Oahu

We have received the attached review comments from the City and County of Honolulu, Board of Water Supply (dated July 20, 2000) and Department of Planning and Permitting (dated July 25, 2000) on the subject application.

At your option, you may submit a response in support of your application. We will include your response in the staff's submittal of your application to the Commission on Water Resource Management.

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

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

LN:ss
Attachments
July 25, 2000

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

Dear Mr. Johns:

Water Use Permit Application, Coral Creek Golf Course,
for Well Nos. 2001-14, 2002-15, 17, 19, Puuloa GWM Area, Oahu

We share the attached concerns of the Board of Water Supply regarding this water use permit application. The applicant is requesting an increase of 0.202 mgd from 0.690 mgd to 0.892 mgd of brackish water from the Ewa caprock aquifer. We have the following comments:

- First, the Commission may want to ensure that the applicant is using best management irrigation practice on the golf course; this would help justify that an increase in water use is needed.

- Second, the Commission may want to evaluate the impact on the caprock aquifer and downgradient wells.

- Third, if the application is approved after having considered the foregoing, we recommend that a temporary permit be issued until the reclaimed water from the Honouliuli Wastewater Treatment Plant becomes available.

The Oahu Water Management Plan and the Ewa Development Plan set forth strategies to develop and use non-potable water sources and, more specifically, to support and pursue the use of reclaimed water for irrigation purposes. Treatment facilities constructed at Honouliuli WWTP would make available 13 mgd of effluent for reuse. Since the salinity of the brackish water will increase without the recharge supplied by sugar cane irrigation, users of the caprock water should
be encouraged to participate in the use of the reclaimed water. Its use will extend the supply of potable water for domestic use. According to the Board of Water Supply, the facilities at Honouliuli will have a grand opening on August 8, 2000; reclaimed water distribution lines should be in place by July, 2001. The cost for users of reclaimed water is not yet available.

Should you have any questions, please call Mike Watkins at 523-4406.

Sincerely yours,

RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:js
Attachment
cc: Mayor Jeremy Harris

ppbwup-ccgc.cmt
July 20, 2000

TO: MR. RANDAL FUJIKI, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: CLIFFORD S. JAMILE

SUBJECT: WATER USE PERMIT APPLICATION BY CORAL CREEK GOLF COURSE FOR WELLS 2001-14, 2002-15, 17, 19

We are not in favor of the requested increase of permitted use to 6,110 gallons per acre per day (gpd) for a total of 892,060 gpd. Since the applicant has not offered any proof or evidence of damage to justify an increase of permitted use or their irrigation practices for review, we are opposed to any increase at this time.

Other comments in support of our view follow:

1. They should review their irrigation schedule and maximize efficiency of their permitted use. By reducing the application rate, the conserved water can be used to irrigate more frequently. More frequent irrigation avoids reaching the wilting co-efficient and unnecessarily stressing the turf. Drip irrigation and higher flow discharge sprinkler heads will reduce atmospheric losses. Over irrigation to flush salts should not be practiced with every irrigation cycle but only periodically such as alternate days or once a week to conserve water.

2. No data are offered that chlorides are causing problems at Coral Creek. Some golf courses are using caprock water containing more than 1,000 parts per million (ppm) chloride with waivers to exceed the 1,000 ppm adopted by the Commission on Water Resource Management. The brackish lens is shrinking and will continue to shrink because recharge is not supplied by sugar cane irrigation. An increase in salinity is to be expected. Pumping rate and duration also affect salinity especially from this thin, shrinking lens. The additional pumpage may affect downgradient wells on property of Ewa by Gentry and others.
3. A very compelling reason to deny an increased allotment is to encourage, if not dictate, reuse of water from the Honouliuli Waste Water Treatment Plant.

4. Reuse of 13 mgd is mandated by the consent degree negotiated by the former Department of Waste Water Management. Although the reclaimed water can be used to recharge the caprock aquifer, distribution through a pipeline system is more direct, more dependable, and more efficient.

5. We are seeking all the customers we can get for the water to justify the construction of facilities, mains, and distribution of the reclaimed water. The golf courses of the area can use a substantial portion of the water available for reuse. Coral Creek should be encouraged to join the system as soon as possible rather than wait for the inevitable increase of salinity to perhaps beyond usable limits. Freeway irrigation and common grounds such as parks are also potential customers.

If you have any questions, please contact Chester Lao at 527-5286.
July 25, 2000

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

Dear Mr. Johns:

Water Use Permit Application, Coral Creek Golf Course,  
for Well Nos. 2001-14, 2002-15, 17, 19, Puuloa GWM Area, Oahu

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Mr. Timothy E. Johns, Chairperson  
Commission on Water Resource Management  
Department of Land and Natural Resources  
July 25, 2000  
Page 2

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Should you have any questions, please call Mike Watkins at 523-4406.

Sincerely yours,

[Signature]

RANDALL K. FUJIKI, AIA  
Director of Planning and Permitting

RKF:js  
Attachment  
cc: Mayor Jeremy Harris  
ppblwup-ccgc.cmt
TO:     MR. RANDAL FUJIKI, DIRECTOR
        DEPARTMENT OF PLANNING AND PERMITTING
FROM:  CLIFFORD S. JAMILE
SUBJECT: WATER USE PERMIT APPLICATION BY CORAL CREEK
        GOLF COURSE FOR WELLS 2001-14, 2002-15, 17, 19

July 20, 2000

We are not in favor of the requested increase of permitted use to 6,110 gallons per acre per day (gpd) for a total of 892,060 gpd. Since the applicant has not offered any proof or evidence of damage to justify an increase of permitted use or their irrigation practices for review, we are opposed to any increase at this time.

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If you have any questions, please contact Chester Lao at 527-5286.
TO: Dean Uchida, Administrator  
Land Division

FROM: Linnel T. Nishioka, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15, 17, 19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 24, 2000.

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:

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

(XX) A water lease/permit is not required of this applicant.

( ) A water lease/permit has been obtained by the applicant through lease no. ________

( ) Other relevant Land Division rules/regulations, information, or recommendations are attached.

( ) No objections

(XX) Other comments: This private property was entered in Land Court Application No. 1069 prior to statehood in 1959

Contact Person: Gary Martin     Phone: 587-0421
Signed: Gary Martin     Date: JUL 27 2000
TO: Ms. Esther Ueda, Executive Officer
Land Use Commission

FROM: Timothy E. Johns, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15, 17, 19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 state land use designation for the TMK parcel, or portion thereof, for the proposed use area(s) and, secondly, whether the current state land use designation is appropriate for the proposed project.

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 July 24, 2000.

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.

Attachments

Response:

( ) The proposed water use(s) is consistent with the current zoning designation(s).
(x) Comments attached

Contact Person: Executive Officer Phone: 587-3822
Signed: Date: July 10, 2000
Mr. Timothy E. Johns, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Johns:

Subject: Water Use Permit Application, Puuloa Groundwater Management Area, Oahu

We have reviewed the subject application forwarded by your transmittal dated June 29, 2000, and have the following comments:

1) We find that the proposed use sites are designated within the State Land Use Urban District. As noted in our previous comments on past water use permit applications for the subject project, a portion of the Coral Creek Golf Course was reclassified to the Urban District pursuant to LUC Docket No. A88-627/Gentry Development Company, subject to 27 conditions. Condition No. 5 specifically related to the development of water sources for the subject property. Please refer to the conditions of the Findings of Fact, Conclusions of Law, and Decision and Order, a copy of which was previously transmitted to your office.

2) With respect to your request as to whether the current designation is appropriate for the proposed project, please be advised that pursuant to §205-2(b), HRS, permitted activities or uses within the Urban District are determined by the respective counties by ordinances or regulations. Therefore, the City and County of Honolulu should be requested to provide a response as to the appropriateness of the proposed water use in the Urban District.

We have no further comments to offer at this time. We appreciate the opportunity to comment on the subject application.
As requested, we are returning the cover memo for the subject application.

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

ESTHER UEDA
Executive Officer

EU:aa
Encl.
TO: Aquatic Resources  
Forestry and Wildlife/Natural Area Reserve System  
State Parks

FROM: Linnel T. Nishioka, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15,17,19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 24, 2000.

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: [Signature]  
Phone: 587-0218

Signed: [Signature]  
Date: 6/30/00
From: Timothy E. Johns, Chairperson  
Commission on Water Resource Management

To: Honorable Raynard C. Soon, Chairperson  
Department of Hawaiian Home Lands

Honorable Bruce S. Anderson, Director  
Department of Health
Attn: Mr. Dennis Tulang  
Attn: Mr. William Wong

Honorable Clayton Hee, Chairperson  
Office of Hawaiian Affairs

Mr. Clifford S. Jamile, Manager & Chief Engineer  
Honolulu Board of Water Supply
Attn: Mr. Chester Lao  
Attn: Mr. Barry Usugawa

Mr. Randall Fujiki, Director  
Department of Planning and Permitting
Attn: Mr. Gary Okino, Planning Division

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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15,17,19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 July 24, 2000.

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 587-0238.

Response:

We have no comments
We have no objections
Comments attached

Contact Person: William Wong  
Phone: 586-4258

Signed: William Wong  
Date: July 6, 2000
Subject: Water Use Permit Application
Puuloa Ground Water Management Area, Oahu

Thank you for the opportunity to review the subject project. The Safe Drinking Water Branch has the following comment.

1. The entire irrigation system should be clearly identified as non-potable water to prevent the inadvertent consumption of water from this system.

2. In the event that the irrigation system served by these wells should be connected to any system used to transmit water for human consumption, that connection should be properly protected by an appropriate backflow prevention device as specified in Chapter 11-21, Hawaii Administrative Rules relating to Backflow and Cross-Connection Control. This device will allow the irrigation system to receive supplemental water from the drinking water system, but will prevent irrigation system water from contaminating the drinking water system.
TO: Honorable Raynard C. Soon, Chairperson
Department of Hawaiian Home Lands

Honorable Bruce S. Anderson, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton Hee, Chairperson
Office of Hawaiian Affairs

Mr. Clifford S. Jamile, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Randall Fujiki, Director
Department of Planning and Permitting
Attn: Mr. Gary Okino, Planning Division

FROM: Timothy E. Johns, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15, 17, 19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 July 24, 2000.

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: Lori N. Kajiwara

Signed: Lori N. Kajiwara

Date: 7-5-2000
TO: Honorable Raynard C. Soon, Chairperson
Department of Hawaiian Home Lands

Honorable Bruce S. Anderson, Director
Department of Health
Attn: Mr. Dennis Tulang
Attn: Mr. William Wong

Honorable Clayton Hee, Chairperson
Office of Hawaiian Affairs

Mr. Clifford S. Jamile, Manager & Chief Engineer
Honolulu Board of Water Supply
Attn: Mr. Chester Lao
Attn: Mr. Barry Usugawa

Mr. Randall Fujiki, Director
Department of Planning and Permitting
Attn: Mr. Gary Okino, Planning Division

FROM: Timothy E. Johns, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15,17,19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 July 24, 2000.

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: Rebecca Alakai/Darrell Yagodich Phone: 586-3866

Signed: Date: 7/6/00
Transmitted for your review and comment is a copy of a water use permit application for Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15, 17, 19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 24, 2000.

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: 7-0573

Signed: Date: 7-6-00
Transmitted for your review and comment is a copy of a water use permit application for Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15,17,19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 24, 2000.

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.
PUBLIC NOTICE

Application for Water Use Permit
Puuloa Ground Water Management Area, Oahu

The following application for water use permit has been received and is hereby made public in accordance with Department of Land and Natural Resources Administrative Rules 13-171, "Designation and Regulation of Water Management Areas."

Coral Creek Lake No. 10 (Well No. 2001-14)
Coral Creek Lake No. 1 (Well No. 2002-19)
Coral Creek Well 1 (Well No. 2002-15)
Coral Creek Well 2 (Well No. 2002-17)
Applicant: Coral Creek Golf Course
91-1111 Geiger Road
Ewa Beach, HI 96706

Date Completed Application Received: June 19, 2000
Aquifer: Puuloa System, Ewa Caprock Sector, Oahu
Water Source: Coral Creek Lake Nos. 10 & 1, Wells 1 & 2 (Well Nos. 2001-14, 2002-19,15,17)
Coral Creek Golf Course, Oahu, Tax Map Key 9-1-69:10

Quantity Requested: 892,060 gallons per day.
New Water Use: Golf Course Irrigation (modification application to increase 0.690 mgd permitted use by 0.202 mgd to a new total of 0.892 mgd).
Place of Water Use: Coral Creek Golf Course at Tax Map Key: 9-1-61:2,10,7

Written objections or comments on the above application 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 24, 2000. Objections must be sent to 1) the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809 and 2) the applicant at the above address.

COMMISSION ON WATER RESOURCE MANAGEMENT

LINNEL T. NISHIOKA, Deputy Director for
TIMOTHY E. JOHNS, Chairperson

Dated: JUN 26 2000

Publish in: Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000
Mr. Ron Huffman  
Coral Creek Golf Course, Inc.  
91-1111 Geiger Road  
Ewa Beach, HI  96706  

Dear Mr. Huffman:  

We acknowledge receipt, on June 19, 2000, of your completed water use permit application for Coral Creek Lake Nos. 10 & 1 and Wells 1 & 2 (Well Nos. 2001-14, 2002-19,15,17). 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 Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.  

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,  

LINNEL T. NISHIOKA  
Deputy Director  

LN:ss  
Enclosure
TO:  Aquatic Resources  
     Forestry and Wildlife/Natural Area Reserve System  
     State Parks  
FROM:  Linnel T. Nishioka, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15,17,19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 24, 2000.

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: Dean Uchida, Administrator
   Land Division

From: Linnel T. Nishioka, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15,17,19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 24, 2000.

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.

Attachment(s)

Response:

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

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

( ) A water lease/permit has been obtained by the applicant through lease no. ____________.

( ) Other relevant Land Division rules/regulations, information, or recommendations are attached.

( ) No objections

( ) Other comments:

Contact Person: __________________________ Phone: __________________________

Signed: __________________________ Date: __________________________
TO: Other Interested Parties
FROM: Linnel T. Nishioka, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15,17,19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 24, 2000 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 Raynard C. Soon, Chairperson
                Department of Hawaiian Home Lands

                Honorable Bruce S. Anderson, Director
                Department of Health
                Attn: Mr. Dennis Tulang
                Attn: Mr. William Wong

                Honorable Clayton Hee, Chairperson
                Office of Hawaiian Affairs

                Mr. Clifford S. Jamile, Manager & Chief Engineer
                Honolulu Board of Water Supply
                Attn: Mr. Chester Lao
                Attn: Mr. Barry Usugawa

                Mr. Randall Fujiki, Director
                Department of Planning and Permitting
                Attn: Mr. Gary Okino, Planning Division

FROM: Timothy E. Johns, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15,17,19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 July 24, 2000.

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. Esther Ueda, Executive Officer
    Land Use Commission

FROM: Timothy E. Johns, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15, 17, 19. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

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 state land use designation for the TMK parcel, or portion thereof, for the proposed use area(s) and, secondly, whether the current state land use designation is appropriate for the proposed project.

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 July 24, 2000.

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: __________
TO: Mr. Randall Fujiki, Director  
Department of Planning and Permitting  
Attn: Art Challacombe

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

SUBJECT: WATER USE PERMIT APPLICATION  
Puuloa Ground Water Management Area, Oahu

For your review and record, we are forwarding a copy of the application for Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15,17,19, which includes a copy of your concurrence letter regarding the consistency of the proposed projects with the parcel's current zoning designation. Public notice of this application will be published in the Hawaii State & County Public Notices (HS&CPN) issues of July 3 and 10, 2000.

If you have any questions, 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 Coral Creek Golf Course, Inc. for Well Nos. 2001-14, 2002-15, 17, 19, which will be published in the Hawaii State & County Public Notices (HS&CPN).

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 received a concurrence letter from the Department of Planning and Permitting (DPP) confirming the current zoning designation for the proposed use locations and the consistency of the current zoning designations with the proposed projects. In accordance with the procedure that has been established by DPP, we have also sent a copy of the application and an individual request for comments to DPP and the Board of Water Supply to facilitate and expedite City agencies review. We will look forward to receiving the City's review comments from DPP within the next sixty (60) days, on whether this water use is consistent with county plans, policies, and land use designations.

Very truly yours,

TIMOTHY E. JOHNS
Chairperson

Enclosures
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REMARKS: LINE (1) WKX XXXX RR No. 572
LINE (2)
LINE (3)
LINE (4)

FIRST HAWAIIAN BANK
HONOLULU, HAWAII
59-101/1213
2962

6/19/2000

PAY TO THE ORDER OF Commission On Water Resource Management

Twenty-Five and 00/100

DOLLARS

MEMO Application fee

CORAL CREEK GOLF, INC.

Commission On Water Resource Management
7029- AD License, Fees & Permits

6/19/2000

25.00

Coral Creek GC Petty C Application fee

25.00
PAY TO THE ORDER OF Commission On Water Resource Management $25.00

Twenty-Five and 00/100

DOLLARS

MEMO Application fee

Coral Creek GC Petty C Application fee

25.00
June 7, 2000
00/283 (97-4306)

Ms. Linnel T. Nishioka - 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. Nishioka:

Water Use Permit Application for Coral Creek Lake No. 1 (2002-19), Well 1 (2002-15), and Well 2 (2002-17) at the Coral Creek Golf Course in Ewa Beach, Oahu

On behalf of Coral Creek Golf Course, Inc., I am pleased to submit the enclosed original and 15 copies of the Water Use Permit application for Coral Creek Lake No. 1 (2002-19), Well 1 (2002-15), and Well 2 (2002-17) at the Coral Creek Golf Course in Ewa Beach, Oahu. This request is for an increase in permitted use from 0.69 to 0.89 MGD. Coral Creek has found the 0.69 MGD amount to be inadequate. The requested 0.89 MGD is based on an irrigation rate of 6110 GPD/acre, the rate previously approved for the Hawaii Prince Golf Course.

If you have any questions or need additional information, please feel free to call. Thank you for your assistance to this matter.

Sincerely,

Tom Nance

cc: Ron Huffman
Enclosures
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
APPLICATION FOR WATER USE PERMIT
Groundwater or Surface Water
5-17-00
97-4306

PERMITTEE INFORMATION
1. (a) APPLICANT: Coral Creek Golf Course, Inc.
   Firm/Name
   Contact Person: Ron Huffman
   Address: 91-1111 Geiger Road, Ewa Beach 96706
   Phone: 440-1111 Fax: 440-1112
   E-mail: coralcreekcg@aol.com

   (b) LANDOWNER OF SOURCE: Coral Creek Golf Course, Inc.
   Firm/Name
   Contact Person: Ron Huffman
   Address: 91-1111 Geiger Road, Ewa Beach 96706
   Phone: 440-1111 Fax: 440-1112
   E-mail: coralcreekcg@aol.com

SOURCE INFORMATION
2. WATER MANAGEMENT AREA: Puuolua Aquifer System, Ewa Caprock
   ISLAND: Oahu

3. (a) EXISTING WELL/STREAM DIVERSION NAME AND STATE NUMBER: N/A
   (If source doesn't presently exist, please attach well construction/stream diversion permit or application.)
   (b) PROPOSED (NEW) WELL/STREAM DIVERSION NAME: Coral Creek Lake No. 1 (2002-19), Well 1
   (c) LOCATION: Address: Coral Creek Golf Course
      (Attach and show source location on a USGS map, scale 1"=2000, and a property tax map)

4. SOURCE TYPE (check one): Stream
   □ Basal □ Dike-confined □ Perched □ Caprock
   □ Dike □ Perched □ Diverted Surface □ Other (explain)

5. METHOD OF TAKING WATER (check one): Artesian □ Well & Pump
   □ Open-pipe □ 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) □ PUC-Regulated Private System □ Intended Dedication to Dept. /Board of Water Supply □ Non-PUC-Regulated Private System
   (b) Tax Map Key: Please complete Table 1 on back of application and shade applicable portion of property tax map.

7. QUANTITY OF WATER REQUESTED: 892,060 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: □ Municipal (including hotels, stores, etc.) □ Individual Domestic □ Irrigation
     □ Industrial □ Military □ Other (explain)

11. PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION: Around the Clock as Needed
     (daytime hours of operation; example, 7 a.m. to 2 p.m.)

12. APPLICANT MUST ESTABLISH THAT THE PROPOSED USE OF WATER:
     (a) Can be accommodated with the available water source.
     (b) is a reasonable-beneficial use.*
     (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.
     (g) Will not interfere with the rights of the Department of Hawaiian Home Lands.

   * 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.

13. REMARKS, EXPLANATIONS: See Attached Sheet

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 should the Commission require one.

Applicant (print) Coral Creek Golf Course, Inc.
Signature [Signature]
Date MAY 18, 2000

Landowner (print) Coral Creek Golf Course, Inc.
Signature [Signature]
Date MAY 18, 2000

WUPAFORM (3/1/00)
## TABLE 1. TMKs TO USE REQUESTED WATER

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</table>
| **PROJECT NAME & PHASES**  
(Include address if applicable)  
Identify Project No. on TMK Map | **EXISTING or NEW USE**  
(If existing, fill in date of first use) | **POTABLE or NON-POTABLE** | **TMK** | **STATE LUD** | **CURRENT COUNTY ZONING** | **UNITS or NET ACRES** | **GPD/UNIT or GPD/ACRE** | **YEAR 2000** | **YEAR 2001** | **YEAR 2002** | **YEAR 2003** | **YEAR 2004** |
| | | | | | | | | **GPD (F0)** | **GPD (BUILD OUT)** |
| 2. Coral Creek Golf Course (Portion) | Existing (Nov. 1998) | Non-Potable | 9-1-61:10 | Urban | P-2 | 50.0 | 6,110 | 305,500 | 305,500 | 305,500 | 305,500 | 305,500 |
| 3. Coral Creek Golf Course (Portion) | Existing (Nov. 1998) | Non-Potable | 9-1-61:7 | Urban | P-2 | 74.0 | 6,110 | 452,140 | 452,140 | 452,140 | 452,140 | 452,140 |
| **TOTAL GPD** | | | | | | | | 892,060 | 892,060 | 892,060 | 892,060 | 892,060 |
| **DEPARTMENT OF PLANNING AND PERMITTING SIGNATURE** | | | | | | | | | | | | |

Instructions for completing Table 1: Individual projects and phases must be listed separately and numbered sequentially on Table 1. Copy Table 1 and attach additional sheets if necessary. Please indicate individual projects and phases on TMK maps by clearly delineating project areas and including sequential number within delineated areas to coincide with Table 1. Please attach a separate sheet giving the address and a brief description of each project and phase listed above. In addition, if the proposed use is existing, please provide the WUP No. or indicate when the existing use was initiated. Also, the Department of Planning and Permitting (DPP) must sign before application is acceptably complete. Please consult with DPP at 650 South King Street, 7th Floor, Honolulu, HI 96813 Attn: Arthur D. Challacombe
13. REMARKS, EXPLANATIONS:

This application is to increase the permitted use from the present 0.69 MGD allocation. The initial amount came from an estimate by the course's irrigation consultant but it has proven to be insufficient to maintain the turfgrass and other landscaping. The Commission, in approving an increase in use for the Hawaii Prince Golf Course in January 1998, accepted a use rate of 4700 GPD/acre plus 10% for irrigation inefficiencies in windy Ewa and 20% excess application to leach salts and prevent their build-up in the soil. This amounts to a total use rate of 6110 GPD/acre. Over the course's 146 irrigated acres, this is equivalent to 892,060 GPD.
June 5, 2000

Mr. Ron Huffman
Coral Creek Golf Course, Inc.
91-1111 Geiger Road
Ewa Beach, Hawaii 96706

Dear Mr. Huffman:

Water Use Permit Application for the Coral Creek Golf Course,
Lake No. 1 (2002-19), Well 1 (2002-15), and Well 2 (2002-17), Ewa Beach

We have reviewed the application and provide the comments below.

1. The current zoning designation for TMK: 9-1-069: 010 is P-2 General Preservation District. The golf course is permitted via a Plan Review Use within this zoning district.

2. The Coral Creek Golf Course is consistent with the golf course designation on the Land Use Map of the Ewa Development Plan (Ordinance 97-49).

Should you have any questions, please call Matthew Higashida of our staff at 527-6056.

Sincerely yours,

RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:js
Lake two
### CHLORIDE TITRATION RECORD

**For**

**Coral Creek Golf Well**

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**Oahu Island**

**Project or Job No.** 19

**Titrations conducted by** M. Ohle

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WATER USE PERMIT NO. 798

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:          | Coral Creek Golf, Inc.  
|                      | 91-1111 Geiger Rd.  
|                      | Ewa Beach, HI 96706  
| Landowner of Source: | Coral Creek Golf, Inc.  
|                      | 91-1111 Geiger Rd.  
|                      | Ewa Beach, HI 96706  
| Permitted Withdrawal Rate: | 0.892 mgd (Based upon a 12-month moving average)  
| Water Management Area: | Puuloa  
| Island:              | Oahu  
| Aquifer Sector/System: | Ewa Caprock/Puuloa  
| 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): | 2001-14, 2002-15, 2002-17, 2002-19  
| Well Name:             | Coral Creek #1, #2, #10 & Coral Creek Lake #1  
| Water Source TMK Number(s): | 1st Division, 9-1-069:010 (#1, #2, Lake #1)  
|                        | 9-1-069:011 (#10)  
| State Land Use Classification(s): | Agriculture/Urban  
| County Zoning Classification(s): | P-2  
| Geographical Coordinates: |  
| Well No. 2001-14 | Latitude 21° 19' 50.3" North  
|                  | Longitude 158° 01' 48.0" West  
| Well No. 2002-15 | Latitude 21° 20' 01.6" North  
|                  | Longitude 158° 02' 10.3" West  
| Well No. 2002-17 | Latitude 21° 20' 06.3" North  

BROWN AND CALDWELL
Summary Report for Water Use Permit No. 798
Well No. 2002-19

Longitude 158° 02' 7.8" West
Latitude 21° 19’ 51.9” North
Longitude 158° 02' 03.1” West

End Use

End Use TMK Number(s): 1st Division, 9-1-061:002, 9-1-069:010, 9-1-069:011
State Land Use Classification(s): Agriculture/Urban
County Zoning Classification(s): P-2
Beneficial Use Explanation: Backup water for golf course landscaping

Background Information

State Well Nos. 2001-14, 2002-15, 2002-17, and 2002-19 were originally governed by Water Use Permit 579, which was issued on October 13th, 2000. In 2006, Water Use Permit 579 was superseded by Water Use Permit 798, which changed the permit status from interim to permanent.

Consistent water use and salinity records are available for at least the past four years. The permittee’s 12-month moving average has exceeded the permitted amount of 0.892 mgd for approximately seven months during this time. Reference the permit file for additional information on reporting history.

Water Use Permit 798 was approved for transfer during the July 12th, 2006 Commission on Water Resource Management meeting. 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 permit file.

Field Investigation Information

Contact: Kyun Kim
Site Address: 91-1111 Geiger Rd.
Ewa Beach, HI 96706

Brown and Caldwell conducted a field investigation on July 22nd, 2008 from 9:00 a.m. until 10:30 a.m. with Mr. Kyun Kim. 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 Coral Creek Golf Course. 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. 798**

State Well Nos. 2002-15, 2002-17, and 2002-19 are located on TMK parcel 9-1-069:010 at 21° 20’ 01.6” N, 158° 02’ 10.3” W (±14-feet), 21° 20’ 06.3” N, 158° 02’ 7.8” W (±15-feet), and 21° 19’ 51.9” N, 158° 02’ 03.1” W (±11-feet), respectively. State Well No. 2001-14 is located on TMK parcel 9-1-069:011 at 21° 19’ 50.3” N, 158° 01’ 48.0” W, with a real time accuracy of ±14-feet.

State Well Nos. 2001-14 and 2002-19 were not in use at the time of the field investigation. They are simply lakes that reside on golf course property and function as water features for the course. Only State Well Nos. 2002-15 and 2002-17 were functional. Water from these two wells are drawn via submersible pumps and metered separately at each well site. After being metered, the water from each well is conveyed to a central holding pond on TMK parcel 9-1-069:010. A pump house with a series of booster pumps distributes the water from the holding pond to the central irrigation system for use on TMK parcels 9-1-061:002, 9-1-069:010, and 9-1-069:011 for general landscaping purposes. 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 and salinity levels are currently being reporting on a monthly basis. However, the permittee has been in violation of overpumpage for approximately seven months of the four year sample period. As such, full permit compliance has not been achieved.

**Recommendations**

- Address the following discrepancies between the Commission’s electronic database and actual field investigation findings:
  - Water source and end use TMK parcel numbers
  - State land use and county zoning classifications
- Address issue of overpumpage of the battery of aforementioned State wells
20-Year Water Use Permit Review  
Water Use Permit No. 798

APPENDIX

Field Investigation Photographs
Figure 1 – State Well No. 2002-15

Figure 2 – Flowmeter for State Well No. 2002-15
Figure 3 – State Well No. 2002-17

Figure 4 – Flowmeter for State Well no. 2002-17
Figure 5 – System controls for State Well Nos. 2002-15 and 2002-17

Figure 6 – Holding pond
Figure 7 - Booster pump house

Figure 8 - State Well No. 2002-19
Figure 9 – State Well No. 2001-14

Figure 10 – Typical end use area
Figure 11 – Typical end use area
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 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 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
use report shall also be filed pursuant to Standard Condition 10 and Administrative Rule 13-168-7.

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 supersede 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 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. Permitee 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.
Water Use Permit Survey
(Please complete one survey form for each WUP)

WUP Number: 796, 797, 798 Well Number(s): 2002-17, 2001-13, 2001-14, 2002-15, 2002-17 2002-19

Contact Information (of the person who will be present at site visit):
Name: Kyun Kim
Phone (for phone interview): 306-0504 Fax: 440-1136
Email: coral-maint@hawai.rr.com
Best time to reach for phone interview: Mon-Fri 7-3:30 PM

Property Information (of the water use/well location):
Address: 91-1111 Geiger Rd. City: Ewa Beach, HI 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: We are currently purchasing recycled R1 water.

What are you currently using the water for? (example: “Use for 45 acres of diversified agriculture and 3 residences”):
Used to irrigate the golf course

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 two 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): ____________ Time: 9:00 am ☐ 12:00 pm ☐ 3:00 pm ☐
Option #2 Date (M-F): ____________ Time: 9:00 am ☐ 12:00 pm ☐ 3:00 pm ☐
Option #3 Date (M-F): ____________ 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 July 18th, 2008 and direct any questions related to this survey to Mr. Milo Smith of Brown and Caldwell at:
1099 Ala kea Street, Suite #2400
Honolulu, HI 96813
Tel: (808) 203-2661
Fax: (808) 533-0226
mcsmithe@brownca.web.com

Received: 7/15/08 Information Updated: 7/15/08 Phone Interview Complete: 7/17/08
Notes/Comments:
### Phone Interview

**WUP Number:** 798  
**Well Number(s):** 2001-19, 2002-15, 2002-17, 2002-19  
**Contact Name:** Kyun Kim  
**Phone Number:** 306-0564

<table>
<thead>
<tr>
<th>Attempt #1</th>
<th>Date/Time:</th>
<th>Result:</th>
<th>Well Location TMK(s):</th>
<th>Water Use TMK(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7/11/08 (7:25)</td>
<td>Reached</td>
<td>a-1-069.010</td>
<td>a-1-069.010</td>
</tr>
</tbody>
</table>

| Well Source Address: | 91-111 Geiger Road |
| City: | Ewa Beach |
| Zip Code: | 96706 |

**Currently using water source?**  
Yes [ ]  No [x]  
**Notes/Comments:**  
Currently using 2-1 water

| How often is the water source being used? | Daily [ ]  Weekly [ ]  Monthly [ ]  N/A [ ] |
|------------------------------------------|-----------------|-----------------|-----------------|
| **Notes/Comments:**                      |                 |
| N/A - Not in use                         |                 |

| How long have you been using this water source?: | N/A |
| Has there been any rezoning of the water source/water use properties? | Yes [ ]  No [x] |
| Have you reported the rezoning to the State? | Yes [ ]  No [ ]  N/A [x] |
| If no, explain: | |

**Scheduled field investigation day/time:** 7/12/08 @ 9:00

**Notes (Special directions, site conditions, potential hazards, general notes, etc.):**

Meet at Coral Creek Golf Course

**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:** 7/11/08  
**Time:** 7:20 a.m.
# Field Investigation Checklist

## Water Source

<table>
<thead>
<tr>
<th>WUP Number: 798</th>
<th>Well Number(s): 2001-14, 2002-15, 2002-17, 2002-19</th>
</tr>
</thead>
</table>

**Well Location**
- TMK(s): 9-1-069.010, 9-1-069.011

**Well Head GPS Coordinates**
- Latitude: Below
- Longitude: Below

Currently using water source?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<tbody>
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Is there a flow meter installed?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<tr>
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Is the flow meter operational?

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<tr>
<th>Yes</th>
<th>No</th>
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</table>

Notes/Comments:

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## Water Use

**Water Use**
- TMK(s): 9-1-069.010, 9-1-069.011

What is the water being used for?

- Backup

Is the water being used within the permitted boundaries?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
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</tbody>
</table>

If no, explain:

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Is there any observed wasting of water or water loss?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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</table>

If no, explain:

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Are the permit conditions being complied with?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
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<td>☑</td>
</tr>
</tbody>
</table>

If no, explain:

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## Other

**Photographs of:**
- Water Source
- Water Meter
- Usage Area
- Pump/Motor

General Notes/Comments:

- Water from 2002-15 and 2002-17 sent to heating pad & booster pumps to irrigation system.

---

Investigated By: M.G. 
Date: 7/22/09 
Time: 9:00 a.m.
Ref: ewa caprock wup conversion. act

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
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
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
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 [Pualoa 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 [Pualoa 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.

Exhibit 4
Modification of Water Use Permit for Well Nos. 2001-14, 2002-15, 2002-17, and 2002-19 Puuloa Ground-Water Management Area, Oahu

This letter transmits your water use permit for Well Nos. 2001-14, 2002-15, 2002-17, and 2002-19 for use of 0.892 million gallons per day (mgd) of water on a 12-month moving average basis that has been administratively modified pursuant to your September 9, 2000 letter and Declaratory Ruling DEC-ADM97-A1. As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Standard Permit Condition 18:

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. The applicant shall contact the Environmental Management Division, State Department of Health, at 586-4304, concerning "GUIDELINES APPLICABLE TO GOLF COURSES IN HAWAII" dated August, 1994 (version 5). The applicant shall obtain a written statement from the Department of Health indicating that their concerns have been addressed, and a copy of that statement shall be sent to the Commission.

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

e. The duration of the interim permit shall be:
   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.

f. This permit is approved under the assumption that wastewater will become available for reuse as an alternative supply source.
OCT 13 2000

If effluent is used for irrigation, the applicant is required to conform with Department of Health requirements for effluent reuse.

Require adherence to the chloride sampling protocol (attached) and the submittal of weekly chloride data.

Require adherence to the Conservation Conditions (attached).

WUP No. 508 is revoked. This water use permit, WUP No. 579, shall supersede WUP No. 508.

The Commission shall stay enforcement of the permitted use quantity through the grow-in period (to December 31, 1999).

Enclosed with this letter of approval are the following:

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

Please be sure to read the conditions of your approved permit.

We draw your attention to two key conditions of your permit that require your response. First, you are required 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 weekly 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 Puuola 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 Lenore Nakama of the Commission staff at 587-0218.

Aloha,

TIMOTHY E. JOHNS
Chairperson

Attachments
GROUND-WATER USE PERMIT
WUP NO. 579

PERMITTEE

<table>
<thead>
<tr>
<th>Permittee/Water User</th>
<th>Landowner of Source</th>
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<tbody>
<tr>
<td>Coral Creek Golf Course, Inc.</td>
<td>Coral Creek Golf Course, Inc.</td>
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<tr>
<td>91-1111 Geiger Road</td>
<td>91-1111 Geiger Road</td>
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<tr>
<td>Ewa Beach, HI 96706</td>
<td>Ewa Beach, HI 96706</td>
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PERMITTED SOURCE INFORMATION

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<thead>
<tr>
<th>Island</th>
<th>Water Management Area</th>
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<table>
<thead>
<tr>
<th>Aquifer Sector</th>
<th>Aquifer System</th>
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<tr>
<td>Ewa Caprock</td>
<td>Puuloa</td>
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<table>
<thead>
<tr>
<th>System Sustainable Yield</th>
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<th>State Well No.</th>
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<tr>
<td>1000 mg/l Chloride Cap</td>
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PERMITTED USE INFORMATION

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<thead>
<tr>
<th>Reasonable beneficial use</th>
<th>Withdrawal (12 month moving ave.)</th>
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<tr>
<td>Golf Course Landscaping</td>
<td>0.892 mgd</td>
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<table>
<thead>
<tr>
<th>Location of water use</th>
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<tr>
<td>TMK #</td>
<td>9-1-61:2, 7, 10</td>
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<tr>
<td>Address</td>
<td>91-1111 Geiger Road, Ewa Beach, HI 96706</td>
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<tr>
<td>State land use classification</td>
<td>Urban</td>
</tr>
<tr>
<td>County zoning classification</td>
<td>P-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 permittee 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 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;
   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.

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 weekly basis (attached).

11. 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.

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.

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 Puuloe 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.

TIMOTHY E. JOHNS, Chairperson
Commission on Water Resource Management

Attachment