



**UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY  
REGION IX**  
75 Hawthorne Street  
San Francisco, CA 94105



**STATE OF HAWAII  
DEPARTMENT OF HEALTH**  
P. O. BOX 3378  
HONOLULU, HI 96801-3378

March 17, 2022

CAPT Gordie Meyer, CEC, USN  
Regional Engineer, Navy Region Hawaii  
850 Ticonderoga St., Suite 110  
Joint Base Pearl Harbor Hickam, Hawaii 96860 -5101

Subject: Disapproval of the Groundwater Flow Model Report

Dear Captain Meyer:

The U.S. Environmental Protection Agency ("USEPA") and Hawaii Department of Health ("DOH"), collectively the "Regulatory Agencies", have reviewed the *Groundwater Flow Model Report* ("GWFM") dated March 25, 2020 submitted by the U.S. Department of Navy ("Navy") and Defense Logistics Agency ("DLA") to satisfy the requirements of Section 7.1 of the 2015 Administrative Order on Consent Statement of Work ("AOC SOW") for the Red Hill Bulk Fuel Storage Facility ("Facility") located in O'ahu, Hawai'i.

The Regulatory Agencies disapprove the GWFM and its associated numerical models. The many deficiencies in the Navy's models have been discussed in detail throughout the modeling process and most recently in our May 2021 critique provided to the Navy and their consultants, followed by a summary critique by our subject matter experts given to the Groundwater Flow Modeling Working Group on October 18 & 19, 2021. These deficiencies are extensive and relate to foundational assumptions in the Navy's GWFM that render the results unreliable for Agency decision-making regarding aquifer protection, as well as unreliable as an underlying basis to evaluate contaminant fate and transport (CF&T). A list of the deficiencies in the GWFM is enclosed. We are providing the Navy and DLA an opportunity to cure the deficiencies identified and resubmit the GWFM.

The Navy and DLA shall hold a meeting within 30 days of receipt of this letter with USEPA and DOH to discuss next steps as to which models should be carried forward and what model modifications should be incorporated. Next steps may include establishing specific technical groundwater flow model objectives and regular meetings with the Regulatory Agencies and other

stakeholders to discuss modeling assumptions and approaches. Within 60 days of receipt of this letter, the Navy and DLA shall submit in writing the next steps with an associated timeline. Once the groundwater flow models have been refined, but no later than 90 days of receipt of this letter, the Navy and DLA shall revise and re-submit the GWFMR. The Navy and DLA shall summarize all changes made and relevant model run results in an addendum to the revised GWFMR.

If you have any questions, please contact us.

Sincerely,



Gabriela Carvalho  
Red Hill Project Coordinator  
US Environmental Protection Agency Region 9



Roxanne Kwan  
Interim Red Hill Project Coordinator  
State of Hawaii, Department of Health

- Enclosures:
1. Attachment A Joint Agency Deficiencies on the Groundwater Flow Model Report for the Red Hill Bulk Fuel Storage Facility, dated March 25, 2020, delivered March 17, 2022
  2. Attachment B – HDOH SME Deficiencies Identified, Red Hill Groundwater Flow Model Report, dated December 3, 2020, delivered to Navy March 17, 2022
  3. Attachment C EPA SME Deficiencies Identified, Red Hill Groundwater Flow Model Report, dated November 10<sup>th</sup>, 2021
  4. Attachment D - DOH Review: Navy Groundwater Flow Models & Related Issues with the Navy CSM for the Red Hill Facility, dated October 19, 2021