



DEPARTMENT OF THE NAVY

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

MAR 3 12 2022

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March 15, 2022

**CERTIFIED NO: 9489 0090 0027 6232 9786 94**

Mr. Richard Takaba  
Hawaii Department of Health  
Solid and Hazardous Waste Branch  
Underground Storage Tank Section  
2827 Waimano Home Road #100  
Pearl City, Hawaii 96782

Dear Mr. Takaba:

SUBJECT: JANUARY 2022 OIL/WATER INTERFACE MEASUREMENTS  
RED HILL TANK COMPLEX  
DOH FACILITY ID NO. 9-102271  
DOH RELEASE ID NO. 990051, 010011, 020028, 140010, AND 210012

In response to the January 2014 release from Red Hill Tank 5, oil/water interface measurements were taken at groundwater monitoring wells RHMW01R, RHMW02, RHMW03 and RHMW05 on January 14, 2022. No free product was observed in the wells.

A summary table of the oil/water interface measurements from January 2014 through January 2022 is included as an enclosure. Note that starting in August 2021, oil/water interface measurements are performed at RHMW01R and discontinued at RHMW01.

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,

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

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

Hard Copy to:

Ms. Joanna Seto, DOH Safe Drinking Water Branch  
Mr. John Floyd, NAVSUP FLC Pearl Harbor

Electronic Copy (sent via email) to:

Ms. Gabriela Carvalho, U.S. EPA Region 9, Red Hill Program Coordinator  
Mr. John Reed, DLA Energy Pacific  
Mr. William Potter, DLA Energy - Engineering, Environmental, Property Directorate

Red Hill Oil/Water Interface Measurements January 2014 to Present

Date	RHMW01			RHMW01R			RHMW02			RHMW03			RHMW05		
	Elevation = 101.9955 ft <sup>1</sup>			Elevation = 101.7570 ft			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	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

Red Hill Oil/Water Interface Measurements January 2014 to Present

Date	RHMW01			RHMW01R			RHMW02			RHMW03			RHMW05		
	Elevation = 101.9955 ft <sup>1</sup>			Elevation = 101.7570 ft			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	DTW (TOC)	SWL	LNAPL
21-Jul-15	84.58	17.42	0				87.24	17.36	0	103.44	17.46	0	83.76	17.55	0
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

Red Hill Oil/Water Interface Measurements January 2014 to Present

Date	RHMW01			RHMW01R			RHMW02			RHMW03			RHMW05		
	Elevation = 101.9955 ft <sup>1</sup>			Elevation = 101.7570 ft			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	DTW (TOC)	SWL	LNAPL
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	NT	0				85.88	18.72	0	102.17	18.73	0	82.52	18.79	0
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	83.85	18.15	0				Obstructed	NT	NT	Obstructed	NT	NT	83.42	17.89	0
16-Jun-21	84.10	17.90	0				86.79	17.81	0	102.99	17.91	0	83.53	17.78	0
16-Jul-21	84.14	17.86	0				86.89	17.71	0	103.11	17.79	0	83.62	17.69	0
20-Aug-21				84.06	17.70	0	85.96	18.64	0	103.17	17.73	0	83.67	17.64	0
17-Sep-21				84.14	17.62	0	87.02	17.58	0	103.22	17.68	0	83.79	17.52	0
15-Oct-21				84.17	17.59	0	87.06	17.54	0	103.26	17.64	0	83.80	17.51	0
19-Nov-21				84.26	17.50	0	87.12	17.48	0	103.32	17.58	0	83.89	17.42	0
17-Dec-21				83.31	18.45	0	86.22	18.38	0	102.45	18.45	0	82.94	18.37	0
14-Jan-22				82.90	18.86	0	85.78	18.82	0	102.01	18.89	0	82.49	18.82	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