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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
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ACTING DEPUTY DIRECTOR

ref: wup746 & 747.sub

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

August 16, 2006
Honolulu, Oahu

Hawaii Reserves, Inc.
APPLICATION FOR WATER USE PERMITS
Prawn Farm and Laie Maloo Wells (Well Nos. 3856-07 & 3755-04), TMK 5-5-005:023 (3856-07) and 5-6-006:011 (3755-04), WUP Nos. 746 & 747
New (Agricultural) Use for 0.147 mgd (3856-07) and 0.025 mgd (3755-04)
Koolauloa Ground Water Management Area, Oahu

APPLICANT:

Hawaii Reserves, Inc.
55-510 Kamehameha Highway
Laie, HI 96762

LANDOWNER:

Property Reserves, Inc.
55-510 Kamehameha Highway
Laie, HI 96762

SUMMARY OF REQUEST/RECOMMENDATION:

For Well No. 3856-07 (Prawn Farm Well) the applicant requests that the Commission on Water Resource Management (Commission) amend their existing water use permit to add two additional parcels without increasing the allocation. Staff recommends that the Commission approve an allocation of 0.171 million gallons per day (mgd) for diversified agriculture irrigation, which is greater than the existing allocation of 0.147 mgd, to reflect actual water use.

For Well No. 3755-04 (Laie Maloo Well) the applicant requests that the Commission approve a water use permit for an allocation of 0.025 mgd of potable basal ground water from the existing Laie Maloo Well to supply 50 acres of irrigation for diversified agriculture and pasture. Staff recommends that the Commission approve an allocation of 0.039 mgd for diversified agriculture and pasture irrigation, to reflect comparable water use.

LOCATION MAP: See Exhibit 1

BACKGROUND:

The applicant originally submitted water use permit applications for the subject wells in 1993. These wells, among others, were included in the Laie Contested Case Hearing (CCH). Through the decision and order (D&O) for the Laie CCH, issued in December 1998, the Commission denied the water use permit application for 0.005 mgd from the Laie Maloo Well (Well No. 3755-04) without prejudice. Additionally, the Commission approved 0.147 mgd of existing use (aquaculture, bananas, diversified agriculturer) for the Prawn Farm Well (Well No. 3856-07), issued as Water Use Permit No. 387, but denied 0.298 mgd, which the Commission stated could later be applied for as a new use.

On March 28, 2006, completed water use permit applications were received from Hawaii Reserves, Inc. by the Commission. Additional information regarding the source, use, notification, objections, and field investigation(s) is provided in Attachment A.

The application for WUP No. 746 for the Prawn Farm Well (3856-07) does not request any additional allocation, but requests an amendment of the water use permit to add two parcels. The application states that the use will be diversified agriculture, which omits the aquaculture and banana irrigation use of the original water use permit. The use will be over the existing 140 acres, plus an additional 37 acres of net usable land.

The application for WUP No. 747 for the Laie Maloo Well (3755-04) requests 0.025 mgd as a new use for 50 acres of agriculture and pasture land in accordance with the Laie CCH D&O.

ANALYSIS/ISSUES:

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

(1) Water availability

Through the Hawaii Water Plan, the Commission has adopted 35 mgd as the sustainable yield for the Koolauloa Aquifer System. Individual existing water use permits in this aquifer system are shown in Exhibit 2. A summary of the current ground water conditions in the aquifer is provided in Table 1:

Table 1. Koolauloa Aquifer System

ITEM	Koolauloa Aquifer System (mgd)
Sustainable Yield	35
Less: Other Existing Water Use Permits (shown in Exhibit 2)	19.601
Reservation to DHHL	0
Subtotal (Current Available Allocation)	15.399
Less: Other Completed Applications	0
Less: Staff recommendation for both wells, less existing allocation for 3856-07	0.063
Subtotal (Potential Available Allocation/Allocation Deficit)	15.336

Therefore, the resource availability can accommodate this application request.

(2) Reasonable-beneficial

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

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

I. Purpose of Use

For WUP No. 746 (Prawn Farm Well, Well No. 3856-07), the applicant is requesting the use of fresh ground water for agriculture irrigation use. For WUP No. 747 (Laie Maloo Well, Well No. 3755-04), the applicant is requesting the use of fresh ground water for agriculture irrigation and pasture use. The Declaration of Policy section, §174C-2(c) HRS, states that the Water Code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for various purposes including irrigation and other agricultural uses.

II. Quantity Justification

The applicant is requesting 700 gallons per day per acre as the duty to calculate projected demands for diversified agriculture. The applicant based this quantity on a 6 month period of rainfall and actual tenant occupied acreage (60 acres).

The Commission does not have a standard duty for diversified agriculture, as duties are site

and crop specific. The Commission currently has a contract with Dr. Ali Fares of CTAHR to develop an agricultural water demand model. However, the model is still in development and past application reviews have produced differences between requested amounts and amounts that Dr. Fares has calculated for the sake of comparison, as the model is still in the preliminary stages and factors such as rainfall data have not been standardized.

Because the subject application has both existing uses and nearby comparable uses, in lieu of Dr. Fares's review, staff has opted to estimate a reasonable duty for future demand by analyzing existing pumpage. There are two primary systems that staff feels are comparable in use. The first use is the existing Prawn Farm Well (Well No. 3856-07), and the second is the Kapaka Farms 1 and 3 Wells (Well Nos. 3554-01 & 3654-03), which are approximately 2 miles south of the Laie Maloo Well.

For the existing Prawn Farm Well, the pumpage is 0.058 mgd (12-month moving average as of 12/05). Refer to Exhibit 3 for a summary graph of pumpage. The total net leased area of the three parcels currently being served is 60 acres. The total duty based on this pumpage is $0.058/60 \text{ acres} = 967$ gallons per day per acre.

For the existing Kapaka Farm Wells, the current pumpage is 0.149 mgd (12-month moving average as of 12/05). Refer to Exhibit 3 for a summary graph of pumpage. The total net area of the parcels served is 94.75 acres. The total duty based on this pumpage is $0.149/94.75 \text{ acres} = 1,573$ gallons per acre per day.

There is a discrepancy between these two duties. Staff conducted a field investigation on June 23, 2006 to review the parcels covered by the subject applications. Further, in 2004 staff conducted a field investigation of the Kapaka Farm area to confirm agricultural use.

First of all, the Kapaka Farm area and the Prawn Farm area are reasonably close enough to dismiss climatologic factors. The Kapaka Farm area consists of small plots of land that farmers use to cultivate higher water demand crops such as sweet potato and yams, and in some areas sprinklers are used.

The existing Prawn Farm Wells, on the other hand, are used with more efficient drip irrigation for farmers cultivating crops that require lower water demands such as cucumbers and green beans.

Staff has confirmed that the crops being served by both sources applied for under this application will be closer in type to the crops grown on the farms served by the Prawn Farm Well. Therefore 967 gallons per day per acre appears to be a reasonable quantity to use as a basis for allocation.

Prawn Farm Well (Well No. 3856-07)

The applicant had initially requested that two parcels be added to the existing water use permit for this well, increasing the area from 140 to 177 acres, without a net increase in allocation. However, during staff's review of the application it was discovered that the

actual use of water from this well has in recent years been significantly lower than the original allocation of 0.147 mgd. The applicant stated that prior aquaculture operations, and later taro production had ceased and therefore the demand for water has decreased. Further, the applicant states that they have no current plans to do aquaculture or taro production in the future.

Another reason that pumpage is less than the allocated amount is that only 60 acres of the original 140 net usable acreage approved in 1998 is currently being leased to farmers.

The original water use permit issued for this well was issued as an interim permit. Therefore the Commission has the discretion of decreasing/increasing the allocation in the conversion from an interim to a permanent permit. The issuance of this permit will be permanent and will have the allocation adjusted to reflect current actual usage plus the demand from the new parcels.

Refer to Exhibit 3 for the calculations for demand. Using the user estimated demand of 700 gpd/acre over the total of 177 acres of usable land that the applicant has provided, the applicant predicts that a total of 0.124 mgd will be required to maintain the current irrigation demand and the future demand. However, because the user estimated demand of 700 gpd/acre is based on a 6-month average, and the Commission regulates on a 12-month moving average, staff feels that it is more reasonable to issue an allocation based on the duty of 967 gpd/acre. For the total usable area of 177 acres for the existing and added parcels, this amounts to 0.171 mgd.

Laie Maloo Well (Well No. 3755-04)

The applicant is requesting a total of 0.025 mgd for diversified agriculture and pasture irrigation over 50 acres. The area of cultivation for diversified agriculture is 35 acres, and the area of pasture land is 15 acres. The applicant states that 80% of the total allocation requested, or 0.020 mgd will be use for diversified agriculture, with the remaining 20% or 0.005 mgd applied to pasture land.

Refer to Exhibit 3 for the calculations for demand. The duty for diversified agriculture based on the estimated demand will be $20,000/35 = 571$ gallons/day/acre. This is less than the demand based on the actual use for the Prawn Farm well which is 967 gpd/acre. Again, staff feels that it is more reasonable to issue a permit for the duty based on staff's estimate, since it is based on a 12 month moving average vs. the 6 month calculation provided by the applicant. The total irrigation allocation will be $967 \text{ gpd/acre} \times 35 \text{ acres} = 0.034$ mgd.

The duty for the pasture land based on the requested allocation is $5,000/15 = 333$ gpd/acre. A report by the Water Resources Research Center suggests that pasture irrigation may be as much as 2000 gpd/acre, while the County Water System Standards estimates 4000 gpd/acre. Therefore, the allocation requested by the applicant appears to be well below standard pasture irrigation duties.

The total allocation of $0.034 \text{ mgd} + 0.005 \text{ mgd}$ is 0.039 mgd for the Laie Maloo Well.

III. Efficiency of Use

The applicant states that its operations are as water efficient as possible because they have tenants adhere to a watering schedule. Additionally, the pumping system for the Prawn Farm Well is in good condition and is consistently inspected for leaks and receives regular maintenance. There is no pump or distribution system for the Laie-Maloo Well. A new pump and distribution system will need to be built to accommodate the uses.

IV. Analysis of Practical Alternatives

The applicant stated that there are no practical alternatives for the allocation requests. There is no source of reclaimed water available in proximity to the subject wells. Further, salt water would not be a viable alternative because of the tolerance of crops to salt, and the cost of desalinization. The applicant has identified surface water as an alternative, but feels that the cost would be prohibitive and there is a greater chance of impacts to historical and cultural rights associated with surface water use versus ground water.

(3) Interference with other existing legal uses

There are 17 other wells within 1 mile of the Laie Maloo Well (Well No. 3755-04). Of these, four belong to the Honolulu Board of Water Supply but only one is currently used. The remaining 13 wells are used for various uses (domestic and irrigation). There is no pump currently installed in the well. A pump test will need to be done in accordance with the Hawaii Well Construction and Pump Installation Standards upon issuance of a Pump Installation Permit (which the applicant may submit following the issuance of this water use permit), and results of that test will reveal any potential adverse effects to adjacent wells. Further, staff will not accept a pump capacity where there are impacts to adjacent wells.

There are 21 other wells within 1 mile of the Prawn Farm Well (Well No. 3856-07). Of these, 14 are owned by Hawaii Reserves/Laie Water Company. Current pumpage does not appear to result in adverse effects to adjacent wells. The increase in allocation from 0.147 to 0.171 is an increase of 16%. There are currently three pumps in the well, which have capacities of approximately 250 gpm each. These pumps are turned on for maybe an hour each day, depending on the rainfall. Given that the demand increase will be 16% and the applicant doesn't anticipate having to install pumps with larger capacities, staff does not anticipate that increasing the allocation will have adverse effects on water resources.

(4) Public interest

Public interest is defined under §174C-2 - Declaration of policy, as follows:

“(c) The state water code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic uses, aquaculture uses, irrigation and other agricultural uses, power development, and commercial and industrial uses. However, adequate provision shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper

ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. Such objectives are declared to be in the public interest."

Therefore, this application meets the definition of public interest.

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

The proposed uses are in the State AG-2 District, and the county zoning is AG-1/2 and P1. Therefore, the proposed use is consistent with these land use designations.

Normal agency review includes:

- 1) the State's Department of Land and Natural Resources (DLNR) and its State Parks, Aquatic Resources, Historic Preservation, and Land Divisions; the Department of Health (DOH) with its Clean Water, Safe Drinking Water, and Wastewater Branches; the Department of Hawaiian Home Lands (DHHL), and Land Use Commission (LUC); and the Office of Hawaiian Affairs (OHA).
- 2) the County's County Council, Department of Planning and Permitting, and the Department of Water Supply;

No objections have been made through this review. These proposed uses are consistent with the state and county general plans and land use designations.

Therefore, this application meets the criteria for compliance with state & county general plans and land use designations.

(6) County land use plans and policies

Again normal County review includes County Council, Department of Planning and Permitting, and the Department of Water Supply. No objections have been made.

Therefore, this application meets the criteria for compliance with county land use plans and policies.

(7) Interference with Hawaiian home lands rights

All permits are subject to the prior rights of Hawaiian home lands. The DHHL and OHA have reviewed this application and made no objections. Further, standard water use permit conditions 3.g., 6., and 9.f. notify all water use permittees that their permits are subject to and cannot interfere with Hawaiian home land rights.

Therefore, this application will not interfere with Hawaiian home lands rights.

RECOMMENDATION:

Because the applications fulfill the requirements under Section 174C-49(a) of the State Water Code, staff recommends that the Commission approve the issuance of:

- A. Water Use Permit No. 746 to Hawaii Reserves, Inc. for the reasonable and beneficial use of 0.171 million gallons per day of potable water for agriculture irrigation use from the Prawn Farm Well (Well No. 3856-07), subject to the revocation of existing Water Use Permit No. 387; and
- B. Water Use Permit No. 747 to Hawaii Reserves, Inc. for the reasonable and beneficial use of 0.039 million gallons per day of potable water for agricultural and pasture irrigation use from the Laie Maloo Well (Well No. 3755-04);

Both subject to the standard water use permit conditions listed in Attachment B and the following special conditions:

- 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.

Respectfully submitted,

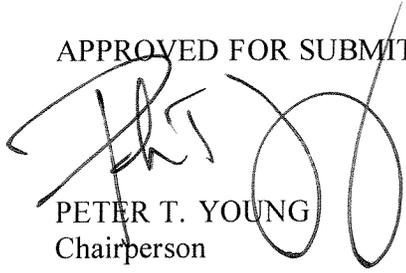


DEAN A. NAKANO
Acting Deputy Director

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

Exhibit(s): 1 (Location Map)
 2 (Existing Water Use Permits and 12-Month Moving Average Withdrawal)
 3 (Calculation Tables For Allocation Justification)

APPROVED FOR SUBMITTAL:



PETER T. YOUNG
Chairperson