



## REGION 9

SAN FRANCISCO, CA 94105

December 23, 2024

### **VIA ELECTRONIC MAIL ONLY**

Rear Admiral M.F. Williams  
Deputy Commander  
Navy Closure Task Force - Red Hill  
850 Ticonderoga Street, Suite 110  
Joint Base Pearl Harbor-Hickam, Hawai'i 96860

Subject: Request for Submittal of Red Hill Bulk Fuel Storage Facility Groundwater Monitoring Plan

Dear Rear Admiral Williams:

In response to releases from the Red Hill Bulk Fuel Storage Facility, the Navy has implemented multiple routine groundwater monitoring programs. These programs included sampling for long-term groundwater monitoring (GW LTM), plume delineation, quarterly monitoring, and notice of interest (NOI) requirements. The United States Environmental Protection Agency (EPA) agrees that it is prudent to consolidate and simplify the routine monitoring of releases from the Red Hill Facility. In 2023 and 2024, the Navy submitted a series of plans proposing consolidation of parts of the groundwater monitoring program.

In March 2024, the Navy submitted the *Consolidation and Optimization of the Groundwater Sampling Programs, Red Hill Bulk Fuel Storage Facility*, which the Hawai'i Department of Health (DOH) disapproved. The DOH provided an alternative plan outlined in the *DOH Revised Consolidated Groundwater Sampling Plan, Red Line Version* (Red Line Plan). EPA concurs with the majority of the DOH Red Line Plan requirements.

By **March 3, 2025**, please submit a groundwater monitoring plan pursuant to the 2023 Administrative Consent Order as Supplement 5 to the Phase 2 Closure Review Plan for review and approval pursuant to Section 7 of the 2023 ACO. The updated plan should include the components of the Red Line Plan with the following changes:

- Please include a Quality Assurance Project Plan (QAPP) for the groundwater monitoring program. The QAPP should include project objectives, requirements, and procedures for routine groundwater monitoring.

- The updated plan should, at a minimum, include sampling of the existing monitoring wells at the specified frequency listed in Table 1. Each well should be analyzed for the constituents and methods described on Table 1 and Table 2.
- All newly installed wells should be incorporated into the groundwater monitoring program and sampled monthly for the analytes listed in Table 2.
- Please include a plan to publish a table of the wells/constituents on a public platform. The table should be updated at least quarterly with newly installed groundwater wells and any agreed upon changes to the groundwater monitoring program. The table should also include well screen intervals, specific depths for pump intakes, and transducer depths for each well.
- All validated analytical data collected as part of the groundwater monitoring program should continue to be published on your public facing website. [JBPHH Safe Waters](#)
- As part of the groundwater monitoring program, please submit a quarterly analysis of the data from the monitoring program. At a minimum, this analysis should include:
  - Analytical data tables for the given period;
  - Figures depicting the interpolated and extrapolated petroleum plume(s) in groundwater;
  - Potentiometric head maps updated with the most recent head measurements and contoured using software and/or best professional judgment;
  - Graphs of select wells with trends;
  - Narrative description of observations and conclusions, as well as any recommendations for any modifications to the monitoring program.
- In addition to the quarterly analysis of data, please provide machine readable files for the given period.
- Please modify EPA notifications to include indications of uncontrolled migration of fuel contaminants and please carbon copy the EPA Project Coordinator on any notifications sent to DOH.
- Changes to sampling frequency, analytes, or removal of wells from the groundwater program must be agreed upon in writing by EPA and the Navy.

The above requirements from EPA are in addition to those from DOH and do not alter or replace their requirements under Emergency Order, Docket No. 22-UST-EA-01.

If you have any questions regarding this letter, please contact me at russi.tonya@epa.gov or (415) 972-3706.

Sincerely,

/s/

Tonya Russi

Red Hill Project Coordinator

U.S. Environmental Protection Agency, Region 9

Table 1: Groundwater Monitoring Plan (well locations and sampling frequencies)

Table 2: Groundwater Monitoring Plan (analytes)

cc: Rear Admiral Barnett, NCTF-RH  
Sherri Eng, NCTF-RH  
CAPT James Sullivan, NCTF-RH  
CDR Benjamin Dunn, NCTF-RH  
LCDR Zach Niezgodski, NCTF-RH  
Mario Maningas, NCTF-RH  
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Joshua Stout, NCTF-RH  
Kelly Ann Lee, Hawai'i Department of Health  
Claire Trombadore, EPA  
Matthew Cohen, EPA

**Table 1**  
**Groundwater Monitoring Plan**  
**Well Locations and Sampling Frequencies**

Well ID	Frequency	Analysis
HDMW2253-03	Quarterly	All from Table 2 (NVDOC Annually)
RHMW2254-01	Monthly	All from Table 2 (NVDOC Annually)
RHP01	Monthly	All from Table 2 (NVDOC Annually)
RHP02	Monthly	All from Table 2 (NVDOC Annually)
RHP03	Monthly	All from Table 2 (NVDOC Annually)
RHP04A	Monthly	All from Table 2 (NVDOC Annually)
RHP04B	Monthly	All from Table 2 (NVDOC Annually)
RHP04C	Monthly	All from Table 2 (NVDOC Annually)
RHP05	Monthly	All from Table 2 (NVDOC Annually)
RHP06	Monthly	All from Table 2 (NVDOC Annually)
RHP07	Monthly	All from Table 2 (NVDOC Annually)
RHP08	Monthly	All from Table 2 (NVDOC Annually)
RHP08B	Monthly	All from Table 2 (NVDOC Annually)
RHP08C	Monthly	All from Table 2 (NVDOC Annually)
RHMW01	Quarterly	All from Table 2 (NVDOC Annually)
RHMW01R	Monthly	All from Table 2 (NVDOC Annually)
RHMW02	Monthly	All from Table 2 (NVDOC Annually)
RHMW03	Monthly	All from Table 2 (NVDOC Annually)
RHMW04	Monthly	All from Table 2 (NVDOC Annually)
RHMW05	Monthly	All from Table 2 (NVDOC Annually)
RHMW06	Monthly	All from Table 2 (NVDOC Annually)
RHMW07	Monthly	All from Table 2 (NVDOC Annually)
RHMW08	Monthly	All from Table 2 (NVDOC Annually)
RHMW09	Monthly	All from Table 2 (NVDOC Annually)
RHMW10	Monthly	All from Table 2 (NVDOC Annually)
RHWM11-01	Monthly	All from Table 2 (NVDOC Annually)
RHMW11-02	Monthly	All from Table 2 (NVDOC Annually)
RHMW11-03	Monthly	All from Table 2 (NVDOC Annually)
RHMW11-04	Monthly	All from Table 2 (NVDOC Annually)
RHMW11-05	Monthly	All from Table 2 (NVDOC Annually)
RHMW11-07	Monthly	All from Table 2 (NVDOC Annually)
RHMW11-08a	Monthly	All from Table 2 (NVDOC Annually)
RHMW11-08b	Monthly	All from Table 2 (NVDOC Annually)
RHMW11-08c	Monthly	All from Table 2 (NVDOC Annually)
RHMW12	Gauge Monthly Sample Quarterly	All from Table 2 (NVDOC Annually)

Well ID	Frequency	Analysis
RHMW12A	Gauge Monthly Sample Quarterly	All from Table 2 (NVDOC Annually)
RHMW13	Monthly	All from Table 2 (NVDOC Annually)
RHMW13-01	Monthly	All from Table 2 (NVDOC Annually)
RHMW13-02	Monthly	All from Table 2 (NVDOC Annually)
RHMW13-03	Monthly	All from Table 2 (NVDOC Annually)
RHMW13-04	Monthly	All from Table 2 (NVDOC Annually)
RHMW13-05	Monthly	All from Table 2 (NVDOC Annually)
RHMW13-05B	Monthly	All from Table 2 (NVDOC Annually)
RHMW14	Monthly	All from Table 2 (NVDOC Annually)
RHMW14-01	Monthly	All from Table 2 (NVDOC Annually)
RHMW14-02	Monthly	All from Table 2 (NVDOC Annually)
RHMW14-03	Monthly	All from Table 2 (NVDOC Annually)
RHMW14-04	Monthly	All from Table 2 (NVDOC Annually)
RHMW14-05	Monthly	All from Table 2 (NVDOC Annually)
RHMW14-06	Monthly	All from Table 2 (NVDOC Annually)
RHMW14-07	Monthly	All from Table 2 (NVDOC Annually)
RHMW14-08	Monthly	All from Table 2 (NVDOC Annually)
RHMW15	Monthly	All from Table 2 (NVDOC Annually)
RHMW15-01	Monthly	All from Table 2 (NVDOC Annually)
RHMW15-02	Monthly	All from Table 2 (NVDOC Annually)
RHMW15-03	Monthly	All from Table 2 (NVDOC Annually)
RHMW15-04	Monthly	All from Table 2 (NVDOC Annually)
RHMW15-05	Monthly	All from Table 2 (NVDOC Annually)
RHMW15-05B	Monthly	All from Table 2 (NVDOC Annually)
RHMW15-05C	Monthly	All from Table 2 (NVDOC Annually)
RHMW16	Monthly	All from Table 2 (NVDOC Annually)
RHMW16A	Monthly	All from Table 2 (NVDOC Annually)
RHMW17	Monthly	All from Table 2 (NVDOC Annually)
RHMW17D	Monthly	All from Table 2 (NVDOC Annually)
RHMW17S	Monthly	All from Table 2 (NVDOC Annually)
RHMW18	Monthly	All from Table 2 (NVDOC Annually)
RHMW19	Monthly	All from Table 2 (NVDOC Annually)
RHMW20	Monthly	All from Table 2 (NVDOC Annually)
RHMW21	Monthly	All from Table 2 (NVDOC Annually)
NMW24	Quarterly	All from Table 2 (NVDOC Annually)
NMW25	Monthly	All from Table 2 (NVDOC Annually)
NMW26	Yearly	All from Table 2 (NVDOC Annually)
NMW27	Gauge Monthly Sample Quarterly	All from Table 2 (NVDOC Annually)
NMW29	Monthly	All from Table 2 (NVDOC Annually)
NMW30	Monthly	All from Table 2 (NVDOC Annually)

Well ID	Frequency	Analysis
NMW32	Monthly	All from Table 2 (NVDOC Annually)
NMW33	Quarterly	All from Table 2 (NVDOC Annually)
NMW34	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW01	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW02A	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW03A	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW04A	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW05A	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW05B	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW06A	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW06B	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW07A	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW08A	Quarterly	All from Table 2 (NVDOC Annually)
OWDFMW08B	Quarterly	All from Table 2 (NVDOC Annually)

**Table 2**  
**Groundwater Monitoring Plan**  
**Analytes**

Analyte Group	Method	Analyte
TPH	EPA 8015M	C6-C10 Gasoline Range Organics (TPH-gro)
		C10-C24 Petroleum Hydrocarbons (TPH-dro)
		C24-C40 Petroleum Hydrocarbons (TPH-o)
TPH Calculation	EPA 8015M	Reported as a non-overlapping sum of TPH-gro/dro/o with BTEX and methylnaphthalenes subtracted
TEH <sup>a</sup>	EPA 8015M	Total Extractable Hydrocarbons
TPH with SGC <sup>b</sup>	EPA 3630/8015	Silica Gel Cleanup
VOCs	EPA 8260 GC/MS	Benzene
		Ethylbenzene
		Toluene
		Xylenes, Total
		1,2,4- Trimethylbenzene
		1,3,5-Trimethylbenzene
PAHs	EPA 8270 GC/MS SIM	1-Methylnaphthalene
		2-Methylnaphthalene
		Naphthalene
		Acenaphthene
		Acenaphthylene
		Anthracene
		Benzo(a)anthracene
		Benzo(a)pyrene
		Benzo(b)fluoranthene
		Benzo(g,h,i)perylene
		Benzo(k)fluoranthene
		Chrysene
		Dibenzo(a,h)anthracene
		Fluoranthene
		Fluorene
		Indeno(1,2,3-cd)pyrene
		Phenanthrene
		Pyrene
Fuel Additives	EPA 8270	Phenol
		2-(2-Methoxyethoxy)ethanol

Analyte Group	Method	Analyte
Metals	EPA 6010B	Dissolved Lead
Lead Scavengers	EPA 8011	1,2-Dibromoethane
	EPA 8260 GC/MS	1,2-Dichloroethane
NAPs	SM 3500-Fe	Ferrous Iron
	RSK 175M	Methane
	EPA 300.0	Nitrate, Sulfate, Chloride
	EPA 353.2	Nitrate-Nitrite as Nitrogen
	SM 2320	Carbonate, Bicarbonate, and Total Alkalinity
	EPA 9060A	TOC
	EPA 9060A	NVDOC (annual)
General Chemistry	EPA 300.0	Bromide, Chloride, Fluoride, Nitrate, Sulfate <sup>c</sup>
	EPA 6010C	Manganese
	120.1 and 2510B	Conductivity
	SM2540C-2015	Total Dissolved Solids

**Notes:**

BTEX - benzene, toluene, ethylbenzene, and total xylenes

EPA - US Environmental Protection Agency

NAP - natural attenuation parameter

PAH - polynuclear (polycyclic) aromatic hydrocarbon

TPH - total petroleum hydrocarbon

VOCs - volatile organic compound

<sup>a</sup> - TEH is reported for the total range integrated for the sample based on the TPH-dro method<sup>d</sup>

<sup>b</sup> - silica gel cleanup will be conducted on samples where TPH-dro and TPH-o are detected.

<sup>c</sup> - monitored on the first GW LTM event of a new well. Chloride, sulfate, and nitrate will be monitored and evaluated monthly with the NAPs.