



DEPARTMENT OF THE NAVY

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

Scanned  
MAY 08 2014  
RI

RT

5090  
Ser N45/350  
May 05, 2014

CERTIFIED NO: 7011 0110 0002 1803 7912

Mr. Richard Takaba  
Hawaii State Department of Health  
Environmental Management Division  
Solid and Hazardous Waste Branch  
Underground Storage Tank Section  
919 Ala Moana Boulevard, Room 212  
Honolulu, HI 96814

Dear Mr. Takaba:

SUBJECT: RED HILL TANK COMPLEX  
SOIL VAPOR SAMPLING RESULTS FOR MAY 1, 2014  
DOH FACILITY ID NO. 9-102271  
DOH RELEASE ID NO. 990051, 010011, 020028, AND 140010

Soil vapor samples were collected from beneath Red Hill Tanks 5, 6, 7, and 8 on May 1, 2014.

Soil vapor samples were analyzed in the field for VOC concentrations using a photo-ionization detector. The soil vapor sampling results are being submitted as Enclosure 1.

A conservative approach is to assess the integrity of the associated tank system if VOC concentrations exceed 280,000 ppbv in soil vapor monitoring points (SVMPs) beneath tanks containing JP-5 or JP-8, or 14,000 ppbv in soil vapor monitoring probes beneath tanks containing marine diesel fuel. These values are 50 percent of the calculated vapor concentration from fuel-saturated water.

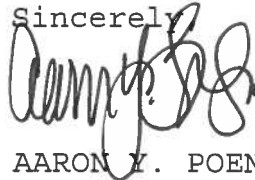
Concentrations of VOCs detected during this soil vapor sampling event were generally consistent with the previous events on April 22, 2014. Concentrations of VOCs detected in the front, middle, and outer edge soil vapor monitoring probes at Tank 5 were 159,000 ppbv, 450,000 ppbv, and 426,000 ppbv, respectively.

The next soil vapor sampling event is tentatively scheduled for the week of May 5, 2014, and will include collecting samples from soil vapor monitoring probes beneath Tanks 2 through 10.

5090  
Ser N45/350  
May 05, 2014

If there are any questions regarding this matter, or if more information is needed, please contact Ms. Raelynn Kishaba at (808) 471-1171, extension 233.

Sincerely,



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

Enclosure: 1. Summary of Soil Vapor Sampling Results for Tanks  
5, 6, 7, and 8 through May 1, 2014 (8 pages)

Copy to: LCDR Angela Watson, NAVSUP FLC Pearl Harbor  
Mr. Walter Riddlehoover, DLA Energy Pacific

**Table 1**  
**Soil Vapor Results for SV05**  
**Soil Vapor Monitoring Letter Report**  
**Red Hill Bulk Fuel Storage Facility**

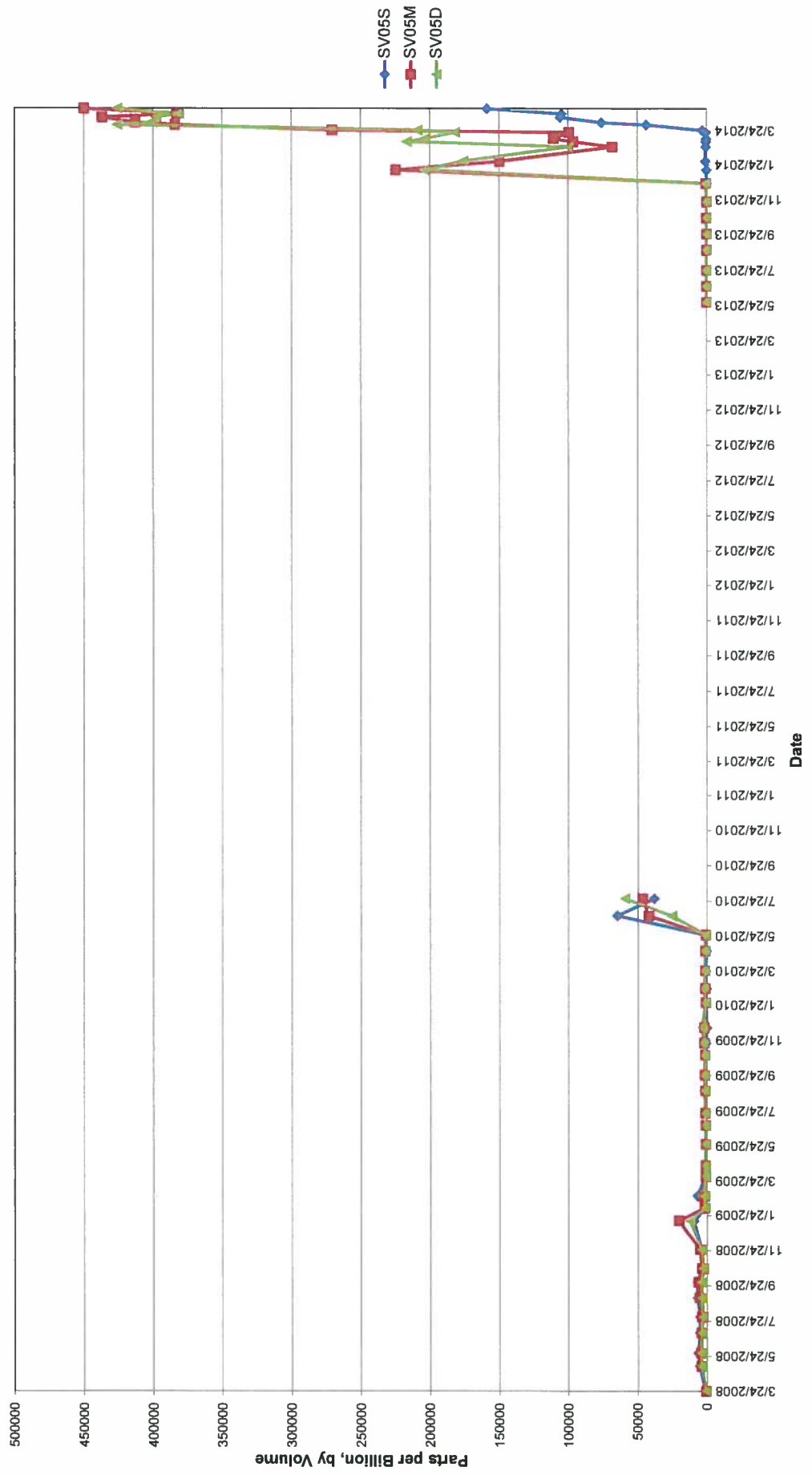
Date	SV05S	SV05M	SV05D
3/24/2008	1295	716	697
5/6/2008	5441	4214	4012
5/29/2008	6523	4636	3984
7/3/2008	5195	4218	3957
7/31/2008	5190	3785	2894
9/2/2008	6905	5581	3681
9/29/2008	7149	6405	3960
10/23/2008	3497	3690	2518
11/25/2008	3750	5221	3741
1/14/2009	9519	20567	12473
2/5/2009	1744	1824	1638
2/26/2009	7015	2820	1616
4/1/2009	1178	996	1179
4/20/2009	1209	1146	1326
5/27/2009	1120	1054	1123
6/29/2009	1055	1061	1131
7/20/2009	1237	1296	1582
8/28/2009	1776	1314	1457
9/24/2009	1901	1722	1906
10/29/2009	1430	1507	1724
11/19/2009	780	2100	2715
12/16/2009	210	2068	3418
1/28/2010	818	976	1227
2/22/2010	487	1453	2234
3/25/2010	1028	1473	1484
4/28/2010	398	1417	1532
5/26/2010	1002	980	1147
6/28/2010	64900	42100	25600
7/28/2010	38167	46633	59433
9/29/2010	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
10/18/2010	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
11/16/2010	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
12/14/2010	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
1/13/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
2/15/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
3/15/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
4/18/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
5/18/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
6/22/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
7/27/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
8/26/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>

Date	SV05S	SV05M	SV05D
9/22/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
10/27/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
11/22/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
12/16/2011	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
1/20/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
2/23/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
3/13/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
4/16/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
5/15/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
6/19/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
7/10/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
8/14/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
10/24/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
11/26/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
12/18/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
1/31/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
2/28/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
3/28/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
4/25/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
5/30/2013	215	221	184
6/27/2013	115	233	232
7/25/2013	208	218	322
8/29/2013	63	68	161
9/26/2013	14	29	114
10/24/2013	229	250	201
11/21/2013	94	120	109
12/23/2013	50	622	794
1/15/2014	96	225000	204000
1/30/2014	818	150000	176000
2/24/2014	597	68200	100000
3/5/2014	492	96600	217000
3/10/2014	308	111000	204000
3/21/2014	593	99600	182000
3/25/2014	3144	271000	209000
4/3/2014	43700	384000	426000
4/7/2014	76100	413000	401000
4/16/2014	106000	437000	398000
4/22/2014	105000	383000	381000
5/1/2014	159000	450000	426000

ppbv: parts per billion by volume

NC<sub>1</sub>: Not collected due to maintenance work

Figure 1  
Soil Vapor Measurements  
SV05



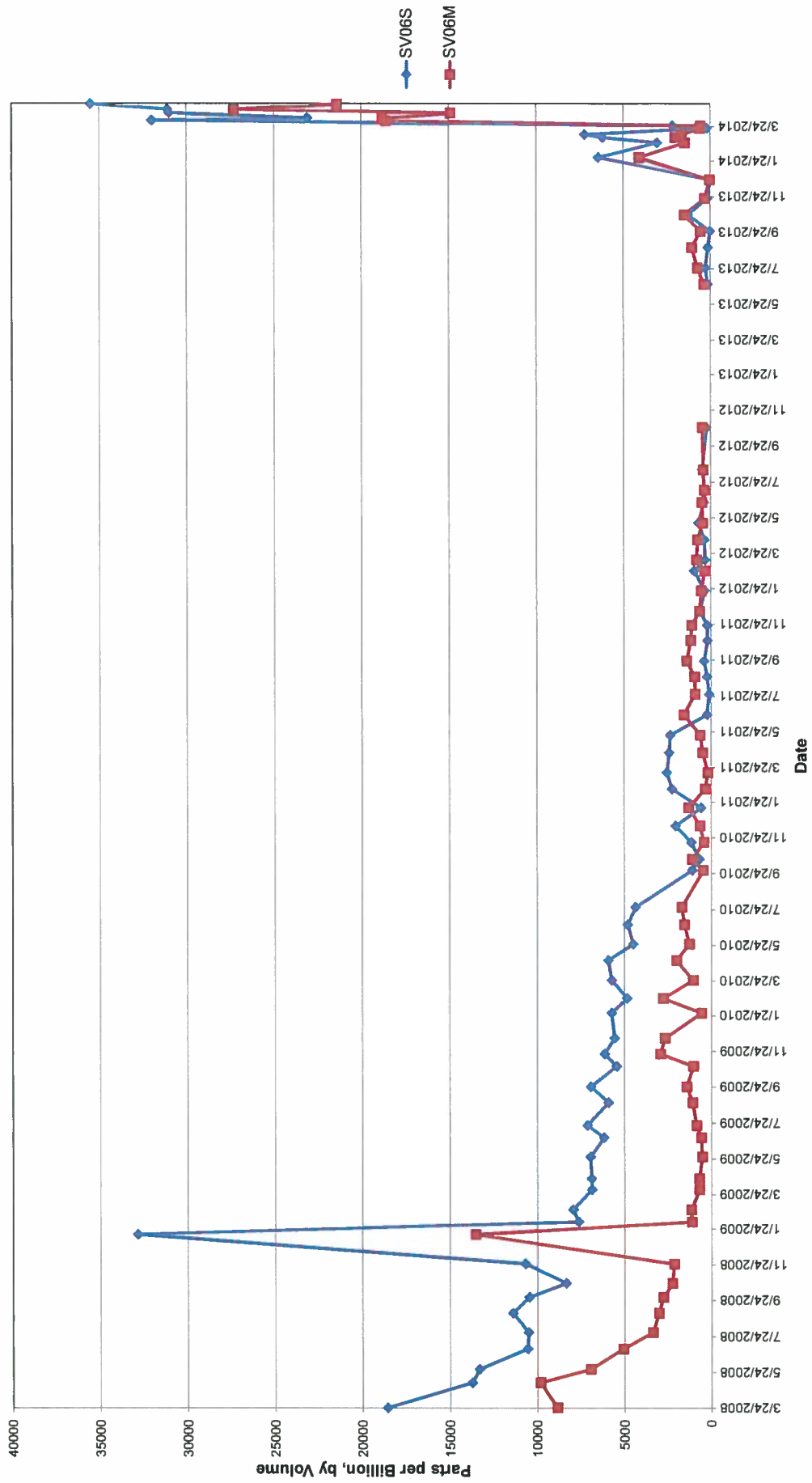
**Table 2**  
**Soil Vapor Results for SV06**  
**Soil Vapor Monitoring Letter Report**  
**Red Hill Bulk Fuel Storage Facility**

Date	SV06S	SV06M
3/24/2008	18567	8861
5/6/2008	13733	9828
5/29/2008	13333	6932
7/3/2008	10560	5075
7/31/2008	10502	3373
9/2/2008	11416	3030
9/29/2008	10456	2772
10/23/2008	8337	2255
11/25/2008	10683	2143
1/14/2009	32867	13533
2/5/2009	7624	1128
2/26/2009	7936	1160
4/1/2009	6857	688
4/20/2009	6872	692
5/27/2009	6940	535
6/29/2009	6161	584
7/20/2009	7120	860
8/28/2009	5901	1075
9/24/2009	6917	1417
10/29/2009	5430	1027
11/19/2009	6129	2937
12/16/2009	5549	2673
1/28/2010	5721	559
2/22/2010	4841	2775
3/25/2010	5709	1043
4/28/2010	5905	1997
5/26/2010	4483	1261
6/28/2010	4800	1539
7/28/2010	4347	1693
9/29/2010	1090	457
10/18/2010	675	1084
11/16/2010	1142	413
12/14/2010	2043	646
1/14/2011	566	1282
2/15/2011	2245	352
3/15/2011	2542	173
4/18/2011	2412	484
5/18/2011	2343	613
6/22/2011	221	1558
7/27/2011	100	909
8/26/2011	210	924

Date	SV06S	SV06M
9/22/2011	380	1385
10/27/2011	189	1155
11/22/2011	200	1098
12/16/2011	621	651
1/20/2012	342	537
2/23/2012	943	348
3/13/2012	330	816
4/16/2012	357	756
5/15/2012	699	462
6/19/2012	384	498
7/10/2012	305	373
8/14/2012	476	417
10/24/2012	225	474
11/26/2012	NC <sub>1</sub>	NC <sub>1</sub>
12/18/2012	NC <sub>1</sub>	NC <sub>1</sub>
1/31/2013	NC <sub>1</sub>	NC <sub>1</sub>
2/28/2013	NC <sub>1</sub>	NC <sub>1</sub>
3/28/2013	NC <sub>1</sub>	NC <sub>1</sub>
4/25/2013	NC <sub>1</sub>	NC <sub>1</sub>
5/30/2013	NC <sub>1</sub>	NC <sub>1</sub>
6/27/2013	143	378
7/25/2013	280	742
8/29/2013	131	1066
9/26/2013	9	566
10/24/2013	1291	1485
11/21/2013	160	322
12/23/2013	3	39
1/30/2014	6424	4097
2/24/2014	3046	1457
3/5/2014	6165	2033
3/10/2014	7204	1644
3/21/2014	195	605
3/25/2014	2169	551
4/3/2014	32000	18600
4/7/2014	23100	18800
4/16/2014	31000	14900
4/22/2014	31100	27300
5/1/2014	35500	21400

ppbv: parts per billion by volume  
 NC<sub>1</sub>: Not collected due to  
 maintenance work

Figure 2  
Soil Vapor Measurements  
SV06



**Table 3**  
**Soil Vapor Results for SV07**  
**Soil Vapor Monitoring Letter Report**  
**Red Hill Bulk Fuel Storage Facility**

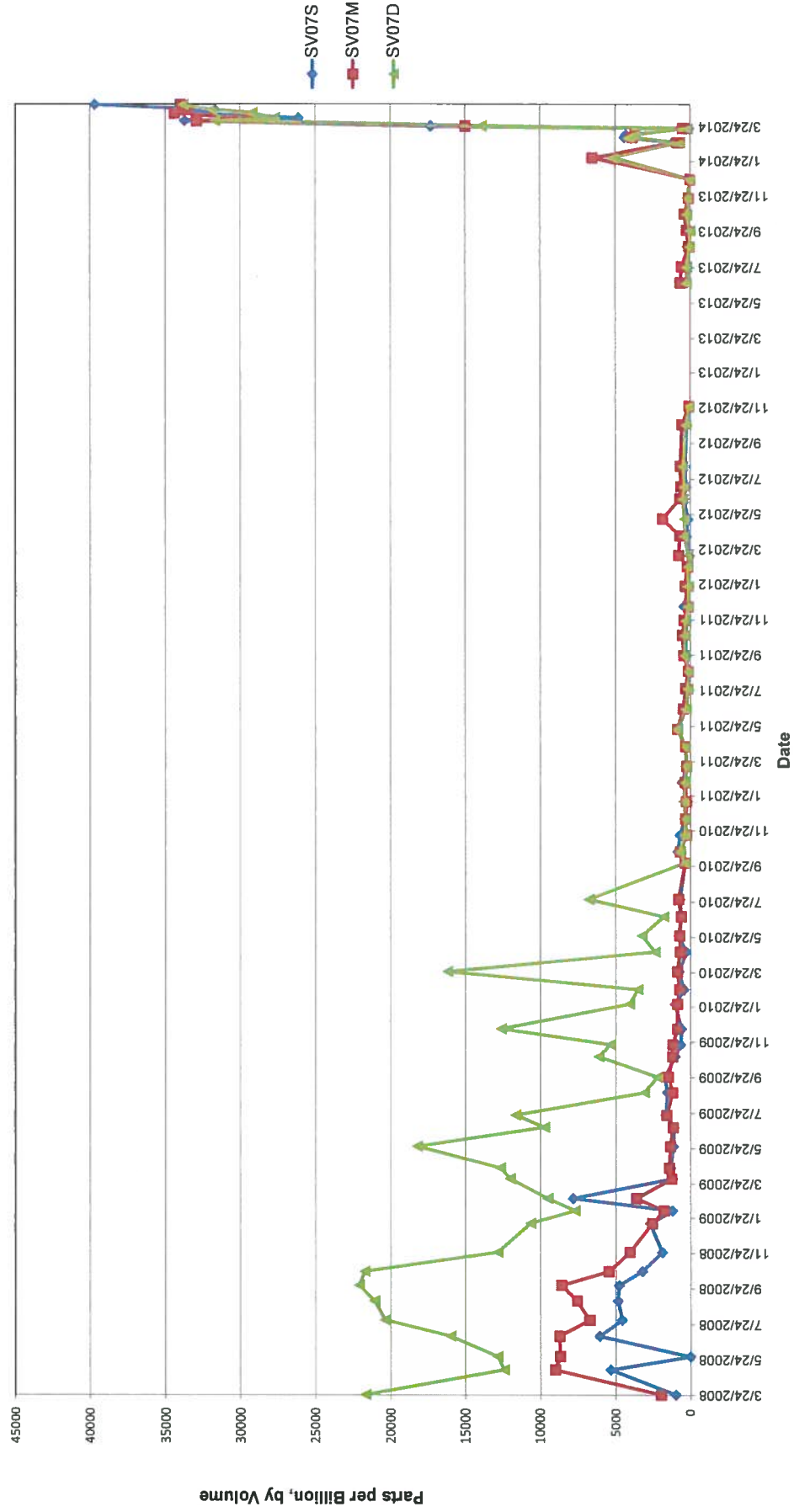
Date	SV07S	SV07M	SV07D
3/24/2008	981	1966	21667
5/6/2008	5331	9047	12433
5/29/2008	NC	8698	12867
7/3/2008	6074	8759	16000
7/31/2008	4572	6737	20367
9/2/2008	4852	7576	21067
9/29/2008	4786	8620	22100
10/23/2008	3224	5459	21733
11/25/2008	1894	4069	12867
1/14/2009	2707	2567	10667
2/5/2009	1208	1780	7718
2/26/2009	7846	3623	9532
4/1/2009	1227	1268	12033
4/20/2009	1334	1434	12700
5/27/2009	1144	1353	18233
6/29/2009	1107	1184	9743
7/20/2009	1660	1595	11667
8/28/2009	1550	1207	3078
9/24/2009	1716	1481	2213
10/29/2009	1042	1214	6121
11/19/2009	657	1210	5342
12/16/2009	599	875	12633
1/28/2010	1032	872	4079
2/22/2010	444	728	3519
3/25/2010	762	886	16200
4/28/2010	288	689	2365
5/26/2010	782	731	3244
6/28/2010	629	628	1786
7/28/2010	703	801	6775
9/29/2010	344	363	372
10/18/2010	839	685	712
11/16/2010	701	288	356
12/14/2010	369	335	323
1/13/2011	210	283	451
2/15/2011	550	351	364
3/15/2011	267	255	296
4/18/2011	321	326	333
5/18/2011	851	871	900
6/22/2011	279	475	274
7/27/2011	137	342	166
8/26/2011	96	132	135

Date	SV07S	SV07M	SV07D
9/22/2011	298	443	361
10/27/2011	310	537	351
11/22/2011	249	431	311
12/16/2011	424	157	114
1/20/2012	96	356	133
2/23/2012	153	213	148
3/13/2012	68	782	144
4/16/2012	258	708	385
5/15/2012	148	1877	394
6/19/2012	421	686	483
7/10/2012	288	638	388
8/14/2012	348	680	477
10/24/2012	232	552	278
11/26/2012	88	87	100
12/18/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
1/31/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
2/28/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
3/28/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
4/25/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
5/30/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
6/27/2013	234	676	273
7/25/2013	164	583	232
8/29/2013	173	104	38
9/26/2013	7	253	7
10/24/2013	281	396	228
11/21/2013	122	122	191
12/23/2013	2	8	5
1/30/2014	6350	6539	5180
2/24/2014	1187	849	690
3/5/2014	4406	3890	4119
3/10/2014	4287	3687	3654
3/21/2014	102	512	170
3/25/2014	17300	15000	13900
4/3/2014	33700	32900	31700
4/7/2014	26100	29400	27700
4/16/2014	32900	34400	29200
4/22/2014	31700	33500	31900
5/1/2014	39700	34000	33800

ppbv: parts per billion by volume

NC<sub>1</sub>: Not collected due to maintenance work

Figure 3  
Soil Vapor Measurements  
SV07





**Table 4**  
**Soil Vapor Results for SV08**  
**Soil Vapor Monitoring Letter Report**  
**Red Hill Bulk Fuel Storage Facility**

Date	SV08S	SV08M	SV08D
3/24/2008	324	353	428
5/6/2008	4266	3274	2286
5/29/2008	541	607	482
7/3/2008	1764	1730	1397
7/31/2008	602	804	684
9/2/2008	1463	1605	1051
9/29/2008	2397	1859	1152
10/23/2008	1358	1119	866
11/25/2008	2780	2166	1393
1/14/2009	7153	6517	4762
2/5/2009	1211	1263	797
2/26/2009	1289	1019	669
4/1/2009	310	416	367
4/20/2009	400	484	454
5/27/2009	258	367	358
6/29/2009	464	491	474
7/20/2009	612	690	727
8/28/2009	450	546	563
9/24/2009	627	726	752
10/29/2009	617	697	762
11/19/2009	779	860	877
12/16/2009	1157	1247	1382
1/28/2010	508	579	621
2/22/2010	690	727	840
3/25/2010	555	573	612
4/28/2010	688	742	756
5/26/2010	477	560	553
6/28/2010	525	607	609
7/28/2010	515	539	610
9/29/2010	295	345	352
10/18/2010	582	1221	988
11/16/2010	629	612	740
12/14/2010	488	657	471
1/13/2011	556	796	862
2/15/2011	431	485	541
3/15/2011	169	284	304
4/18/2011	364	456	489
5/18/2011	909	1222	1263
6/22/2011	172	412	266
7/27/2011	99	139	320
8/26/2011	84	157	180

Date	SV08S	SV08M	SV08D
9/22/2011	277	301	309
10/27/2011	250	338	309
11/22/2011	177	268	355
12/16/2011	67	211	162
1/20/2012	169	105	340
2/23/2012	222	222	129
3/13/2012	85	134	391
4/16/2012	485	204	377
5/15/2012	106	157	153
6/19/2012	428	466	418
7/10/2012	291	325	290
8/14/2012	296	285	285
10/24/2012	214	216	400
11/26/2012	53	76	51
12/18/2012	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
1/31/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
2/28/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
3/28/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
4/25/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
5/30/2013	NC <sub>1</sub>	NC <sub>1</sub>	NC <sub>1</sub>
6/27/2013	224	235	402
7/25/2013	133	176	132
8/29/2013	16	28	19
9/26/2013	15	2	2
10/24/2013	207	2013	197
11/21/2013	76	73	88
12/23/2013	4	2	6
1/30/2014	2170	2698	2952
2/24/2014	601	423	428
3/5/2014	1814	2492	3097
3/10/2014	1819	2348	2274
3/21/2014	102	469	354
3/25/2014	6152	7880	7474
4/3/2014	12800	17100	18100
4/7/2014	13500	14300	17300
4/16/2014	12900	15600	15800
4/22/2014	16600	19300	21000
5/1/2014	15600	19200	20100

ppbv: parts per billion by volume

NC<sub>1</sub>: Not collected due to maintenance work

Figure 4  
Soil Vapor Measurements  
SV08

