



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

STAFF SUBMITTAL

COMMISSION ON WATER RESOURCE MANAGEMENT

January 19, 2021
Honolulu, Oahu

Request for Approval of a Well Abandonment Permit and Variance
From 2004 Hawaii Well Construction And Pump Installation Standards
Hickam AF Base Well (Well No. 3-2057-004), TMK (1) 9-9-001:013
Waimalu Aquifer System Area, Pearl Harbor Aquifer Sector, Oahu

Consultant

ERRG
677 Ala Moana Blvd. Ste. 308
Honolulu, HI 96813-5419

Driller (Well Sealing Contractor)

Valley Well Drilling
111 Hekili St. Suite A PMB 2761
Kailua, HI 96734

Well / Land Owner

U.S. Department of the Navy
Navy Region Hawaii
850 Ticonderoga St. Suite 110
JBPHH, HI 96860-5101

SUMMARY OF REQUEST:

The applicant requests approval of a variance from some of the provisions of the Hawaii Well Construction and Pump Installation Standards, in the abandonment of the Hickam AF Base well.

ERRG, the consultant, is requesting the variance on behalf of the Well/Landowner. By law, Well Abandonment Permits are only issued to a C-57 licensed well driller. Therefore, approval of the permit and variance will be issued to Valley Well Drilling.

LOCATION MAP: See Exhibit 1

BACKGROUND:

December 1948 (approximately) – the well was constructed for air conditioning purposes.

November 7, 2016 – Glenn Bauer, consultant for CWRM's water use reporting outreach program, located the well and determined that the well was unused at that time.

Further research reveals that the well was originally artesian and former air conditioning system use was for the Hickam Theater.

November 2016 to July 2020 – After outreach effort, NAVFAC comes into reporting compliance and reported that there was no use of water from this well.

December 23, 2019 – Consultant submitted a well abandonment permit application.

April 23, 2020 – Application was accepted after additional information was submitted, and application was routed to agencies for comments.

ANALYSIS/ISSUES:

Before delving into the variance request, it's important to understand the well design and the location.

Well design

CWRM's database shows very little information about the construction of the well, which is typical of wells drilled long ago (this well was drilled in 1948). The borehole diameter is listed as 10", while the casing is listed as 8". This would only leave an annular space of 1". Current well standards require a 2" annular space to allow for proper grouting. Thus, the annular space cannot be grouted in accordance with the current well standards though with no official as-built drawings on record, that can't be confirmed.

Annular space grouting is important for two reasons. First, it helps to prevent contaminants from entering the ground water from the surface. Second, it helps to prevent co-mingling of different aquifers if there is a cross connection. In this case, there is some indication that it was an artesian well, though apparently there's no surface leakage, nor does there appear to be leakage around the annular space coming to the surface.

The well house is approximately 6' below the outside ground surface, and the well head is approximately 2' above that. (see photos below)

Well location (see map on next page)

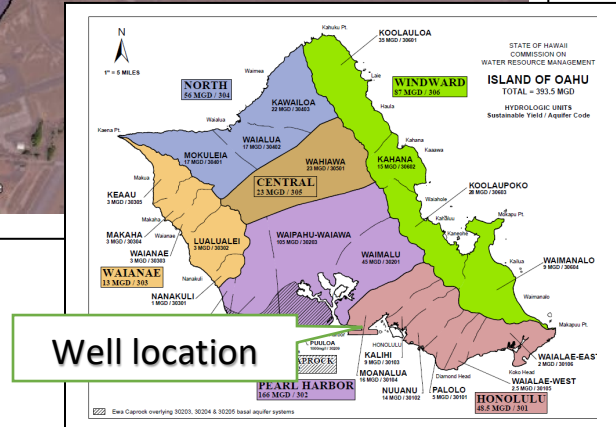
The well is located on Hickam Air Force Base, and is one of the most makai wells within the Waimalu Aquifer System Area (WASA) – see Exhibit 1. There are no well logs for the well, but the caprock in this area is thick and deeper than 750 ft below sea level. Given the 55' depth of the well, it is highly unlikely the well is penetrating past the caprock into the deeper basal confined aquifer causing a cross connection. In fact, the drilling log from 1948 shows typical coral and mud caprock formations were only encountered and no basaltic geology. It appears the 6' deep sump may be near the water table and sensitive to tidal changes which is typical in highly permeable karst/coral layers of the caprock. Ground water in this area is typically brackish with the range for caprock wells in this area between 811-18,619 ppm chlorides, which is much higher than the EPA 250 secondary guideline for drinking water.

There are several wells surrounding this well, but all are on military property, either Hickam or Pearl Harbor. The two closest non-military wells are approximately 2.2 miles to the east, and both are sealed.

This well is on the makai end of the WASA and there are no adjacent non-military wells or land that may be affected by problems associated with non-standard sealing of the well. Variances are discussed below in more detail.



Exhibit 1 - Location Map



(1) Variance requests

a. Casing perforation variance

The applicant states that the well is located inside of a well house sump and accessible via a 4' high x 2' wide door, which prevents accessibility by a drill rig. They further state that the building that the well house is attached to is designated by the Navy as a Category II Historic Building of Importance. Below is a photo of the well house and well head.



Staff confirmed with Mr. Zac Altenburger of NAVFAC's Historic Preservation that the building is a Historic Building of Importance and that protection of the well house would prevent a drill rig from being erected over the well.

Section 3.7(b) of the Hawaii Well Construction and Pump Installation Standards states that *"If a well has no record of having a properly grouted annular space and poses a significant threat of surface contamination of an underlying potable aquifer or waste of artesian ground water, the solid casing must be perforated before grouting begins."*

The purpose of the casing perforation is to make sure that any potentially ungrouted portion of the annular space (the space between the borehole and the exterior well casing is adequately sealed off to protect the underlying ground water from surface contamination and aquifer cross-connections). Because the well is so old, there is no information pertaining to how much grout is currently in the annular space.

The consultant has provided a video log of the well. Very little could be seen because of the murky nature of the water. However, there does not appear to be any flow up the casing, which indicates no artesian flow, at least from a depth of 15.5'.

The well is in a protected well house and away from runoff or surface contaminants. Because staff believes that there is not a significant threat of surface contamination, or waste of artesian water associated with an unsealed annular space, in accordance with Section 3.7(b) quoted above, staff does not recommend that the Commission require perforation.

If the Commission concurs with staff's assessment, perforation is not necessary per 3.7(b) above. However, if the Commission disagrees with staff and feels that there is a high risk to the resource, then a variance is required.

b. Depth of grouting variance

Sections 3.6 and 3.7 of the Hawaii Well Construction and Pump Installation Standards (HWCPIS) require that wells to be sealed must have grout filled throughout the solid casing and open hole sections of the well. Commission records show that the well has a total depth of 55'. The consultant states that a metal pry rod was dropped down the well and found an apparent solid metal bottom at 15.5'.

The consultant states that in order to ream through this obstruction, a rig would have to be erected over the pump, but because the pump house is a building of historic significance, they are unable to do that. Therefore, they are requesting a variance of the Hawai'i Well Construction and Pump Installation Standards (HWCPIS) Sections 3.6 and 3.7, to only grout to the point of obstruction.

Again, given the location of this well, staff doesn't anticipate any risk to the resource or adjacent uses, if the Commission grants this variance request.

(2) Other issues

a. 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, as none of the items below are a trigger for the abandonment of this well.

Potential triggers: (1) use of state land; (2) use of county land; (3) use of state funds; (4) use of county funds; (5) use of conservation district lands; (6) use with shoreline setback area; (7) use of historic site designated on the National register; (8) use of historic site designated on the Hawaii register; (9) use of land in the Waikiki Special District; (10) amendment to county general plan which results in designations other than agriculture, conservation or preservation not initiated by the county; (11) proposes any reclassification of conservation land by LUC; (12) relationship to the construction/modification of helicopter facilities that may affect conservation district lands/a shoreline setback area/a historic site; (13) proposal to build (a) wastewater treatment units (except IWS or WTU serving <50 SFR dwellings or the equivalent, (b) waste-to-energy facility (c) landfill, (d) oil refinery, (e) power generating facility.

b. Traditional and Customary Practices

Ka Pa'akai Analysis

In *Ka Pa'akai O Ka'aina v. Land Use Commission*, the Hawai'i Supreme Court recognized that the State has an obligation to protect Hawaiian traditional and customary practices to the extent feasible, and that the proponent of an action must show sufficient evidence that these types of practices are protected, if they exist in the location in question. This "Ka Pa'akai framework" was created by the Court "to help ensure the enforcement of traditional and customary native Hawaiian rights while reasonably accommodating competing private development interests." The Commission is obligated to conduct a "Ka Pa'akai analysis" of a proposed action requiring CWRM approval independent of the entity proposing the action.

This analysis should be used to inform any decision on the impact of the proposed action on traditional and customary practices.

Consequently, the Court required an assessment of the following:

(1) “the identity and scope of ‘valued cultural, historical, or natural resources’ in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;

-The OHA Kipuka database shows no sites or crown lands involved.

No sites of historical significance were identified by Historic Preservation, though again the Navy has established the building as a Historic Building of Importance and is part of the reason for the variance request since the building cannot be altered to set up a drilling rig to attempt to go beyond the blockage in the well.

(2) “the extent to which those resources -- including traditional and customary native Hawaiian rights -- will be affected or impaired by the proposed action;” and

- since this is an abandonment and sealing action staff believes it is highly unlikely any traditional and customary rights in the area will be impaired. To the contrary, sealing if anything, would reduce any impacts that may have occurred in the past.

(3) “the feasible action, if any, to be taken ... to reasonably protect native Hawaiian rights if they are found to exist”

- since this is an abandonment and sealing action staff believes there is no mitigative actions necessary. The sealing of an old well itself can be considered mitigative action to protect native Hawaiian rights if found to exist in the future.

c. Consistency with Hawai‘i Water Plan, 2019 Water Resources Protection Plan (WRPP)

The sealing of this old well is consistent with Section I.3.2 & Task 2.7.2 of the WRPP by identifying and prioritize abandoned and unused wells for sealing. In this case, the owner voluntarily declared this well abandoned and wishes to seal it.

RECOMMENDATION:

Staff recommends that the Commission approve the issuance of a Well Abandonment Permit for the Hickam AF Base Well (Well No. 3-2057-004), subject to the standard well abandonment permit conditions listed in Exhibit 2 and the following variances and conditions:

- 1) In accordance with Section 3.7(b) of the Hawaii Well Construction and Pump Installation Standards, perforation of the casing is not required.

- 2) A variance of Sections 3.6 and 3.7 of the Hawaii Well Construction and Pump Installation Standards to grout only the 15.5' depth obstruction is granted.

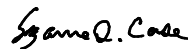
Respectfully submitted,



M. KALEO MANUEL
Deputy Director

Exhibits: 1 (Location Map)
 2 (Well Abandonment Permit Standard Conditions)

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE
Chairperson

WELL ABANDONMENT PERMIT STANDARD CONDITIONS

1. The Chairperson of the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809, shall be notified in writing before any work covered by this permit commences.
2. This permit shall be prominently displayed, or made available, at the site of construction work until work is completed.
3. The well construction permit application is incorporated into this permit by reference and is subject to the HWCPIS. If the HWCPIS are not followed (other than the approved variances) and as a consequence water is wasted or contaminated, a lien on the property may result.
4. The Well Abandonment Report form shall be submitted to the Commission on Water Resource Management within sixty (60) days after completion of the work. Please contact staff or visit our website at <http://files.hawaii.gov/dlnr/cwrm/forms/WAR.pdf> for the current form.
5. The permittee shall comply with all applicable laws, rules, and ordinances.
6. The sealing shall be completed within two (2) years.
7. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

EXHIBIT 2: WELL ABANDONMENT PERMIT STANDARD CONDITIONS