



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

WILLIAM J. AILA, JR.
INTERIM CHAIRPERSON
WILLIAM D. BALFOUR, JR.
SUMNER ERDMAN
NEAL S. FUJIWARA
DONNA FAY K. KIYOSAKI, P.E.
LAWRENCE H. MIKE, M.D., J.O.
NEAL A. PALAFOX, M.D.

WILLIAM M. TAM
INTERIM DEPUTY DIRECTOR

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

January 20, 2011
Honolulu, Oahu

Naval Facilities Engineering Command, Hawaii
APPLICATION FOR A MODIFICATION OF WATER USE PERMIT NO. 433 TO 899
Wahiawa Deep Well (Well No. 3100-02), TMK 7-1-002:007
Existing / Future (Military) Use for 0.864 mgd
Wahiawa Ground Water Management Area, Oahu

APPLICANT:

Naval Facilities Engineering Command, Hawaii
400 Marshall Road
Pearl Harbor, HI 96860

LANDOWNER:

Navy Region Hawaii
850 Ticonderoga Street, Suite 110
Pearl Harbor, HI 96860

SUMMARY OF REQUEST:

The applicant requests that the Commission approve a water use permit for an allocation of 0.864 million gallons per day (mgd) of potable high level ground water from an existing well to supply military use.

LOCATION MAP: See Exhibit 1

BACKGROUND:

On August 5, 2010, a completed water use permit application was received from Naval Facilities Engineering Command, Hawaii by the Commission on Water Resource Management (Commission). Additional information regarding the source, use, notification, objections, and field investigation is provided in Attachment A.

ANALYSIS/ISSUES:

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

(1) Water availability

Through the Hawaii Water Plan, the Commission has adopted 23 mgd as the sustainable yield for the Wahiawa Aquifer System Area. Individual existing water use permits in this aquifer system area are shown in Exhibit 2. A summary of the current ground water conditions in the aquifer is provided in Table 1:

Table 1. Wahiawa Aquifer System Area

<u>ITEM</u>	Wahiawa Aquifer System Area (mgd)
Sustainable Yield	23
Less: Other Existing Water Use Permits (shown in Exhibit 2)	22.219
Reservation to DHHL	0
Subtotal (Current Available Allocation)	0.781
Less: Other Completed Applications	0
Less: This Application	0.864 (or 0.444 ¹)
Subtotal (Potential Available Allocation/Allocation Deficit)	-0.083 (or 0.337)

¹Staff's recommended allocation

Therefore, water is not available to accommodate the requested allocation of 0.864 mgd. However, an amended amount of 0.444 mgd could be accommodated by the resource, and there is justification below regarding reducing the recommended allocation to this amount.

(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

The applicant is requesting the use of potable ground water for military use. The application describes two subcategories of military use. The first is potable water needed for the domestic needs for housing and offices. The second is water for air-conditioning cooling. These are considered domestic and industrial uses of water. 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 domestic and industrial uses.

II. Quantity Justification

The applicant is requesting a total of 0.864 mgd for domestic and industrial uses. Refer to Exhibit 3 for a summary of the duties and total demand calculations.

Domestic needs:

Staff believes that the applicant's domestic request incorrectly estimates needs based on peak flow instead of average daily demands, and the application of the maximum daily demand of 2.25 is not appropriate for the purposes of allocating long term use.

The requested domestic needs are based on the following duties:

Average daily demand:

Unaccompanied personnel housing – 155 gallons/capita/day (gpcd)

Family housing – 180 gpcd

Workers (day shift) – 45 gpcd

Maximum day demand (based on max factor of 2.25):

Unaccompanied personnel housing – 349 gallons/capita/day (gpcd)

Family housing – 405 gpcd

Workers (day shift) – 101 gpcd

The Commission has been using average daily demands described in the Water System Standards (WSS), 2002, of the Departments of Water Supply as follows:

Multi-family low rise: 400 gallons/unit

Single family: 500 gallons/unit

Commercial: 100 gallons/1000 sq. ft.

Comparing the average daily demands that the applicant is requesting (without the max factor applied), they generally appear within the range of the Water System Standards (WSS) considering the following:

- For the unaccompanied personnel housing duty of 155 gpcd, under the assumption of 2 people / unit, the requested total would be 310 gallons/unit/day, compared to the multi-family low rise duty of 400 gallons/unit/day in the WSS.
- For the family housing duty of 180 gpcd, assuming 2.5 people on average per household, the requested total would be 450 gallons/unit/day, compared to the single family duty of 500 gallons/unit/day in the WSS.

- For the workers (day shift), 45 gallons/capita/day appears high compared to the commercial duty of 100 gallons/1000 sq. ft./day in the WSS. Assuming that there could be roughly 6 people in a 1000 sq. ft., average use would be 17 gallons/capita/day. Typical flushes for low flow toilets are 1.6 gallons/flush. However, the Navy's design standard of 45 gpcd may account for other domestic needs (landscape irrigation, etc.).

Industrial needs:

The applicant is requesting 108,000 gallons/day for the cooling tower. Cooling tower requirements are variable depending on the size and purposes of the individual facility. Therefore, there is no standard that the Commission can apply to judge the reasonableness of the duty for this use.

Exhibit 3 shows that if the 2.25 maximum factor is disregarded and all of the applied for duties are used for the domestic needs, the total request including the industrial cooling will be 443,950 gallons per day. This new allocation, if approved, could be accommodated by the resource, described in Table 1, with 0.337 mgd of allocation remaining.

III. Efficiency of Use

The applicant states that new facilities including HRSOC, P173 and WSOC have low-flow fixtures such as low flow toilets in accordance with Unified Facilities Criteria (UFC).

IV. Analysis of Practical Alternatives

The applicant indicated that there are no practical alternatives to using potable groundwater and provided the following justifications:

1. Municipal sources – not an alternative.
2. Wastewater reuse – none available in the vicinity, cooling tower requires clean water.
3. Ditch / surface water – none available in the vicinity.
4. Desalinization – too expensive.

(3) Interference with other existing legal uses

There are 3 other wells within 1 mile of the Wahiawa Deep Well. Well No. 3100-01 also belongs to the Navy. Additionally, this well is not in use and there is no water use permit for any use from this well. Wells 3059-01 and -02 are approximately 1 mile southeast. These unused wells, drilled in the 1940s, were owned by Wahiawa Water on Dole Food Co., Inc. land, were not registered, do not have use records, nor do they have a water use permit associated with them. The wells are on lands currently owned by Dole Food Company, Inc. Therefore, there is no anticipated interference with other existing legal uses.

(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.”

Copies of the application have been sent to various agencies both within the Department of Land and Natural Resources, as well as various state and county agencies. No comments or objections have been raised by any of the agencies solicited regarding the adequate provisions described above. Additionally, no public comments were received by the Commission

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

The proposed uses are in the State AGR District, and the county zoning is F-1. 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 (DDHL), and Land Use Commission (LUC); and the Office of Hawaiian Affairs (OHA).
- 2) the Office of the Mayor, Department of Planning and Permitting, and the Department/Board of Water Supply;

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

(6) County land use plans and policies

Again normal County review includes Office of the Mayor, Department of Planning and Permitting and the Board of Water Supply. No comments or objections have been made.

(7) Interference with Hawaiian home lands rights

All permits are subject to the prior rights of Hawaiian home lands. The Department of Hawaiian Home Lands (DHHL) and the Office of Hawaiian Affairs have reviewed this application and made no comments or 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.

(8) Other issues

I. Chapter 343 – Environmental Assessment (EA) Compliance

EA Triggers

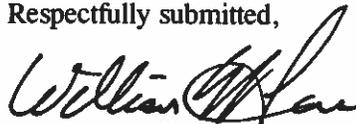
In accordance with §HRS 343-5(a), the applicant’s proposed action does not trigger the need for an EA.

RECOMMENDATION:

Staff recommends that the Commission approve the issuance of water use permit no. 899 to Naval Facilities Engineering Command, Hawaii for the reasonable and beneficial use of 0.444 million gallons per day of potable water for military use from the Wahiawa Deep Well (Well No. 3100-02), subject to the standard water use permit conditions listed in Attachment B and the following special conditions:

1. 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,



WILLIAM M. TAM
Interim 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 (Duty Calculation)

APPROVED FOR SUBMITTAL:


WILLIAM J. AILA, JR.
Interim Chairperson

WATER USE PERMIT DETAILED INFORMATION

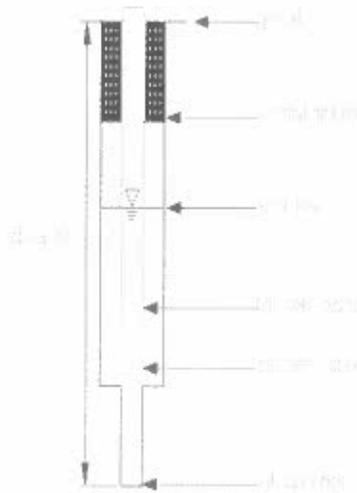
Source Information

AQUIFER:	Wahiawa System, Central Sector, Oahu
Sustainable Yield:	23 mgd
Existing Water Use Permits:	22.219 mgd
Available Allocation:	0.781 mgd
Total other pending applications:	0 mgd
This application:	0.864 mgd

WELL:	Wahiawa Deep Well (Well No. 3100-02)
Location:	Oahu, TMK: 7-1-002:007
Year Drilled:	1942
Casing Diameter:	14 in.
<u>Elevations (msl = 0 ft.)</u>	
Water Level:	288 ft.
Ground:	1145 ft.
Bottom of Solid Casing:	217 ft.
Bottom of Perforated:	177 ft.
Bottom of Open Hole:	175 ft.

Total Depth: 970 ft.

Pump Capacity 400 gpm



Use Information

Quantity Requested:	0.864 gallons per day.
Existing / Future Type of Water Use:	Military
Place of Water Use:	TMK: 7-1-002:007
Reported Water Usage:	3.039 gpd
Wahiawa Aquifer System	
Current 12-Month Moving Average Withdrawal (See Exhibit 2):	3.039 mgd

Nearby Surrounding Wells and Other Registered Ground Water Use

There are 3 other wells within a mile of the well (see Exhibit 1). None of these wells are currently in use.

Public Notice

In accordance with HAR §13-171-17, a public notice was published in the Honolulu Advertiser on October 8, 2010 and October 15, 2010 and a copy of the notice was sent to the Office of the Mayor. Copies of the completed application were sent to the Board of Water Supply, Department of Planning and Permitting, Department of Health, Department of Hawaiian Home Lands, Office of Hawaiian Affairs, the various divisions within the Department of Land and Natural Resources, and other interested parties for comments. Written comments and objections to the proposed permit were to be submitted to the Commission by November 1, 2010.

Briefs in Support

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

Field Investigation

A field investigation was conducted on August 6th, 2008, by a consultant for the Commission. The flowmeter was found to be in good working order and there were no issues of waste.

STANDARD WATER USE PERMIT CONDITIONS

1. The water described in this water use permit may only be taken from the location described and used for the reasonable beneficial use described at the location described above. Reasonable beneficial uses means "the use of water in such a quantity as is necessary for economic and efficient utilization which is both reasonable and consistent with State and County land use plans and the public interest." (HRS § 174C-3)
2. The right to use ground water is a shared use right.
3. The water use must at all times meet the requirements set forth in HRS § 174C-49(a), which means that it:
 - a. Can be accommodated with the available water source;
 - b. Is a reasonable-beneficial use as defined in HRS § 174C-3;
 - c. Will not interfere with any existing legal use of water;
 - d. Is consistent with the public interest;
 - e. Is consistent with State and County general plans and land use designations;
 - f. Is consistent with County land use plans and policies; and
 - g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and HRS § 174C-101(a).
4. The ground water use here must not interfere with surface or other ground water rights or reservations.
5. The ground water use here must not interfere with interim or permanent instream flow standards. If it does, then:
 - a. A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
 - b. The interim or permanent instream flow standard, as applicable, must be amended.
6. The water use authorized here is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.
7. The water use permit application and submittal, as amended, approved by the Commission at its January 20, 2011 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 monthly basis (attached).
- 11. This permit shall be subject to the Commission's periodic review of the **Wahiawa** 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 **Wahiawa** 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 **Wahiawa** 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.

Aquifer System Area Water Use Permit Index (total)

ISLAND OF OAHU

Aquifer System Ground Water Management Area: **WAHIAWA**

Sustainable Yield = 23

WUP No	Approved	Applicant	Well No.	Well Name	WUP (mgd)	12-MAV (mgd)
032	6/2/1993	WAIALUA SUGAR	3102-02	PUMP 24	2.580	n/r
138	7/19/1995	WAIALUA SUGAR	3203-02	PUMP 26	1.720	n/r
433	6/5/1996	U.S. NAVY	3100-02	WAHIAWA DEEP	0.208	0.191 (7/09)
464	5/14/1997	U.S. ARMY	2901-02	SCHOFIELD SHAFT	5.648	n/r
464	5/14/1997	U.S. ARMY	2901-03	SCHOFIELD SHAFT		
464	5/14/1997	U.S. ARMY	2901-04	SCHOFIELD SHAFT		
464	5/14/1997	U.S. ARMY	2901-10	SCHOFIELD SHAFT		
598	5/17/1989	HONOLULU BWS	2902-01	WAHIAWA II		
598	5/17/1989	HONOLULU BWS	2902-02	WAHIAWA II	1.000	1.625 (1/07)
717	11/20/1987	Bank of Hawaii for Galbraith Estate	3103-01	DEL MONTE #5	2.000	about 0 since '02
765	7/12/2006	Sandwich Isles Communications	2801-03	SIC-01	0.100	unused*
826	2/21/2008	Kelena Farms LLC	3203-01	WScO. Pump 25	1.442	n/r
842	5/17/1989	HONOLULU BWS	2901-08	WAHIAWA I	3.270	1.090 (1/07)
842	5/17/1989	HONOLULU BWS	2901-09	WAHIAWA I		
842	5/17/1989	HONOLULU BWS	2901-11	WAHIAWA I		
876	2/17/2010	Alii Turf Co., LLC	3001-01	Alii Turf	0.115	unused*
879	2/17/2010	Hawaiian Earth Products	3104-02	HEP-1	0.355	unused*
880	6/20/2001	Kunia Water Association	2803-05	Del Monte 3	3.960	0.127 (6/09)
880	6/20/2001	Kunia Water Association	2803-07	Del Monte 4		0.006 (6/09)
896	8/25/2010	Brent Cullinan	3104-03	Brent's	0.029	unused*

Summary for WAHIAWA (20 detail records) **Totalling 22.427**

Available 0.573

↓
 since application is modification of WUP 433,
 Total = 22.427 - 0.208 = 22.219
 Available = 0.781

* unused allocations are recently issued water use permits

	Projected population (capita)	APPLICANT'S DUTIES				STAFF DUTIES	
		Duty (gpcd)	Average daily demand (gpd)	Max Duty (2.25 max factor applied) (gpcd) (see note 1)	Peak flow demand based on Maximum (gpd)	Daily demand based on Maximum (gpd)	Duty (gpcd) (see note 2)
Family housing	515	180	92,700	405	208,575	200	103,000
Existing bachelor's quarters Workers	330	155	51,150	349	115,088	200	66,000
Civilians	210	45	9,450	101	21,263	20	4,200
Off-base military	290	45	13,050	101	29,363	20	5,800
Bachelor's quarters (new)	335	155	51,925	349	116,831	200	67,000
New SATCOM (new)	65	45	2,925	101	6,581	20	1,300
P-173 (new)	150	45	6,750	101	15,188	20	3,000
HRSOC (new)	2,400	45	108,000	101	243,000	20	48,000
Total domestic demand			335,950		755,888		298,300
HRSOC Air Conditioning Cooling Tower			108,000		108,000		108,000
Total demand			443,950		863,888		406,300

Notes:

- The applicant applied a maximum factor of 2.25. This is a design consideration for maximum peak flow but doesn't represent long term averages.
- Staff's calculations were based on the following assumptions:
 - Family housing: Water System Standards indicate 500 gpd/unit, divided by 2.5 people per household = 200 gallons/day/capita
 - Other housing: Water System Standards indicate 400 gpd/unit, divided by 2 people per household = 200 gallons/day/capita
 - Workers: Assume low flow flushes = 1.6 gallons + handwashing. Conservatively 4 gallons per bathroom visit x 5 visits/day = 20 gallons/day/capita