



DEPARTMENT OF THE NAVY

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

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Ser N45/1028
December 19, 2014

CERTIFIED NO: 7014 1200 0000 9858 6827

Mr. Steven Chang, P.E., Chief
Hawaii State Department of Health
Environmental Management Division
Solid and Hazardous Waste Branch
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814

Dear Mr. Chang,

SUBJECT: RED HILL TANK 5 RELEASE - NEW SENTINEL WELL RESULTS
DEPARTMENT OF HEALTH (DOH) FACILITY ID NO. 9-102271,
DOH RELEASE ID NO. 140010

Enclosed is the summary table of analytical results for samples taken in October 2014 at the recently installed sentinel wells, RHMW06 and RHMW07, at the Red Hill Bulk Fuel Storage Facility. These wells were installed to respond to the Red Hill Tank 5 fuel release of January 2014.

This summary table is being submitted as a courtesy, in advance of the "Monitoring Well Installation Report" currently being prepared. The "Monitoring Well Installation Report" will contain a complete description of the sampling methodology, laboratory data, an interpretation of the results, well construction details and survey information. The Navy will receive the draft report from the contractor next month.

Although the report mentioned above will provide the complete information on these wells, we are also enclosing a well location map for your convenience.

We will continue to keep you informed on our progress. If you have any questions regarding this matter, please contact me at (808) 471-1171, extension 226.

Sincerely,

AARON K. POENTIS
Director
Regional Environmental Department
By direction of the
Commander

5090
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Enclosures: 1. Table 5, Analytical Results for Groundwater Sampling
for RHMW06 and RHMW07, December 2014
2. Location Map for the New Monitoring Wells

Copy to: Steven Linder, EPA Region IX
CAPT Tufts, Navy Region Hawaii
CAPT Williamson, NAVFAC Pacific
CAPT Wheeler, NAVSUP FLC Pearl Harbor
CAPT Bower, DLA Energy Pacific

TABLE 5
Analytical Results for Groundwater Sampling (October 2014)
Red Hill Bulk Fuel Storage Facility
Monitoring Well Installation Report

Method	Chemical	DOH EALs		RHMW06-GW-01 (J144-01/AZ05593)					RHMW07-GW-01 (J130-01/J206-01/AZ05388)					RHMW07-GW-01FD (J130-02/J206-01/AZ05389)				
		Drinking Water Toxicity	Gross Contamination	Result	Qualifier	LOQ	LOD	DL	Result	Qualifier	LOQ	LOD	DL	Result	Qualifier	LOQ	LOD	DL
EPA 8015B	TPH as Gasoline Range Organics C6-C10	100	100	N.D.	U	50	20	10	N.D.	U	50	20	10	N.D.	U	50	20	10
	TPH as Diesel Range Organics C10-C24	190	100	N.D.	U	120	86	58	57	J	100	78	52	66	J	100	77	52
	TPH as Residual Range Organics C24-C36	4,400	100	N.D.	U	120	86	58	N.D.	U	100	78	52	N.D.	U	100	77	52
EPA 8270C-SIM	1-Methylnaphthalene	4.7	10	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	2-Methylnaphthalene	24	10	0.0064	J	0.021	0.011	0.0053	0.0084	J	0.019	0.0096	0.0048	0.0060	J	0.020	0.010	0.0050
	Acenaphthene	370	20	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Acenaphthylene	240	2,000	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Anthracene	1,800	22	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Benzo[a]anthracene	0.092	4.7	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Benzo[a]pyrene	0.2	0.81	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Benzo[b]fluoranthene	0.092	0.75	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Benzo[g,h,i]perylene	1,500	0.13	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Benzo[k]fluoranthene	0.92	0.4	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Chrysene	9.2	1	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Dibenzo[a,h]anthracene ¹	0.0092	0.52	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Fluoranthene	1,500	130	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Fluorene	240	950	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Indeno[1,2,3-cd]pyrene	0.092	0.095	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Naphthalene	17	21	N.D.	U	0.11	0.053	0.027	N.D.	U	0.096	0.048	0.024	N.D.	U	0.10	0.050	0.025
	Phenanthrene	240	410	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.020	0.010	0.0050
	Pyrene	180	68	N.D.	U	0.021	0.011	0.0053	N.D.	U	0.019	0.0096	0.0048	N.D.	U	0.02	0.010	0.0050
EPA 8011	1,2-Dibromo-3-chloropropane	0.04	10	N.D.	U	0.02	0.019	0.007	N.D.	U	0.02	0.019	0.007	N.D.	U	0.02	0.019	0.007
	1,2-Dibromoethane	0.04	50,000	N.D.	U	0.02	0.020	0.010	N.D.	U	0.02	0.020	0.010	N.D.	U	0.02	0.020	0.010
EPA 8260C	1,1,1,2-Tetrachloroethane	0.52	50,000	N.D.	U	1.0	0.30	0.13	N.D.	U	1.0	0.30	0.13	N.D.	U	1.0	0.30	0.13
	1,1,1-Trichloroethane	200	970	N.D.	U	1.0	0.30	0.14	N.D.	U	1.0	0.30	0.14	N.D.	U	1.0	0.30	0.14
	1,1,2,2-Tetrachloroethane ¹	0.07	500	N.D.	U	1.0	0.30	0.10	N.D.	U	1.0	0.30	0.10	N.D.	U	1.0	0.30	0.10
	1,1,2-Trichloroethane	5	50,000	N.D.	U	1.0	0.50	0.20	N.D.	U	1.0	0.50	0.20	N.D.	U	1.0	0.50	0.20
	1,1-Dichloroethane	2.42	50,000	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19
	1,1-Dichloroethylene	7	1,500	N.D.	U	1.0	0.50	0.30	N.D.	U	1.0	0.50	0.30	N.D.	U	1.0	0.50	0.30
	1,2,3-Trichloropropane ¹	0.6	50,000	N.D.	U	2.0	1.00	0.39	N.D.	U	2.0	1.00	0.39	N.D.	U	2.0	1.00	0.39
	1,2,4-Trichlorobenzene	70	3,000	N.D.	U	1.0	0.50	0.21	N.D.	U	1.0	0.50	0.21	N.D.	U	1.0	0.50	0.21
	1,2-Dibromo-3-chloropropane ¹	0.04	10	N.D.	U	2.0	1.00	0.76	N.D.	U	2.0	1.00	0.76	N.D.	U	2.0	1.00	0.76
	1,2-Dibromoethane ¹	0.04	50,000	N.D.	U	1.0	0.50	0.20	N.D.	U	1.0	0.50	0.20	N.D.	U	1.0	0.50	0.20
	1,2-Dichlorobenzene	600	10	N.D.	U	1.0	0.30	0.17	N.D.	U	1.0	0.30	0.17	N.D.	U	1.0	0.30	0.17
	1,2-Dichloroethane	0.15	7,000	N.D.	U	0.10	0.100	0.030	N.D.	U	0.10	0.100	0.030	N.D.	U	0.10	0.100	0.030
	1,2-Dichloropropane	5	10	N.D.	U	1.0	0.30	0.17	N.D.	U	1.0	0.30	0.17	N.D.	U	1.0	0.30	0.17
	1,3-Dichlorobenzene	182.5	5	N.D.	U	1.0	0.30	0.11	N.D.	U	1.0	0.30	0.11	N.D.	U	1.0	0.30	0.11
	1,3-Dichloropropene (total)	0.43	50,000	N.D.	U	1.0	0.30	0.18	N.D.	U	1.0	0.30	0.18	N.D.	U	1.0	0.30	0.18
	1,4-Dichlorobenzene	75	5	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19

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		Drinking Water Toxicity	Gross Contamination	Result	Qualifier	LOQ	LOD	DL	Result	Qualifier	LOQ	LOD	DL	Result	Qualifier	LOQ	LOD	DL
EPA 8260C	Acetone	21,783	20,000	N.D.	U	10.0	2.00	0.95	1.9	J	10.0	2.00	0.95	1.7	J	10.0	2.00	0.95
	Benzene	5	170	N.D.	U	0.20	0.200	0.060	N.D.	U	0.20	0.200	0.060	N.D.	U	0.20	0.200	0.060
	Bromodichloromethane ¹	0.12	50,000	N.D.	U	1.0	0.30	0.14	N.D.	U	1.0	0.30	0.14	N.D.	U	1.0	0.30	0.14
	Bromoform	80	510	N.D.	U	1.0	0.30	0.14	N.D.	U	1.0	0.30	0.14	N.D.	U	1.0	0.30	0.14
	Bromomethane	8.66	50,000	N.D.	U	2.0	0.50	0.24	N.D.	U	2.0	0.50	0.24	N.D.	U	2.0	0.50	0.24
	Carbon tetrachloride	5	520	N.D.	U	0.10	0.100	0.030	N.D.	U	0.10	0.100	0.030	N.D.	U	0.10	0.100	0.030
	Chlorobenzene	100	50	N.D.	U	1.0	0.50	0.21	N.D.	U	1.0	0.50	0.21	N.D.	U	1.0	0.50	0.21
	Chloroethane	20,857	16	N.D.	U	1.0	0.50	0.21	N.D.	U	1.0	0.50	0.21	N.D.	U	1.0	0.50	0.21
	Chloroform	70	2,400	N.D.	U	0.2	0.20	0.06	N.D.	U	0.2	0.20	0.06	N.D.	U	0.2	0.20	0.06
	Chloromethane	1.78	50,000	N.D.	U	1.0	0.50	0.31	N.D.	U	1.0	0.50	0.31	N.D.	U	1.0	0.50	0.31
	cis-1,2-Dichloroethylene	70	50,000	N.D.	U	1.0	0.30	0.16	N.D.	U	1.0	0.30	0.16	N.D.	U	1.0	0.30	0.16
	Dibromochloromethane ¹	0.16	50,000	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19
	Ethylbenzene	700	30	N.D.	U	1.0	0.50	0.23	N.D.	U	1.0	0.50	0.23	N.D.	U	1.0	0.50	0.23
	Hexachlorobutadiene	0.86	6	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19
	Methyl ethyl ketone (2-butanone)	7,065	8,400	N.D.	U	10.0	2.00	0.60	N.D.	U	10.0	2.00	0.60	N.D.	U	10.0	2.00	0.60
	Methyl isobutyl ketone (4-methyl-2-pentanone)	1,991	1,300	N.D.	U	10.0	5.00	1.90	N.D.	U	10.0	5.00	1.90	N.D.	U	10.0	5.00	1.90
	Methyl tert butyl ether	12	5	N.D.	U	1.0	0.52	0.26	N.D.	U	1.0	0.52	0.26	N.D.	U	1.0	0.52	0.26
	Methylene chloride	4.8	9,100	N.D.	U	5.0	1.00	0.35	N.D.	U	5.0	1.00	0.35	N.D.	U	5.0	1.00	0.35
	Styrene	100	10	N.D.	U	1.0	0.50	0.25	N.D.	U	1.0	0.50	0.25	N.D.	U	1.0	0.50	0.25
	Tetrachloroethylene	5	170	N.D.	U	0.3	0.30	0.08	N.D.	U	0.3	0.30	0.08	N.D.	U	0.3	0.30	0.08
	Toluene	1,000	40	N.D.	U	1.0	0.30	0.17	N.D.	U	1.0	0.30	0.17	N.D.	U	1.0	0.30	0.17
	trans-1,2-dichloroethylene	100	260	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19	N.D.	U	1.0	0.30	0.19
	Trichloroethylene	5	310	N.D.	U	1.0	0.30	0.16	N.D.	U	1.0	0.30	0.16	N.D.	U	1.0	0.30	0.16
	Vinyl chloride	2	3,400	N.D.	U	0.1	0.10	0.03	N.D.	U	0.1	0.10	0.03	N.D.	U	0.1	0.10	0.03
	Xylenes	10,000	20	N.D.	U	2.0	0.30	0.19	N.D.	U	2.0	0.30	0.19	N.D.	U	2.0	0.30	0.19
EPA RSK-175	Methane	NA	NA	1.7		1.0	0.45	0.25	1.9	J	1.0	0.45	0.25	2.8	J	1.0	0.45	0.25
EPA 6020A	Dissolved Lead	15	50,000	N.D.	U	6.0	0.80	0.38	N.D.	U	6.0	0.80	0.38	N.D.	U	6.0	0.80	0.38
EPA 9056	Chloride	NA	NA	319,000		10000	2000	800	362,000		10000	2000	800	--	--	--	--	--
	Sulfate	NA	NA	66,600		2000	396	180	63,500		2000	396	180	64,200		2000	396	180
EPA 353.2	Nitrate/Nitrite as N	NA	NA	530		100	100	28	63	J	100	100	28	55	J	100	100	28
EPA A2320B	Alkalinity	NA	NA	118,000		2000	1700	850	177,000		2000	1700	850	184,000		2000	1700	850

QA Notes:

DOH EALs State of Hawaii Department of Health Hazard Evaluation and Emergency Response Office Environmental Action Levels for sites where groundwater is a current drinking water source and surface water is located greater than 150 meters from the site (January 2012).

LOQ Limit of Quantitation

LOD Limit of Detection

DL Detection Limit or Method Detection Limit (MDL)

¹ The LOD for this analyte exceeds the DOH EAL.

-- Not analyzed.

NA DOH EAL Not Available

Data Qualifiers:

The data are in micrograms per liter (µg/L).

N.D. Not detected at the DL.

U Analyte was not detected above the DL and is reported as less than the LOD.

J Analyte was detected at a concentration below the LOQ and above the DL. Reported value is estimated.

Detections are bolded.

Shaded detections exceed the DOH EALs.



LEGEND

- New Monitoring Well
- Existing Monitoring Well
- Pumping Station
- Red Hill UST ID Number
- Red Hill Tunnels
- Access Road
- Halawa Correctional Facility Boundary
- Boundary of Red Hill Fuel Storage Facility



NEW MONITORING WELLS

Monitoring Well Installation
Red Hill Fuel Storage Facility
Joint Base Pearl Harbor - Hickam
Hawaii

PARSONS

South Jordan, Utah