



UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY  
REGION IX  
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STATE OF HAWAII  
DEPARTMENT OF HEALTH  
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August 10, 2016

Captain R. D. Hayes, CEC  
U.S. Navy Regional Engineer  
Navy region Hawaii  
850 Ticonderoga Street, Suite 110  
Pearl Harbor, Hawaii 96860-5101

**Re: Approval of Red Hill AOC SOW Deliverable under Sections 6 & 7 – Revised Monitoring Well Installation Work Plan, July 17, 2016**

Dear Captain Hayes:

The U.S. Environmental Protection Agency (“EPA”) and Hawaii Department of Health (“DOH”), collectively the “Regulatory Agencies”, have reviewed the revised *Monitoring Well Installation Work Plan, Red Hill Bulk Fuel Storage Facility* (“MWIWP”) dated July 17, 2016 and submitted by the U.S. Navy (“Navy”) and Defense Logistics Agency (“DLA”) on July 15, 2016. The Regulatory Agencies are approving the MWIWP, pursuant to Administrative Order on Consent (AOC) Sections 7(b)(b), subject to the conditions as detailed below.

In this latest version of the MWIWP the Navy and DLA addressed the majority of the comments we included in our June 17, 2016 comment letter. There are two items that need to be addressed in order for the Navy and DLA to obtain the Regulatory Agencies approval of the July 17, 2016 MWIWP.

1. Regarding the location of Monitoring Well RHMW10, the Navy and the Regulatory Agencies held an extensive discussion on the location of this monitoring well during a July 8, 2016 teleconference. On July 11, 2016, the Navy submitted a new location map, entitled “Fig1\_Potential\_RHMW10 rev 4” that included the initial original proposed location of RHMW10 as well as two alternative locations labeled RHMW10-Option A and RHMW10-Option B. As discussed in the July 8, 2016 teleconference, the Regulatory Agencies believe RHMW10-Option B is the better location for this monitoring well. The Navy and DLA shall revise Figure 2 – Proposed Monitoring Well Locations of the MWIWP to show RHMW10-Option B as the proposed location for RHMW10. See Attachment 1 of this letter.
2. The Top-Of-Casing (TOC) survey proposed by the Navy in Section 3.5 of the MWIWP will be performed after the four new monitoring wells are installed. The Regulatory Agencies propose that approval of this section be deferred and addressed in the Work Plan/Scope of Work, Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility (Section 6&7 Scope). This approach will allow the Regulatory Agencies to approve the MWIWP while we continue discussions on the details of the TOC Survey. Section 3.5 of the

MWIWP should be revised to state that information on the details of the TOC survey will be addressed in that Section 6&7 Scope.

The Regulatory Agencies require the Navy to provide additional details on the top-casing (TOC) survey as proposed in Section 3.5 of the MWIWP. The Standard Operating Procedure I-I for Land Surveying included in Appendix A of the MWIWP does not provide specific information on how the Navy will achieve an accuracy of 0.01 feet when determining the elevations of the monitoring well casings. While the surveying procedures outlined in the MWIWP and its accompanying SOP may be suitable for many of the environmental investigation sites managed by the Navy, this task will require the Navy to characterize the groundwater gradient over an area from the Moanalua Ridge to west of the North Halawa Valley. This is a regional groundwater problem that spans two aquifer systems and it will require that the water level elevations relative to those at the Facility be measured accurately over distances of miles, a difficult undertaking but one that is critical to perform correctly if the data collected will be relied on to determine the groundwater flow characteristics.

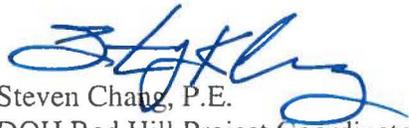
As discussed in the Red Hill Project Coordinator teleconference on August 1, 2016, the Regulatory Agencies strongly recommend that the Navy convene a teleconference with the Parties to the AOC, the U.S. Geological Survey and the National Oceanic and Atmospheric Administration's National Geodetic Survey to develop a survey plan that can attain the needed level of accuracy. Prior to developing the survey plan, a sensitivity analysis should be performed to determine the acceptable level of accuracy that will be required to adequately characterize the groundwater flow gradient

As always, we are available to discuss these issues in more detail. Please contact either of us with any questions. Bob Pallarino can be reached at (415) 947-4128 or [pallarino.bob@epa.gov](mailto:pallarino.bob@epa.gov) and Steven Chang can be reached at (808) 586-4226 or [steven.chang@doh.hawaii.gov](mailto:steven.chang@doh.hawaii.gov).

Sincerely,



Bob Pallarino  
EPA Red Hill Project Coordinator



Steven Chang, P.E.  
DOH Red Hill Project Coordinator

Enclosure

cc: Mr. Stephen Turnbull, U.S. Navy  
Mr. James Miyamoto, U.S. Navy  
Mr. Aaron Poentis, U.S. Navy

**ATTACHMENT 1 – REVISED FIGURE 2 - MONITORING WELL LOCATION MAP**

