



**DEPARTMENT OF THE NAVY**

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

JUN 24 2021

5000-45A  
N45  
June 15, 2021

**CERTIFIED NO: 9489 0090 0027 6232 9868 59**

Mr. Richard Takaba  
Hawaii State Department of Health  
Environmental Management Division  
Solid and Hazardous Waste Branch  
Underground Storage Tank Section  
2827 Waimano Home Road #100  
Pearl City, Hawaii 96872

Dear Mr. Takaba:

SUBJECT: RED HILL TANK COMPLEX  
MAY 2021 OIL/WATER INTERFACE MEASUREMENTS  
DOH FACILITY ID NO. 9-102271  
DOH RELEASE ID NO. 990051, 010011, 020028, AND 140010

In response to the January 2014 release from Red Hill Tank 5, oil/water interface measurements were taken at groundwater monitoring wells RHMW01, RHMW02, RHMW03 and RHMW05 on May 20, 2021. No free product was observed in the wells.

A summary of the oil/water interface measurements from January 2014 through May 2021 is being submitted as Enclosure 1. The May 2021 results for RHMW02 and RHMW03 indicate that the well was obstructed. Pumps were deployed in these wells for the groundwater sampling that was being conducted on the same day in response to the May 6, 2021 pipeline breach in the tunnel. Oil/water interface measurements taken as part of the groundwater sampling procedures indicated no free product was observed in the wells.

If there are any questions regarding this matter, or if more information is needed, please contact Ms. Susan Lohr at (808) 471-4619 or Ms. Dayna Fujimoto at (808) 471-4805.

Sincerely,

SHERRIL R. ENG  
Director  
Regional Environmental Department  
By direction of the  
Commander

5000-45A  
N45  
June 15, 2021

Enclosure: 1. Red Hill Oil/Water Interface Measurements, January 2014 to Present

Copy to: Mr. Michael Miyahira, DOH Safe Drinking Water Branch  
Mr. Steve Linder, U.S. EPA Region 9, Underground Storage Tank Program Office  
Mr. John Floyd, NAVSUP FLC Pearl Harbor  
Mr. Ralph Wells, DLA Energy Pacific

Red Hill Oil/Water Interface Measurements January 2014 to Present

Date	RHMW01			RHMW02			RHMW03			RHMW05		
	Elevation = 101.9955 ft <sup>1</sup>			Elevation = 104.5970 ft <sup>1</sup>			Elevation = 120.8980 ft <sup>1</sup>			Elevation = 101.3102 ft <sup>1</sup>		
	DTW (TOC)	SWL	LNAPL	DTW (TOC)	SWL	LNAPL	DTW (TOC)	SWL	LNAPL	DTW (TOC)	SWL	LNAPL
15-Jan-14	83.94	18.06	0	86.62	17.98	0	NT	NT	NT	NT	NT	NT
16-Jan-14	NT	NT	NT	NT	NT	NT	NT	NT	NT	83.09	18.22	0
22-Jan-14	83.53	18.47	0	86.20	18.40	0	NT	NT	NT	82.87	18.44	0
23-Jan-14	83.58	18.42	0	86.24	18.36	0	NT	NT	NT	82.94	18.37	0
24-Jan-14	83.57	18.43	0	86.23	18.37	0	NT	NT	NT	82.93	18.38	0
27-Jan-14	83.55	18.45	0	86.23	18.37	0	NT	NT	NT	82.93	18.38	0
28-Jan-14	83.56	18.44	0	86.25	18.35	0	102.52	18.38	0	82.94	18.37	0
29-Jan-14	83.56	18.44	0	86.22	18.38	0	NT	NT	NT	82.94	18.37	0
30-Jan-14	83.53	18.47	0	86.21	18.39	0	NT	NT	NT	82.93	18.38	0
31-Jan-14	83.53	18.47	0	86.19	18.41	0	NT	NT	NT	82.88	18.43	0
3-Feb-14	83.54	18.46	0	86.20	18.40	0	NT	NT	NT	82.91	18.40	0
4-Feb-14	83.54	18.46	0	86.20	18.40	0	NT	NT	NT	82.89	18.42	0
10-Feb-14	84.49	17.51	0	86.16	18.44	0	102.47	18.43	0	82.83	18.48	0
24-Feb-14	83.54	18.46	0	86.24	18.36	0	102.47	18.43	0	82.97	18.34	0
4-Mar-14*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
13-Mar-14*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
28-Mar-14	83.76	18.24	0	86.42	18.18	0	102.65	18.25	0	83.18	18.13	0
7-Apr-14*	83.42	18.58	0	86.43	18.17	0	NT	NT	NT	83.21	18.10	0
21-Apr-14	83.93	18.07	0	86.58	18.02	0	102.80	18.10	0	83.27	18.04	0
8-May-14*	84.03	17.97	0	86.68	17.92	0	NT	NT	NT	83.46	17.85	0
22-May-14*	83.81	18.19	0	86.47	18.13	0	NT	NT	NT	83.15	18.16	0
27-May-14	83.91	18.09	0	86.60	18.00	0	102.85	18.05	0	83.31	18.00	0
10-Jun-14*	83.93	18.07	0	86.55	18.05	0	NT	NT	NT	83.34	17.97	0
23-Jun-14	84.06	17.94	0	86.72	17.88	0	103.99	16.91	0	83.54	17.77	0
21-Jul-14	84.13	17.87	0	86.80	17.80	0	102.98	17.92	0	83.49	17.82	0
27-Aug-14	84.01	17.99	0	86.65	17.95	0	102.87	18.03	0	83.04	18.27	0
25-Sep-14	84.64	17.36	0	87.27	17.33	0	103.51	17.39	0	84.10	17.21	0
28-Oct-14	83.79	18.21	0	86.51	18.09	0	102.78	18.12	0	83.21	18.10	0
20-Nov-14	83.87	18.13	0	86.56	18.04	0	102.78	18.12	0	83.35	17.96	0
23-Dec-14	83.67	18.33	0	86.37	18.23	0	102.64	18.26	0	83.05	18.26	0
28-Jan-15	83.63	18.37	0	86.35	18.25	0	102.63	18.27	0	83.03	18.28	0
27-Feb-15	83.68	18.32	0	86.28	18.32	0	102.52	18.38	0	83.06	18.25	0
26-Mar-15	83.83	18.17	0	86.04	18.56	0	102.79	18.11	0	83.24	18.07	0
21-Apr-15	84.33	17.67	0	86.97	17.63	0	103.18	17.72	0	83.72	17.59	0
28-May-15	84.29	17.71	0	86.97	17.63	0	103.24	17.66	0	83.95	17.36	0
25-Jun-15	84.58	17.42	0	87.28	17.32	0	103.57	17.33	0	83.75	17.56	0
21-Jul-15	84.58	17.42	0	87.24	17.36	0	103.44	17.46	0	83.76	17.55	0

Red Hill Oil/Water Interface Measurements January 2014 to Present

Date	RHMW01			RHMW02			RHMW03			RHMW05		
	Elevation = 101.9955 ft <sup>1</sup>			Elevation = 104.5970 ft <sup>1</sup>			Elevation = 120.8980 ft <sup>1</sup>			Elevation = 101.3102 ft <sup>1</sup>		
	DTW (TOC)	SWL	LNAPL	DTW (TOC)	SWL	LNAPL	DTW (TOC)	SWL	LNAPL	DTW (TOC)	SWL	LNAPL
27-Aug-15	84.44	17.56	0	87.13	17.47	0	103.41	17.49	0	83.69	17.62	0
23-Sep-15	84.26	17.74	0	86.91	17.69	0	103.21	17.69	0	83.63	17.68	0
20-Oct-15	84.00	18.00	0	86.38	18.22	0	103.38	17.52	0	Obstructed	NT	NT
18-Nov-15	84.25	17.75	0	86.93	17.67	0	103.24	17.66	0	84.62 <sup>2</sup>	16.69	0
17-Dec-15	83.76	18.24	0	86.36	18.24	0	102.56	18.34	0	83.18	18.13	0
20-Jan-16	83.31	18.69	0	85.97	18.63	0	102.21	18.69	0	Obstructed	NT	NT
17-Feb-16	83.17	18.83	0	85.81	18.79	0	102.10	18.80	0	Obstructed	NT	NT
15-Mar-16	82.89	19.11	0	85.60	19.00	0	101.82	19.08	0	82.26	19.05	0
20-Apr-16	82.97	19.03	0	85.63	18.97	0	101.91	18.99	0	82.31	19.00	0
23-May-16	83.14	18.86	0	85.81	18.79	0	102.03	18.87	0	82.50	18.81	0
21-Jun-16	83.16	18.84	0	85.77	18.83	0	10.03	110.87	0	82.54	18.77	0
20-Jul-16	83.32	18.68	0	85.99	18.61	0	102.31	18.59	0	82.63	18.68	0
23-Aug-16	83.27	18.73	0	85.96	18.64	0	102.20	18.70	0	82.63	18.68	0
21-Sep-16	83.13	18.87	0	85.74	18.86	0	102.06	18.84	0	82.44	18.87	0
19-Oct-16	83.01	18.99	0	85.69	18.91	0	101.95	18.95	0	82.39	18.92	0
17-Nov-16	82.92	19.08	0	85.56	19.04	0	101.82	19.08	0	82.24	19.07	0
20-Dec-16	82.67	19.33	0	85.36	19.24	0	101.61	19.29	0	82.01	19.30	0
31-Jan-17	82.45	19.55	0	85.13	19.47	0	101.46	19.44	0	82.04	19.27	0
22-Feb-17	82.37	19.63	0	85.01	19.59	0	101.31	19.59	0	81.72	19.59	0
24-Mar-17	82.49	19.51	0	85.19	19.41	0	101.45	19.45	0	81.84	19.47	0
20-Apr-17	82.59	19.41	0	85.25	19.35	0	101.5	19.40	0	81.94	19.37	0
26-May-17	82.45	19.55	0	85.13	19.47	0	101.39	19.51	0	81.80	19.51	0
22-Jun-17	82.94	19.06	0	85.59	19.01	0	101.89	19.01	0	82.30	19.01	0
21-Jul-17	83.43	18.57	0	86.5	18.10	0	Transducer Installed	NT	NT	82.81	18.50	0
20-Mar-18	83.56	18.44	0	86.24	18.36	0	102.55	18.35	0	82.89	18.42	0
25-Apr-18	83.47	18.53	0	86.14	18.46	0	102.38	18.52	0	82.86	18.45	0
22-May-18	83.61	18.39	0	86.28	18.32	0	102.56	18.34	0	82.86	18.45	0
20-Jun-18	83.63	18.37	0	86.28	18.32	0	102.57	18.33	0	82.99	18.32	0
25-Jul-18	83.55	18.45	0	86.33	18.27	0	102.58	18.32	0	82.90	18.41	0
21-Aug-18	Transducer Installed	NT	NT	86.32	18.28	0	102.58	18.32	0	Transducer Installed	NT	NT
30-Oct-18	82.64	19.36	0	85.34	19.26	0	101.58	19.32	0	81.99	19.32	0
24-Jan-19	82.30	19.70	0	84.96	19.64	0	101.22	19.68	0	81.66	19.65	0
26-Apr-19	82.45	19.55	0	85.18	19.42	0	104.41	16.49	0	81.88	19.43	0
29-Jul-19	82.67	19.33	0	85.34	19.26	0	101.57	19.33	0	82.06	19.25	0
29-Oct-19	83.15	18.85	0	85.84	18.76	0	102.19	18.71	0	82.09	19.22	0
31-Jan-20	Obstructed	NA	0	85.88	18.72	0	102.17	18.73	0	82.52	18.79	0

Red Hill Oil/Water Interface Measurements January 2014 to Present

Date	RHMW01			RHMW02			RHMW03			RHMW05		
	Elevation = 101.9955 ft <sup>1</sup>			Elevation = 104.5970 ft <sup>1</sup>			Elevation = 120.8980 ft <sup>1</sup>			Elevation = 101.3102 ft <sup>1</sup>		
	DTW (TOC)	SWL	LNAPL	DTW (TOC)	SWL	LNAPL	DTW (TOC)	SWL	LNAPL	DTW (TOC)	SWL	LNAPL
23-Apr-20	82.93	19.07	0	85.68	18.92	0	101.82	19.08	0	82.27	19.04	0
24-Jul-20	83.28	18.72	0	85.94	18.66	0	102.13	18.77	0	82.63	18.68	0
15-Oct-20	83.69	18.31	0	86.39	18.21	0	102.56	18.34	0	83.12	18.19	0
27-Jan-21	83.53	18.47	0	86.23	18.37	0	102.46	18.44	0	82.87	18.44	0
22-Apr-21	83.85	18.15	0	86.53	18.07	0	102.72	18.18	0	83.26	18.05	0
20-May-21	84.00	18.00	0	Obstructed	NA	NA	Obstructed	NA	NA	83.42	17.89	0

Notes:

1 - Elevations were updated based on the Well Elevation Survey Report, Red Hill Bulk Fuel Storage Facility (DON 2018).

2 - Dedicated groundwater pump was obstructing the path of the interface meter probe. Depth measured was based on the elevation of water when pump was removed from the monitoring well (RHMW05).

Measurements recorded by Environmental Science International from January 2014 to August 2015, unless otherwise noted.

Measurements recorded by Element Environmental, LLC from September 2015.

\* - Measurements recorded by NAVFAC HI.

All units in feet (ft).

DTW (TOC) - depth to water from top of well casing

LNAPL - light non-aqueous phase liquid

NT - measurement not taken

SWL - static water level