



DEPARTMENT OF THE NAVY

COMMANDER
NAVY REGION HAWAII
850 TICONDEROGA ST STE 110
JBPHH, HAWAII 96860-5101

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May 18, 2015

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CERTIFIED NO: 7014 1200 0000 9859 0008

Mr. Ernest Lau
Manager and Chief Engineer
Honolulu Board of Water Supply
P.O. Box 135037
Honolulu, HI 96801-5037

Dear Mr. Lau:

SUBJECT: NAVY RED HILL DRINKING WATER SHAFT - POTENTIAL ALTERNATE
POTABLE WATER SOURCES

As part of Navy Region Hawaii's routine contingency planning, a contract has been awarded to Engineering Concepts, Inc. (ECI) to complete an engineering study that will identify and evaluate potential alternative and/or recommended potable water sources in lieu of the Navy's Red Hill Drinking Water Shaft in the event that the Red Hill Shaft is unavailable for use. Alternatives and recommendations that will be reviewed include (1) leveraging use of the Navy's other existing water sources, (2) potential development of new sources, and (3) the consideration of purchase of Honolulu Board of Water Supply water.

This project supplements a prior study that was completed in 2010 which evaluated treatment technologies for the Red Hill Shaft, but did not look at other non-treatment alternatives. Development of other alternatives will support the programming and budgeting for a project should it become necessary.

We ask for your support in assisting ECI with evaluating whether becoming a direct customer is possible.

If you have any questions regarding this matter, please contact Ms. Arleen Mizuno at 471-1171, extension 203.

Sincerely,

D. A. TUFTS
Captain, CEC, U.S. Navy
Regional Engineer
By direction of the
Commander

Copy to: Anna Sasaki, Engineering Concepts, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



July 1, 2015

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Deputy Manager and Chief Engineer *ell*

D. A. Tufts, Captain, CEC
U.S. Navy
Regional Engineer
Department of the Navy
850 Ticonderoga Street, Suite 110
JBPHH, Hawaii 96860-5101

Dear Captain Tufts:

Subject: Your Letter of May 18, 2015 Regarding Potential Alternate
Potable Water Sources for the Navy's Red Hill Drinking Water Shaft

Thank you for your letter requesting assistance to your engineering consultant to determine if becoming a direct Board of Water Supply (BWS) customer is possible. We request additional information and have the following comments:

1. We will not be able to evaluate water system capacity if we do not know how much potable water is potentially being requested and from what location and water system. This information is required to be provided to us so we can evaluate each water systems' demands with more definitive engineering analysis.
2. The BWS municipal water system has a limited capacity. While our water conservation efforts including recycled water development have slowed potable water demand growth, we recognize that Oahu's population will continue to grow, especially taking into account that rail transit oriented development plans are progressing. The Honolulu BWS water system is expected to realize greater water demands in the next 20 years, however, the extent and pace of that growth is difficult to forecast because of the economic, financial and social factors involved.
3. As with all our evaluations of potentially large water availability requests, we require an alternatives water supply report before we will consider allowing potable water service, and only if capacity is available in the municipal water system. This report should evaluate the following:
 - a. The feasibility of the construction of new water sources of supply to replace the Navy's Red Hill Shaft, possibly upgradient of the Navy's Red Hill Underground Fuel Storage Facility and within the Moanalua aquifer system area from which it currently draws water from. Both the Moanalua and Waimalu aquifer systems are fully allocated to the sustainable yields. If other aquifer systems are contemplated for a replacement source, such as the Waipahu-Waiawa aquifer system which has available unallocated sustainable yield, the siting must be carefully evaluated to avoid potential impact on existing BWS and other private water sources. A Water Use Permit with the State Commission on Water Resources Management will be required, and an essential criterion is preventing detrimental impacts on existing water sources.

- b. Advanced water conservation measures such as low flow water fixtures, the use of xeriscape landscaping instead of large grassed exhibition areas, cooling tower water softening systems and conductivity meters, pre-rinse spray nozzles for all restaurants, and leak detection and replacement of aging water distribution pipelines should be implemented within the Joint Base Pearl Harbor Hickam (JBPHH) area, as well as areas outside of the base that may receive water from the Red Hill Shaft. These areas may include the Mail at Pearl Harbor, Moanalua Shopping Center, and surrounding residential military housing between Salt Lake Boulevard and Nimitz Highway from Kamehameha Highway to Puuloa Road including the Navy-Marine Golf Course.
 - c. The construction of tertiary recycled water treatment systems for irrigation, inclusive of demineralization if chloride content of the Navy's wastewater collection system has not addressed infiltration and inflow of seawater or ship bilge wastewater.
 - d. The Navy should reconsider the retention of the Navy's Barber's Point Shaft potable water source serving Kalaeloa, which can provide 2.3 million gallons per day (mgd) of drinking water that could supplement water supply to the JBPHH.
 - e. Consideration of using nonpotable irrigation water from the BWS Kalauao Spring nonpotable water source for the Navy Marine Golf Course and the Hickam Mamala Bay golf course, which are using approximately one mgd of drinking water for irrigation, including a re-evaluation of inefficient water features.
- 4. Provide more clarification of what specific "event" does the Navy anticipate that causes the Red Hill Shaft to be unavailable. Given the proximity of our wells to Red Hill Shaft, this "event" that concerns the Navy may be of concern to BWS also, and, therefore, affect our ability to grant the Navy's request.
- 5. The term of the event that causes the Red Hill Shaft to be unavailable should be detailed. The Navy holds temporary water service contracts with BWS. However, the BWS water systems may not be able to accommodate extended temporary service due to negative impacts of seawater intrusion caused by over-pumping or exceeding BWS water use permit limits. For your information, BWS will be revisiting the Navy's emergency water service contracts to update the terms and conditions for such temporary water service.
- 6. The Navy's letter indicates, "This project supplements a prior study that was completed in 2010 which evaluated treatment technologies for the Red Hill Shaft, but did not look at other non-treatment alternatives. Development of other alternatives will support the programming and budgeting for a project should it become necessary." In response to this section:
 - a. Please send us an unredacted copy of the 2010 Red Hill Shaft treatment technologies study cited in this section. The copy will assist us in understanding the issues the Navy is facing, the magnitude and timeline. This section also appears to suggest that the Navy's request for water may be an academic planning exercise. Please further explain the relevance of the study to your request for water service from BWS to take the place of Red Hill Shaft. Please also identify precisely when the water will be needed (i.e. 5, 10, or 20 years from now).

Captain D.A. Tufts
July 1, 2015
Page 3

- b. The criteria used by the Navy in the 2010 study to evaluate treatment and then updated to evaluate non-treatment technologies for the Red Hill Shaft should be clarified.
- 7. Water allocations from BWS are based on real need not for "routine contingency planning". The Navy needs to justify their request beyond "contingency planning". What issues are the Navy facing that is prompting the "contingency planning"? Those issues may affect BWS as well.

If you have any questions, please contact me at 748-5061.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Ernest Y. W. Lau', is written over a horizontal line.

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer