Rolls-Royce

Rolls-Royce Engine Services-Oakland Inc.
7200 Earhart Road
Oakland, California 94621-4504

Tel: (510) 613-1000

RECEIVED
By Alameda County Environmental Health at 1:04 pm, Jan 14, 2015

January 6, 2014

Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: **Rolls-Royce Engine Services Test Facility**
6701 Old Earhart Road
Oakland, California
Alameda County Site #RO0002606

I have reviewed the attached routine groundwater monitoring report dated September 16, 2013 .

I agree with the conclusions and recommendation presented in the referenced report. The information is this report is accurate to the best of my knowledge. This report was prepared by Gettler-Ryan Incorporated, whose assistance and advice I have relied upon.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Dave Goldberg
Facilities HS&E Specialist

140193.11

GETTLER-RYAN INC.

January 6, 2014

Mr. Keith Nowell
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Ste. 250
Alameda, California 94502

Subject: **Second Semi-Annual 2013 Event**
Groundwater Monitoring and Sampling Report
Rolls-Royce Engine Services Test Facility
6701 Old Earhart Road, Oakland, California
Alameda County Site #RO0002606

Mr. Nowell,

On behalf of Rolls-Royce Engine Services-Oakland Inc. (R-R), Gettler-Ryan Inc. (GR) has prepared this Second Semi-Annual 2013 Event, Groundwater Monitoring and Sampling Report for the site referenced above. This report describes the field and analytical methods, provides a summary of groundwater monitoring results, and presents conclusions and recommendations regarding groundwater conditions at the site.

SITE LOCATION AND DESCRIPTION

The subject site is located at 6701 Old Earhart Road, adjacent to the Metropolitan Oakland International Airport (MOIA)-North Field, Oakland, California (Figure 1). Topography in the vicinity of the subject site is relatively flat at an average elevation of approximately 7.5 feet above mean sea level. The closest surface water is within the tidal wetlands bordering the site to the east.

Pertinent site features consist of six engine test cells with auxiliary structures (sheds, pumphouse, waste water sumps, aboveground oil/water separator, control buildings, gas conditioning facility, air receivers, cooling towers, flare stack, etc), one 30,000-gallon aboveground liquefied petroleum fuel tank, one 10,000-gallon jet A fuel underground storage tank (UST) and two paired 8,000-gallon jet A fuel USTs. Pertinent site features and the location of the USTs are shown on Figure 2.

For site background and previous environmental investigation, please refer to GR report No. 25-948218.07, *Well Installation Report*, dated January 11, 2008.

GROUNDWATER MONITORING

On September 16, 2013, GR personnel conducted semi-annual groundwater monitoring of nineteen wells (MW-1 through MW-15, MW-17, MW-18, NPORD MW-3 and NPORD MW-4). Work at the site included measuring static groundwater levels, evaluating groundwater in the wells for the presence of petroleum hydrocarbons, and purging and sampling the wells for laboratory analysis. Groundwater monitoring and sampling were performed in accordance with GR Field Methods and Procedures, Groundwater Sampling (attached).

On September 16, 2013, GR collected depth to groundwater measurements in nineteen wells (MW-1 through MW-15, MW-17, MW-18, NPORD MW-3 and NPORD MW-4) and checked groundwater for the presence of Separate-Phase Hydrocarbons (SPH). No SPH were detected in any wells during this event. Water level data, groundwater elevations, and SPH thicknesses are presented in attached Table 1. SPH thicknesses and approximate SPH volumes purged are summarized in Table 3. Field data sheets for this event are attached.

Rolls-Royce personnel have been periodically removing SPH present in well MW-18 through the use of absorbent socks. SPH removal logs for the most recent and historic events are attached to this report.

Groundwater monitoring wells MW-1 through MW-15, MW-17, MW-18, NPORD MW-3 and NPORD MW-4 were purged and sampled on the same date they were monitored. Groundwater samples were submitted under chain-of-custody protocol to Kiff Analytical (NELAP #08263CA) of Davis, California. A copy of the laboratory analytical reports and chain-of-custody documents are attached. Purge water generated from the sampling activities was stored onsite in 55-gallon DOT approved drums pending disposal. GR understands that the disposal of water generated will be handled by R-R.

ANALYTICAL METHODS

Groundwater samples were analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg), Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX), Methyl-tert Butyl Ether (MtBE), and naphthalene by EPA Method 8260B, and for Total Petroleum Hydrocarbons as diesel (TPHd), Total Petroleum Hydrocarbons as motor oil (TPHmo), and Total Petroleum Hydrocarbons as jet fuel (TPHjf) by modified EPA Method 8015. Current and historic groundwater analytical results are presented in Tables 1 and 2.

RESULTS

Groundwater Gradient

On September 16, 2013, the groundwater flow direction was to the southeast at hydraulic gradients of 0.02 to 0.03 ft/ft. A Potentiometric Map is presented as Figure 3.

Analytical Results

TPHd was detected in groundwater samples collected from ten wells at concentrations ranging from 53 parts per billion (ppb) in well MW-10 to 35,000 ppb in well MW-18. Concentrations of TPHmo were detected in nine wells at levels ranging from 120 ppb in well NPORD MW-4 to 37,000 ppb in well MW-18. TPHjf was detected in fourteen wells at concentrations ranging from 69 ppb in well MW-17 to 48,000 ppb in well MW-18.

TPHg was detected in wells MW-13 and MW-18 at concentrations of 190 ppb and 570 ppb, respectively. Concentrations of TPHg were reported below the laboratory method detection limits in water samples collected from the remaining wells.

BTEX constituents were reported as below the laboratory method detection limits in all of the wells except for 1.2 ppb of total Xylenes detected in well MW-18. MtBE was detected in wells MW-13, MW-14 and MW-18 at concentrations of 1.7 ppb, 0.74 ppb and 1.8 ppb, respectively. Naphthalene reported as below the laboratory method detection limits in all of the wells.

TPHg, TPHd, TPHmo, TPHjf, BTEX, MtBE and naphthalene were reported below the laboratory method detection limits in wells MW-1, MW-2, MW-12, MW-15, and NPORD MW-3. TPHg, TPHd, TPHmo and TPHjf concentrations are presented on Figure 4.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this groundwater monitoring and sampling event, GR concludes and recommends the following:

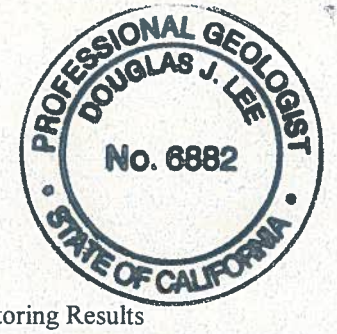
- Concentrations of TPHd, TPHmo and TPHjf in groundwater samples were generally consistent with those observed during the previous monitoring and sampling events;
- Concentrations of TPHg were limited to the vicinity of wells MW-13 and MW-18;
- No measurable thickness of Separate-Phase Hydrocarbons was detected in MW-18;
- Petroleum hydrocarbon concentrations were not detected in wells located along the northeast edge of the site; and
- GR recommends the continuation of the current semi-annual monitoring and sampling program for the site. SPH will continue to be removed from well MW-18 on a periodic basis.

If you have any questions about this report, please feel free to contact our Dublin office at (925) 551-7555.

Sincerely,
Gettler-Ryan Inc.

Michael Lombard
Environmental Scientist

Douglas J. Lee
Project Manager, P.G. No. 6882



Attachments:
Table 1, Groundwater Monitoring Results
Table 2, Field Measurements and Groundwater Analytical Results
Table 3, SPH Thickness and Volumes Purged - MW-18
Figure 1, Vicinity Map
Figure 2, Site Plan
Figure 3, Potentiometric Map
Figure 4, Concentration Map
GR Field Methods and Procedures
Field Data Sheets
SPH Removal Logs
Laboratory Analytical Report and Chain of Custody

CC: Mr. Dave Goldberg, Rolls-Royce Engine Services-Oakland Inc
Ms. Colleen Liang, Port of Oakland

Table 1

Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
MW-1															
10/03/07	7.17	3.04	0.00	4.13	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	7.17	3.02	0.00	4.15	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/26/08	7.17	3.38	0.00	3.79	<50	<50	<100	51[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	7.17	3.03	0.00	4.14	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	7.17	2.82	0.00	4.35	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	7.17	3.30	0.00	3.87	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	7.17	2.57	0.00	4.60	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	7.17	3.08	0.00	4.09	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	7.17	2.21	0.00	4.96	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	7.17	2.95	0.00	4.22	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	7.17	2.31	0.00	4.86	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	7.17	2.94	0.00	4.23	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	7.17	3.00	0.00	4.17	<50	<50	280[23]	72[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	7.17	3.15	0.00	4.02	<50	<50	160	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	7.17	3.30	0.00	3.87	<50	<50	<100	59	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**7.17**	**3.17**	**0.00**	**4.00**	**<50**	**<50**	**<100**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**
MW-2															
10/03/07	7.03	2.80	0.00	4.23	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	7.03	2.94	0.00	4.09	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/26/08	7.03	3.32	0.00	3.71	<50	<50	<100	97[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	7.03	2.75	0.00	4.28	<50	<50	<100	410[16]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	7.03	2.54	0.00	4.49	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	7.03	3.15	0.00	3.88	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	7.03	2.52	0.00	4.51	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	7.03	2.87	0.00	4.16	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	7.03	2.15	0.00	4.88	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	7.03	2.79	0.00	4.24	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	7.03	1.92	0.00	5.11	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	7.03	2.70	0.00	4.33	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	7.03	2.41	0.00	4.62	<50	62[6]	340	170[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	7.03	3.03	0.00	4.00	<50	<50	190	51[9]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	7.03	3.21	0.00	3.82	<50	<50	<100	60	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**7.03**	**2.85**	**0.00**	**4.18**	**<50**	**<50**	**<100**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**

Table 1
Groundwater Monitoring Data and Analytical Results
Rolls-Royce Engine Services Test Facility
6701 Old Earhart Road
Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
MW-3															
10/02/07	6.73	4.56	0.00	2.17	<50	<50	<100	410	<0.50	<0.50	<0.50	<0.50	1.6[4]	<0.50	NA
03/14/08	6.73	3.98	0.00	2.75	<50	<50	<100	120[9]	<0.50	<0.50	<0.50	<0.50	0.99	<0.50	NA
06/26/08	6.73	4.21	0.00	2.52	<50	<50	<100	610[7]	<0.50	1.7	<0.50	<0.50	0.93	<0.50	NA
09/25/08	6.73	4.25	0.00	2.48	<50	<50	<100	650[16]	<0.50	<0.50	<0.50	<0.50	1.2	<0.50	NA
12/19/08	6.73	4.25	0.00	2.48	<50	<50	<100	520[18]	<0.50	<0.50	<0.50	<0.50	1.2	<0.50	NA
03/26/09	6.73	3.82	0.00	2.91	<50	<50	<100	400[18]	<0.50	<0.50	<0.50	<0.50	0.69	<0.50	NA
06/24/09	6.73	4.21	0.00	2.52	<50	<50	<100	460	<0.50	<0.50	<0.50	<0.50	0.80	<0.50	NA
09/24/09	6.73	4.33	0.00	2.40	<50	<50	<100	400	<0.50	<0.50	<0.50	<0.50	0.70	<0.50	NA
01/15/10	6.73	3.92	0.00	2.81	<50	<50	110	420[18]	<0.50	<0.50	<0.50	<0.50	0.70	<0.50	NA
09/09/10	6.73	4.52	0.00	2.21	<50	<50	<100	450	<0.50	<0.50	<0.50	<0.50	0.62	<0.50	NA
03/21/11	6.73	3.20	0.00	3.53	<50	<50	500	400	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	6.73	4.48	0.00	2.25	<50	70	340	590[18]	<0.50	<0.50	<0.50	<0.50	0.68	<0.50	NA
04/17/12	6.73	3.66	0.00	3.07	<50	56[6]	870	680[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	6.73	4.54	0.00	2.19	<50	<50	120	470	<0.50	<0.50	<0.50	<0.50	0.62	<0.50	NA
03/25/13	6.73	4.35	0.00	2.38	<50	<50	<100	760	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**6.73**	**4.48**	**0.00**	**2.25**	**<50**	**62**	**210**	**520**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**
MW-4															
10/2/07[4]	9.79	5.81	0.00	3.98	<50	86	<100	280	<0.50	0.63	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	9.79	5.82	0.00	3.97	<50	3,300	2,400	3,400[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/26/08	9.79	6.08	0.00	3.71	<50	2,300	1,900	2,700[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	9.79	5.98	0.00	3.81	<50	1,600	1,400	2,100[16]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	9.79	5.93	0.00	3.86	<50	<50[19]	<100[19]	440[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	9.79	5.65	0.00	4.14	<50	720	550	1,000[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	9.79	5.72	0.00	4.07	<50	<50	<100	480[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	9.79	5.85	0.00	3.94	<50	1,300	1,100	1,700[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	9.79	4.86	0.00	4.93	<50	210	280	580[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<10 - <50[21,22]
09/09/10	9.79	5.75	0.00	4.04	<50	380[6]	510	680[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	9.79	4.95	0.00	4.84	<50	<50	<100	220	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	9.79	5.76	0.00	4.03	<50	60	<100	490[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	9.79	4.98	0.00	4.81	<50	240[6]	920	1,000[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	9.79	5.92	0.00	3.87	<50	200[6]	600	780[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	9.79	5.90	0.00	3.89	<50	180	170	640	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**9.79**	**5.78**	**0.00**	**4.01**	**<50**	**<50**	**150[13]**	**490[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**

Table 1

Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
MW-5															
10/02/07	8.35	4.75	0.00	3.60	<50	5,600	11,000	5,300	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	8.35	4.40	0.00	3.95	<50	1,200[6]	1,700	1,100[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/26/08	8.35	4.68	0.00	3.67	<50	1,400[6]	3,200	2,000[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	8.35	4.52	0.00	3.83	<50	670[6]	1,200	940[16]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	8.35	4.43	0.00	3.92	<50	2,100[6]	4,100	1,900[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	8.35	4.25	0.00	4.10	<50	2,400[6]	5,500	2,600[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	8.35	4.38	0.00	3.97	<50	1,300[6]	2,700	990[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	8.35	4.47	0.00	3.88	<50	1,400[6]	3,000	1,400[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	8.35	3.47	0.00	4.88	<50	450[6]	1,800	870[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	8.35	4.34	0.00	4.01	<50	890[6]	2,200	600[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	8.35	3.59	0.00	4.76	<50	670[6]	1,600	460[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	8.35	4.39	0.00	3.96	<50	310[6]	760	450[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	8.35	3.88	0.00	4.47	<50	450[6]	960	1,500[18]	<0.50	0.57	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	8.35	4.54	0.00	3.81	<50	190[6]	470	470[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	8.35	4.58	0.00	3.77	<50	510[6]	1,200	680	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**8.35**	**4.43**	**0.00**	**3.92**	**<50**	**2,000[6]**	**4,500**	**1,700[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**
MW-6															
10/02/07	9.51	5.90	0.00	3.61	<50	3,000[6]	7,700	2,500[7]	<0.50	<0.50	0.86	1.1	<0.50	0.53	NA
03/14/08	9.51	5.55	0.00	3.96	<50	3,600[10]	7,600	2,800[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/26/08	9.51	5.80	0.00	3.71	<50	3,200[10]	9,400	3,200[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	9.51	5.69	0.00	3.82	<50	3,500[10]	8,800	3,800[16]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	9.51	5.43	0.00	4.08	<50	1,500[10]	5,500	1,200[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	9.51	5.38	0.00	4.13	<50	2,400[6]	6,800	1,800[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	9.51	5.46	0.00	4.05	<50	490[6]	1,600	450[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	9.51	5.60	0.00	3.91	<50	1,100[10]	3,400	860[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	9.51	4.57	0.00	4.94	<50	450[6]	2,700	790[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<10 - <50[21,22]
09/09/10	9.51	5.45	0.00	4.06	<50	620[6]	2,800	370[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	9.51	4.68	0.00	4.83	<50	<50	200	100[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	9.51	5.50	0.00	4.01	<50	310[6]	970	260[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	9.51	5.25	0.00	4.26	<50	62[1]	130[23]	650[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	9.51	5.64	0.00	3.87	<50	400[6]	1,300	500[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	9.51	5.64	0.00	3.87	<50	290[6]	870	620	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**9.51**	**5.51**	**0.00**	**4.00**	**<50**	**<50**	**<100[13]**	**200[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**

Table 1

Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
MW-7															
10/02/07	9.23	5.68	0.00	3.55	<50	12,000[6]	34,000	9,100[7]	<0.50	<0.50	<0.50	<0.50	<0.50	0.76	NA
03/14/08	9.23	5.32	0.00	3.91	<50	7,900[6]	20,000	5,500[11]	<0.50	<0.50	<0.50	<0.50	<0.50	3.5	NA
06/26/08	9.23	5.56	0.00	3.67	<50	3,300[6]	10,000	3,300[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	9.23	5.46	0.00	3.77	<50	5,300[10]	13,000	6,000[16]	<0.50	<0.50	<0.50	<0.50	<0.50	0.98	NA
12/19/08	9.23	5.38	0.00	3.85	<50	<50[19]	<100[19]	350[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	9.23	5.11	0.00	4.12	<50	710[6]	2,300	790[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	9.23	5.22	0.00	4.01	<50	<50	<100	390	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	9.23	5.38	0.00	3.85	<50	950[6]	2,600	980[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	9.23	4.38	0.00	4.85	<50	910[6]	4,900	1,200[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<10 - <50[21,22]
09/09/10	9.23	5.25	0.00	3.98	<50	1,800[6]	6,800	850[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	9.23	4.49	0.00	4.74	<50	<50	160	240[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	9.23	5.28	0.00	3.95	<50	2,100[6]	6,200	1,200[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	9.23	4.78	0.00	4.45	<50	810[6]	2,600	2,200[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	9.23	5.31	0.00	3.92	<50	510[6]	1,700	700[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	9.23	5.48	0.00	3.75	<50	1,100[6]	3,900	1,800	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**9.23**	**5.31**	**0.00**	**3.92**	**<50**	**<50**	**<100**	**380[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**
MW-8															
09/14/07	8.25	4.65	0.00	3.60	<50	790[3]	2,700	1,000[2]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	Not able to sample well-no access agreement between Rolls-Royce and Port of Oakland														
07/03/04	8.25	4.49	0.00	3.76	<50	1,200[6]	4,400	1,800[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	8.25	4.41	0.00	3.84	<50	<50	130	140[16]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	8.25	4.31	0.00	3.94	<50	160[6]	840	340[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	8.25	4.05	0.00	4.20	<50	470[3]	1,500	570[2]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	8.25	4.21	0.00	4.04	<50	<50	<100	650[2]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	8.25	4.32	0.00	3.93	<50	130[10]	330	340[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	8.25	3.57	0.00	4.68	<50	120[6]	640	410[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	8.25	4.17	0.00	4.08	<50	82[6]	430	260[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	8.25	3.38	0.00	4.87	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	8.25	4.22	0.00	4.03	<50	63[6]	<100	240[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	8.25	3.70	0.00	4.55	<50	69[6]	340	370[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	8.25	4.33	0.00	3.92	<50	62[6]	210	490[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	8.25	4.31	0.00	3.94	<50	<50	<100	300	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**8.25**	**4.25**	**0.00**	**4.00**	**<50**	**96[6]**	**250**	**410[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**

Table 1

Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
MW-9															
10/03/07	9.44	5.81	0.00	3.63	<50	7,700	10,000	6,700	<0.50	<0.50	<0.50	<0.50	<0.50[4]	<0.50	NA
03/14/08	9.44	5.51	0.00	3.93	<50	6,400	8,000	4,000[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/26/08	9.44	5.72	0.00	3.72	<50	1,600[10]	1,800	1,800[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	9.44	5.59	0.00	3.85	<50	5,900[10]	9,300	6,300[16]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	9.44	5.43	0.00	4.01	<50	4,100[6]	8,500	4,000[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	9.44	5.26	0.00	4.18	<50	6,900[6]	9,700	5,600[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	9.44	5.42	0.00	4.02	<50	2,900[6]	5,200	1,800[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	9.44	5.53	0.00	3.91	<50	600[10]	1,100	720[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	9.44	4.69	0.00	4.75	<50	1,300[6]	3,100	1,600[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<10 - <50[21,22]
09/09/10	9.44	5.43	0.00	4.01	<50	1,900[6]	4,500	960[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	9.44	4.58	0.00	4.86	<50	280[6]	780	460[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	9.44	5.39	0.00	4.05	<50	250[6]	500	700[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	9.44	4.85	0.00	4.59	<50	1,200[6]	2,500	2,700[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	9.44	5.57	0.00	3.87	<50	750[6]	1,700	940[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	9.44	5.48	0.00	3.96	<50	870[6]	2,600	1,200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**9.44**	**5.50**	**0.00**	**3.94**	**<50**	**420[6]**	**1,200**	**520[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**
MW-10															
10/03/07	7.51	3.89	0.00	3.62	110	4,200	1,300	4,500	<0.50	<0.50	<0.50	<0.50	<0.50[4]	<0.50	NA
03/14/08	7.51	3.68	0.00	3.83	53	420	270	420[7]	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	NA
06/26/08	7.51	3.80	0.00	3.71	120	1,200	1,000	2,000	<0.50	<0.50	<0.50	<0.50	<0.50	5.0	NA
09/25/08	7.51	3.68	0.00	3.83	<50	3,100[10]	2,200	3,600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	7.51	3.54	0.00	3.97	<50	1,700	1,200	1,900[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	7.51	3.36	0.00	4.15	53	1,500[8]	1,300	2,900	<0.50	<0.50	<0.50	<0.50	<0.50	1.8	NA
06/24/09	7.51	3.54	0.00	3.97	<50	710[8]	750	1,400	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	7.51	3.61	0.00	3.90	<50	480[10]	600	1,100[18]	<0.50	<0.50	<0.50	0.69	<0.50	<0.50	NA
01/15/10	7.51	2.81	0.00	4.70	<50	180	210	500[18]	<0.50	<0.50	0.66	3.5	<0.50	3.4	<10 - <50[21,22]
09/09/10	7.51	3.48	0.00	4.03	<50	66[8]	<100	380[18]	<0.50	<0.50	<0.50	<0.50	<0.50	1.6	NA
03/21/11	7.51	2.70	0.00	4.81	<50	<50	<100	610[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	7.51	3.51	0.00	4.00	<50	93	260[23]	890[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	7.51	2.97	0.00	4.54	<50	<50	<100	670[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	7.51	3.64	0.00	3.87	<50	77	180	600[18]	<0.50	<0.50	<0.50	<0.50	<0.50	0.51	NA
03/25/13	7.51	3.98	0.00	3.53	<50	120[24]	<100	750	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**7.51**	**3.60**	**0.00**	**3.91**	**<50**	**53**	**<100**	**270[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**

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6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
MW-11															
10/03/07	7.60	4.01	0.00	3.59	80	250	490	610	<0.50	<0.50	<0.50	<0.50	<0.50[4]	<0.50	NA
03/14/08	7.60	3.71	0.00	3.89	61	410[6]	1,200	520[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/26/08	7.60	3.92	0.00	3.68	<50	2,700[10]	7,300	3,600[15]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	7.60	3.82	0.00	3.78	<50	2,800[10]	5,900	3,800[16]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	7.60	3.71	0.00	3.89	<50	1,500[6]	3,700	1,800[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	7.60	3.49	0.00	4.11	<50	2,300[6]	4,200	2,800[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	7.60	3.70	0.00	3.90	<50	1,100[6]	2,600	1,200[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	7.60	3.37	0.00	4.23	<50	1,400[10]	3,800	1,800[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	7.60	3.02	0.00	4.58	<50	260[6]	860	620[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<10 - <50[21,22]
09/09/10	7.60	3.63	0.00	3.97	<50	510[10]	1,200	520[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	7.60	2.85	0.00	4.75	<50	83[6]	280	410[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	7.60	3.70	0.00	3.90	<50	470[6]	990	720[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	7.60	3.13	0.00	4.47	<50	95[6]	220	1,300[18]	<0.50	<0.50	<0.50	<0.50	0.50	<0.50	NA
09/18/12	7.60	3.83	0.00	3.77	<50	230	600	660[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	7.60	3.80	0.00	3.80	<50	230	450	1,200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**7.60**	**3.87**	**0.00**	**3.73**	**<50**	**130[6]**	**280**	**350[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**
MW-12															
10/03/07	7.32	3.61	0.00	3.71	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50[4]	<0.50	NA
03/14/08	7.32	3.35	0.00	3.97	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/26/08	7.32	3.60	0.00	3.72	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	7.32	3.50	0.00	3.82	<50	<50	<100	51[16]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	7.32	3.09	0.00	4.23	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	7.32	3.13	0.00	4.19	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	7.32	3.21	0.00	4.11	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	7.32	3.38	0.00	3.94	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	7.32	2.80	0.00	4.52	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	7.32	3.39	0.00	3.93	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	7.32	2.30	0.00	5.02	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	7.32	3.36	0.00	3.96	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	7.32	2.72	0.00	4.60	<50	<50	<100	99[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	7.32	3.56	0.00	3.76	<50	<50	<100	97[9]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	7.32	3.53	0.00	3.79	<50	<50	<100	73	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**7.32**	**3.44**	**0.00**	**3.88**	**<50**	**<50**	**<100**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**

Table 1

Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
MW-13															
10/03/07	6.10	2.86	0.00	3.24	160	70[8]	<100	660	<0.50	<0.50	<0.50	<0.50	1.2[4]	1.7	NA
03/14/08	6.10	1.96	0.00	4.14	350[12]	490	130[13]	1,200	0.89	<0.50	<0.50	<0.50	2.0	8.9	NA
06/26/08	6.10	2.57	0.00	3.53	720	200[8]	<100	4,100[15]	2.0	<0.50	<0.50	0.60	3.3	3.3	NA
09/25/08	6.10	2.48	0.00	3.62	600	<200[17]	130[13]	1,900[16]	1.2	<0.50	<0.50	<0.50	2.9	11	NA
12/19/08	6.10	2.68	0.00	3.42	280	130[8]	<100	1,300[18]	0.89	<0.50	<0.50	<0.50	1.7	4.8	NA
03/26/09	6.10	2.44	0.00	3.66	310	86	120[13]	1,800[18]	0.81	<0.50	<0.50	<0.50	1.7	2.2	NA
06/24/09	6.10	2.91	0.00	3.19	330	170[8]	<100	2,000[19]	1.0	<0.50	<0.50	<0.50	1.9	5.2	NA
09/24/09	6.10	2.81	0.00	3.29	380	180	130[13]	5,400[18]	1.5	<0.50	<0.50	<0.50	2.5	6.8	NA
01/15/10	6.10	1.58	0.00	4.52	230	140	<100	1,600[18]	0.58	<0.50	<0.50	<0.50	1.4	3.1	NA
09/09/10	6.10	2.20	0.00	3.90	230	180[8]	<100	1,400[18]	0.95	<0.50	<0.50	<0.50	2.3	3.6	NA
03/21/11	6.10	1.10	0.00	5.00	260	76[8]	<100	2,400[18]	1.0	<0.50	<0.50	<0.50	1.7	3.1	NA
09/02/11	6.10	2.23	0.00	3.87	380[12]	500	260	1,400[18]	<0.50	<0.50	<0.50	<0.50	1.4	1.4	NA
04/17/12	6.10	1.50	0.00	4.60	310	190	110	3,400[18]	1.0	<0.50	<0.50	<0.50	2.6	1.4	NA
09/18/12	6.10	2.25	0.00	3.85	280	190	140	1,800[18]	0.68	<0.50	<0.50	<0.50	2.3	0.89	NA
03/25/13	6.10	2.52	0.00	3.58	170[12]	<50	<100	610	<0.50	<0.50	<0.50	<0.50	1.4	<0.50	NA
09/16/13	**6.10**	**2.28**	**0.00**	**3.82**	**190[12]**	**110**	**<100**	**1,400[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**1.7**	**<0.50**	**NA**
MW-14															
10/02/07	6.42	2.40	0.00	4.02	67	300	870	1,400	<0.50	<0.50	<0.50	<0.50	1.4[4]	6.1	NA
03/14/08	6.42	2.44	0.00	3.98	50	250[6]	350	500[7]	<0.50	<0.50	<0.50	<0.50	1.7	5.0	NA
06/26/08	6.42	2.62	0.00	3.80	<50	570[10]	2,700	2,000[15]	<0.50	<0.50	<0.50	<0.50	1.4	3.1	NA
09/25/08	6.42	2.58	0.00	3.84	<50	510[10]	1,700	1,800[16]	<0.50	<0.50	<0.50	<0.50	1.0	<0.50	NA
12/19/08	6.42	2.14	0.00	4.28	<50	480[6]	2,100	1,200[18]	<0.50	<0.50	<0.50	<0.50	1.2	<0.50	NA
03/26/09	6.42	2.23	0.00	4.19	<50	79[6]	540	1,000[18]	<0.50	<0.50	<0.50	<0.50	0.89	<0.50	NA
06/24/09	6.42	2.33	0.00	4.09	<50	<50	290	1,100[18]	<0.50	<0.50	<0.50	<0.50	1.2	0.52	NA
09/24/09	6.42	2.47	0.00	3.95	<50	88[10]	350	1,200[18]	<0.50	<0.50	<0.50	<0.50	0.83	<0.50	NA
01/15/10	6.42	1.95	0.00	4.47	<50	60[6]	490	1,100[18]	<0.50	<0.50	<0.50	<0.50	1.0	<0.50	NA
09/09/10	6.42	2.52	0.00	3.90	<50	150[10]	500	890[18]	<0.50	<0.50	<0.50	<0.50	1.2	<0.50	NA
03/21/11	6.42	1.40	0.00	5.02	<50	<50	230	730[18]	<0.50	<0.50	<0.50	<0.50	1.3	<0.50	NA
09/02/11	6.42	2.49	0.00	3.93	<50	140[6]	550	900[18]	<0.50	<0.50	<0.50	<0.50	0.98	<0.50	NA
04/17/12	6.42	1.83	0.00	4.59	<50	140[6]	800	2,400[18]	<0.50	0.69	<0.50	<0.50	1.2	<0.50	NA
09/18/12	6.42	2.65	0.00	3.77	51	130[6]	680	1,300[18]	<0.50	<0.50	<0.50	<0.50	1.0	<0.50	NA
03/25/13	6.42	2.63	0.00	3.79	<50	160	640	2,000	<0.50	<0.50	<0.50	<0.50	1.1	<0.50	NA
09/16/13	**6.42**	**2.53**	**0.00**	**3.89**	**<50**	**86[6]**	**360**	**920[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.74**	**<0.50**	**NA**

Table 1

Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
MW-15															
10/02/07	7.51	4.85	0.00	2.66	<50	99	<100	120	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	7.51	4.62	0.00	2.89	<50	<50	<100	88[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/26/08	7.51	4.81	0.00	2.70	<50	<50	<100	84[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	7.51	4.81	0.00	2.70	<50	<50	<100	53	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	7.51	4.67	0.00	2.84	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	7.51	4.45	0.00	3.06	<50	<50	<100	110[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	7.51	4.68	0.00	2.83	<50	<50	<100	59	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	7.51	4.75	0.00	2.76	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	7.51	4.29	0.00	3.22	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	7.51	4.78	0.00	2.73	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	7.51	2.71	0.00	4.80	<50	<50	<100	200[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	7.51	4.77	0.00	2.74	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	7.51	3.65	0.00	3.86	<50	<50	120[23]	170[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	7.51	4.89	0.00	2.62	<50	<50	<100	50[9]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	7.51	4.78	0.00	2.73	<50	<50	<100	76	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**7.51**	**4.80**	**0.00**	**2.71**	**<50**	**<50**	**<100**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**
MW-17															
09/14/07	0.04	4.10	0.00	-4.06	<50	<50	220	150[2]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	Not able to sample well-no access agreement between Rolls-Royce and Port of Oakland														
07/03/08	0.04	1.98	0.00	-1.94	<50	<50	<100	84[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
9/25/08[14]	0.04	4.77	0.00	-4.73	<50	<50	120	110[16]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	0.04	2.24	0.00	-2.20	<50	<50	<100	54	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	0.04	1.85	0.00	-1.81	<50	<50	<100	71[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	Not able to sample well-Oakland Airport security failed to provide access to well														
09/24/09	0.04	2.97	0.00	-2.93	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
1/15/10[14]	0.04	2.49	0.00	-2.45	<50	<50	<100	59[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	0.04	2.79	0.00	-2.75	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	0.04	2.25	0.00	-2.21	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	0.04	2.69	0.00	-2.65	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	0.04	2.49	0.00	-2.45	<50	<50	<100	240[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	0.04	2.96	0.00	-2.92	<50	<50	140[23]	84[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	0.04	2.51	0.00	-2.47	<50	<50	<100	93	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**0.04**	**2.88**	**0.00**	**-2.84**	**<50**	**<50**	**<100**	**69[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**

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Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
MW-18															
10/02/07	7.05	4.15	0.55	3.34**	Not developed or sampled due to presence of SPH										
03/14/08	7.05	3.62	0.63	3.93**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
06/26/08	7.05	4.11	1.14	3.85**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
09/25/08	7.05	3.77	0.56	3.73**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
12/19/08	7.05	3.30	0.36	4.04**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
03/26/09	7.05	3.28	0.55	4.21**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
06/24/09	7.05	3.53	0.48	3.90**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
09/24/09	7.05	3.57	0.46	3.85**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
01/15/10	7.05	3.02	0.66	4.56**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
09/09/10	7.05	3.18	0.10	3.95**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
03/21/11	7.05	1.99	0.15	5.18**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
09/02/11	7.05	3.49	0.51	3.97**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
04/17/12	7.05	2.52	0.15	4.65**	Not sampled due to presence of SPH				--	--	--	--	--	--	--
09/18/12	7.05	3.14	0.00	3.91	2,100	210,000[10]	190,000	290,000	<0.50	<0.50	<0.50	2.4	2.0	<2.0	NA
03/25/13	7.05	3.27	0.15	3.90**	740	35,000	39,000	61,000	<0.50	<0.50	<0.50	1.7	2.2	<0.80	NA
09/16/13	**7.05**	**3.15**	**0.00**	**3.90**	**570**	**35,000[10]**	**37,000**	**48,000**	**<0.50**	**<0.50**	**<0.50**	**1.2**	**1.8**	**<0.80**	**NA**
NPORD MW-3															
09/14/07	8.11	4.43	0.00	3.68	<50	<50	<100	64[2]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	Not able to sample well-no access agreement between Rolls-Royce and Port of Oakland														
07/03/08	8.11	3.96	0.00	4.15	<50	<50	<100	99[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	8.11	4.06	0.00	4.05	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	8.11	3.78	0.00	4.33	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	8.11	4.22	0.00	3.89	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	8.11	4.02	0.00	4.09	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	8.11	4.19	0.00	3.92	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	8.11	3.51	0.00	4.60	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	8.11	3.96	0.00	4.15	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	8.11	3.28	0.00	4.83	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	8.11	4.10	0.00	4.01	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	8.11	4.00	0.00	4.11	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	8.11	4.18	0.00	3.93	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	8.11	4.35	0.00	3.76	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**8.11**	**4.23**	**0.00**	**3.88**	**<50**	**<50**	**<100**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**

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6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
NPORD MW-4															
09/14/07	10.06	6.48	0.00	3.58	50	1,000[3]	1,400	2,000[2]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	Not able to sample well-no access agreement between Rolls-Royce and Port of Oakland														
07/03/08	10.06	6.26	0.00	3.80	<50	360[6]	700	960[7]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	10.06	6.28	0.00	3.78	<50	150[6]	240	820[16]	<0.50	<0.50	<0.50	<0.50	<0.50[4]	<0.50	NA
12/19/08	10.06	6.15	0.00	3.91	<50	320[10]	640	1,400[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	10.06	5.91	0.00	4.15	<50	95	160	520[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	10.06	6.10	0.00	3.96	<50	200[6]	100	1,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	10.06	6.20	0.00	3.86	<50	200[10,20]	180[20]	500[18,20]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	10.06	5.45	0.00	4.61	<50	93	<100	770[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	10.06	6.06	0.00	4.00	<50	<50	<100	290[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	10.06	5.31	0.00	4.75	<50	<50	<100	270	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	10.06	6.11	0.00	3.95	<50	95	<100	320[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
04/17/12	10.06	5.58	0.00	4.48	<50	64	130[23]	940[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	10.06	6.27	0.00	3.79	<50	150	250	800[18]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	10.06	6.23	0.00	3.83	<50	57	<100	820	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**10.06**	**6.25**	**0.00**	**3.81**	**<50**	**72**	**120[13]**	**560[18]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**
QA															
09/14/07	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
10/02/07	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/14/08	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
6/26/08[14]	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
07/03/08	--	--	--	--	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/25/08	--	--	--	--	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
12/19/08	--	--	--	--	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/26/09	--	--	--	--	<50	<50	<100	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
06/24/09	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/24/09	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
01/15/10	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/09/10	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/21/11	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/02/11	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA

Table 1

Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	TOC* (ft.)	DTW (ft.)	SPHT (ft.)	GWE (msl)	TPH-G (µg/L)	TPH-D[1] (µg/L)	TPH-MO (µg/L)	TPH-JF (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	SVOC (µg/L)
QA (cont)															
04/17/12	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/18/12	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
03/25/13	--	--	--	--	<50	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA
09/16/13	**--**	**--**	**--**	**--**	**<50**	**NA**	**NA**	**NA**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**NA**

Table 1

Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility
6701 Old Earhart Road
Oakland, California

EXPLANATIONS:

TOC = Top of Casing Elevation
DTW = Depth to Water
GWE = Groundwater Elevation
ft = feet
SPHT = Separate Phase Hydrocarbon Thickness
TPH-G= Total Petroleum Hydrocarbons as Gasoline
TPH-D = Total Petroleum Hydrocarbons as Diesel
TPH-MO = Total Petroleum Hydrocarbons as Motor Oil
TPH-JF = Total Petroleum Hydrocarbons as Jet Fuel
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
MTBE = Methyl Tertiary Butyl Ether
SVOC = Semi-Volatile Organic Compounds
(µg/L) = Micrograms per liter
NA = Not Analyzed
-- = Not Measured
QA = Trip Blank

ANALYTICAL METHODS:

Kiff Analytical LLC (NELAP #08263CA)
TPH-G, BTEX, MTBE, and Napthalene by EPA Method 8260B
TPH-D, TPH-MO, and TPH-JF by modified EPA Method 8015
SVOC by EPA Method 8270C

* TOC elevations surveyed relative to mean sea level by Morrow Surveying (PLS #5161) on October 8, 2007
** = GWE corrected for the presence of SPH [(TOC-DTW) + (SPH thickness x SPH specific gravity)]. Specific gravity of SPH is assumed to be 0.8.

[1] Analyzed with Silica Gel Cleanup
[2] Discrete peaks, higher boiling hydrocarbons present in sample that are atypical for Jet Fuel
[3] Discrete peaks, higher boiling hydrocarbons present in sample that are atypical for Diesel Fuel
[4] Matrix spike/matrix spike duplicate results associated with these samples for the analyte Methyl-t-butyl ether were affected by the analyte concentrations already present in the un-spiked sample.
[5] Due to the formation of an emulsion in this sample, the sample was centrifruged and decanted prior to extraction.
[6] Hydrocarbons present in this sample are higher-boiling than typical Diesel Fuel.
[7] Hydrocarbons present in this sample are higher-boiling than typical Jet Fuel.
[8] Lower boiling hydrocarbons are present in this sample that are atypical for Diesel Fuel.
[9] Discrete peaks present in this sample that are atypical for Jet Fuel.
[10] Some lower-boiling hydrocarbons than Diesel and some higher-boiling hydrocarbons than Diesel are present in this sample.
[11] Both lower-boiling and higher-boiling hydrocarbons than Jet Fuel are present in this sample.
[12] Sample contained primarily compounds not found in typical Gasoline.
[13] Hydrocarbons present in this sample are lower-boiling than typical Motor Oil
[14] Sample was analyzed by EPA Method 8260B using bottles that contained headspace bubbles greater than 1/4-inch in diameter.
[15] Lower boiling hydrocarbons are present in this sample that are atypical for Jet Fuel.
[16] Chromatographic pattern not typical for Jet Fuel.
[17] Diesel method reporting limit for this sample was increased due to interference from Gasoline range hydrocarbons.
[18] Higher-boiling hydrocarbons are present in this sample that are atypical for Jet Fuel.
[19] Laboratory confirmed results

Table 1

Groundwater Monitoring Data and Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

EXPLANATIONS:

[20] Repeat analysis by Modified EPA Method 8015 yielded inconsistent results for sample NPORD MW-4. The concentrations appear to vary between bottles. The highest concentration results are reported.

[21] All analytes were ND or less than their respective reporting limits

[22] Analysis for SVOC requested by Client.

[23] Discrete peaks in Motor Oil range, atypical for Motor Oil.

[24] Discrete peaks in Diesel Range, atypical for Diesel Fuel.

Table 2

Field Measurements and Groundwater Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	D.O. Pre-Purge (mg/L)	D.O. Post-Purge (mg/L)	ORP Pre-Purge (mV)	ORP Post-Purge (mV)	Ferric Iron (mg/L)	Ferrous Iron (mg/L)	Nitrate as NO_3 (mg/L)	Sulfate as SO_4 (mg/L)	Methane (µg/L)
MW-1									
09/09/10	0.00	0.74	-462.4	-124.7	3.2	0.81	<10	2,000	117
MW-2									
09/09/10	0.03	0.29	-261.9	-233.5	--	--	--	--	--
MW-3									
09/09/10	0.38	0.24	-149.2	-123.5	--	--	--	--	--
MW-4									
09/09/10	0.09	0.06	-295.2	-299.4	91	2.4	<2.5	8.6	6,590
MW-5									
09/09/10	0.84	0.05	-374	-459	68	12	<2.5	<2.5	4,760
MW-6									
09/09/10	0.22	0.20	-271.8	-273.5	40	<0.10	<2.5	540	3,280
MW-7									
09/09/10	0.07	0.09	-260.7	-257.4	340	18	<2.5	<2.5	6,350
MW-8									
09/09/10	0.14	0.11	-276	-281	23	2.1	<2.5	3.9	8,500
MW-9									
09/09/10	0.00	0.65	-548.1	-501.4	13	<0.10	<2.5	23	8,310
MW-10									
09/09/10	0.11	0.58	-333.3	-391.2	--	--	--	--	--
MW-11									
09/09/10	0.84	0.96	-399.4	-370.1	--	--	--	--	--
MW-12									
09/09/10	0.15	0.49	-340.1	-348.2	--	--	--	--	--
MW-13									
09/09/10	0.45	0.82	-142.9	-130.5	--	--	--	--	--
MW-14									
09/09/10	0.20	0.14	-264.6	-223.9	--	--	--	--	--

Table 2

Field Measurements and Groundwater Analytical Results

Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

WELL ID/ DATE	D.O. Pre-Purge (mg/L)	D.O. Post-Purge (mg/L)	ORP Pre-Purge (mV)	ORP Post-Purge (mV)	Ferric Iron (mg/L)	Ferrous Iron (mg/L)	Nitrate as NO_3 (mg/L)	Sulfate as SO_4 (mg/L)	Methane (µg/L)
MW-15									
09/09/10	0.51	0.63	196.1	180.2	--	--	--	--	--
MW-17									
09/09/10	0.40	0.51	168.4	149.1	--	--	--	--	--
NPORD MW-3									
09/09/10	0.46	0.50	-208.2	-211.6	3.2	3.2	<10	1,200	27.8

Table 2

Field Measurements and Groundwater Analytical Results

Rolls-Royce Engine Services Test Facility
6701 Old Earhart Road
Oakland, California

EXPLANATIONS:

ORP = Oxidation Reduction Potential
D.O. = Dissolved Oxygen
(mV) = Millivolts
(µg/L) = Micrograms per liter
(mg/L) = Milligrams per liter
-- = Not Measured

ANALYTICAL METHODS:

Nitratre as NO_3 and Sulfate as SO_3 by EPA Method 300.0
Ferric Iron by 200.7/SM 3500 Fe D
Ferrous Iron by SM 3500 Fe D
Methane by Method RSK-175M

Table 3

SPH Thickness and Volumes Purged - MW-18

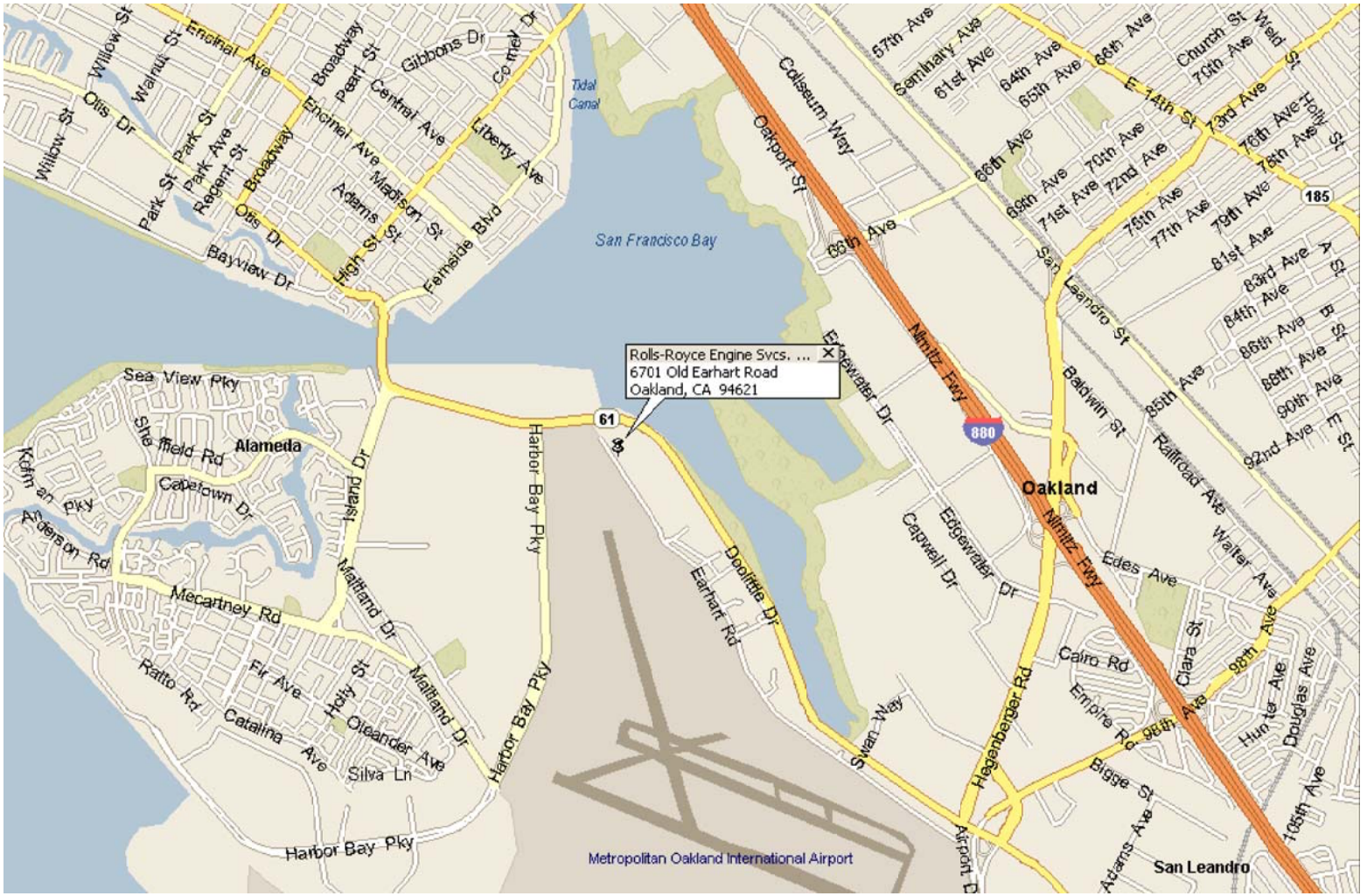
Rolls-Royce Engine Services Test Facility

6701 Old Earhart Road

Oakland, California

Date	SPH Thickness (feet)	Depth To SPH From Top of Casing (feet)	Approximate Volume of Water Purged (gallons)	Approximate Volume of SPH Purged (gallons)
9/14/07	0.55	3.60	2.00	2.50
3/14/08	0.63	2.99	0.80	0.30
6/26/08	1.14	2.97	1.00	0.13
9/25/08	0.56	3.21	2.00	0.07
12/19/08	0.36	2.94	0.13	0.16
3/26/09	0.55	2.73	0.08	0.08
6/24/09	0.48	3.05	0.05	0.06
9/24/09	0.46	3.11	0.00	0.07
1/15/10	0.66	2.36	2.00	0.14
9/9/10	0.10	3.08	0.13	0.01
3/21/11	0.15	1.84	0.26	0.03
9/2/11	0.51	2.98	0.16	0.26
4/17/12	0.15	2.37	0.05	0.26
9/18/12	0.00	NA	3.50	0.00
3/25/13	0.15	3.12	4.50	0.15
9/16/13	**0.00**	**NA**	**3.00**	**0.00**
		Totals:	**19.66**	**4.21**

NA = Not Applicable



SITE LOCATION MAP
ROLLS–ROYCE ENGINE SERVICES TEST FACILITY
6701 OLD EARHART RD.
OAKLAND, CA

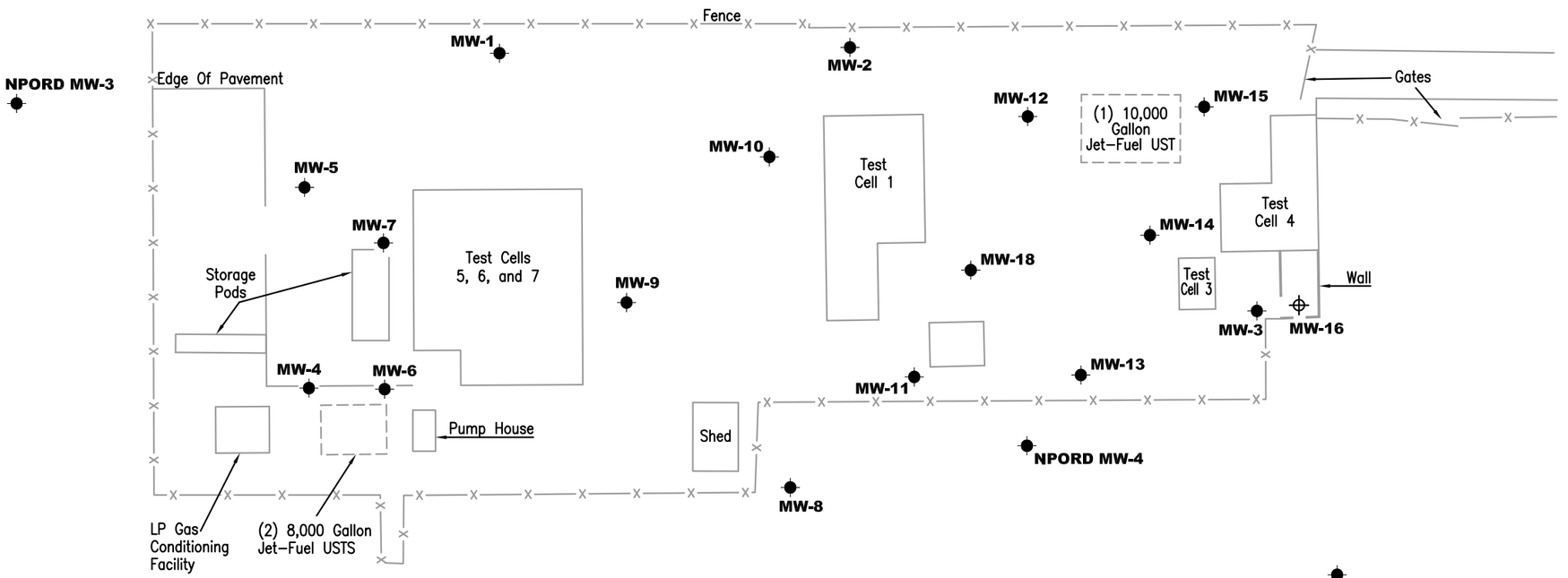
FIGURE
1

PROJECT NUMBER	REVIEWED BY	DATE	REVISED DATE
25–948218.7		11/13/07	

FILE NAME: P:\Enviro\Rolls Royce\1–Site Location Map.dwg | Layout Tab: Vicinity Map

EXPLANATION

- Groundwater monitoring well
- Proposed monitoring well – not installed location inaccessible by drill rig



0 60

Scale in Feet

Source: Figure modified from drawing provided by Morrow Surveying, Dated: 10/8/07.

FIGURE 2

SITE PLAN
Rolls–Royce Engine Services Test Facility
6701 Old Earhart Road
Oakland, CA

REVISED DATE

GETTLER - RYAN INC.
6805 Sierra Court, Suite G
Dublin, CA 94568
(925) 551–7555

PROJECT NUMBER 948218.2

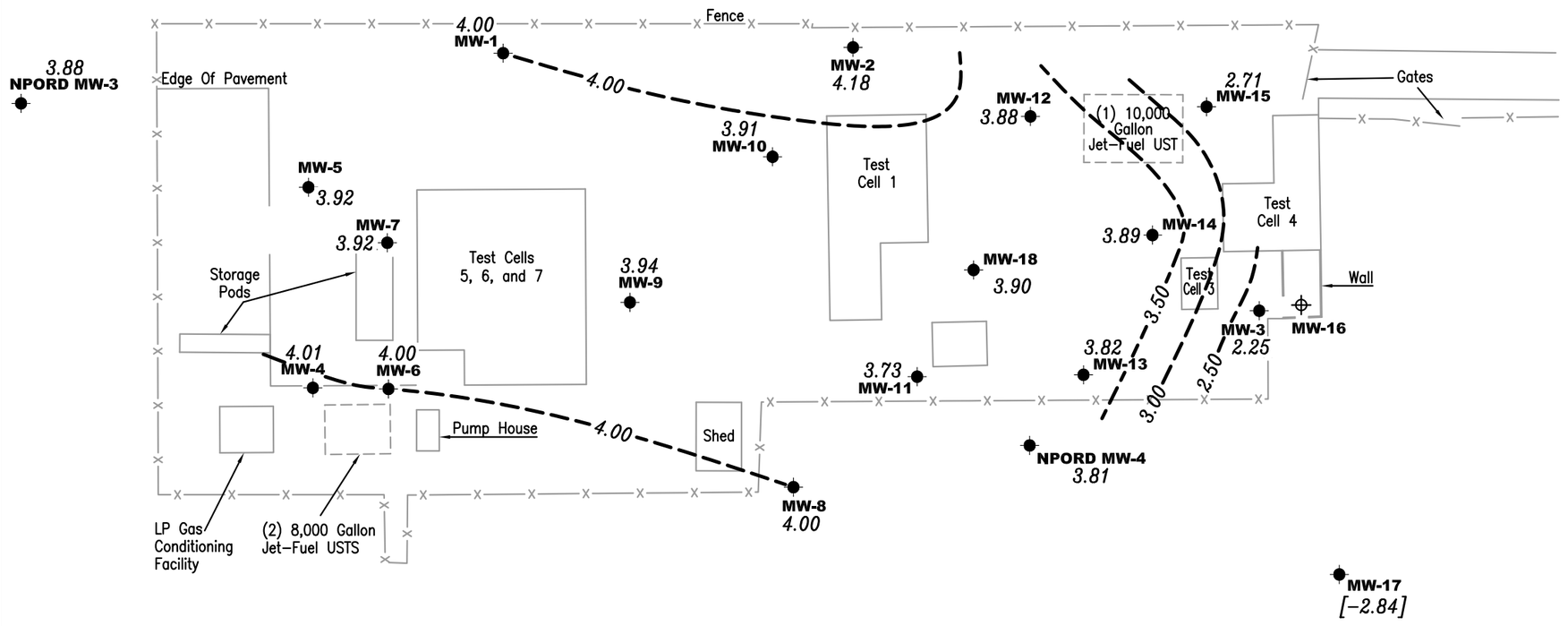
REVIEWED BY

DATE 11/07

FILE NAME: P:\Enviro\Rolls Royce\Q13–Rolls Royce.dwg | Layout Tab: Site Plan

EXPLANATION

- Groundwater monitoring well
- Proposed monitoring well – not installed location inaccessible by drill rig
- *99.99* Groundwater elevation in feet referenced to Mean Sea Level
- -99.99- Groundwater elevation contour, dashed where inferred
- *[99.99]* Not used in contouring



Approximate groundwater flow direction at a gradients of 0.02 to 0.03 Ft./Ft.

0 60

Scale in Feet

Source: Figure modified from drawing provided by Morrow Surveying, Dated: 10/8/07.

FIGURE 3

POTENTIOMETRIC MAP
Rolls-Royce Engine Services Test Facility
6701 Old Earhart Road
Oakland, CA

REVISED DATE

DATE
September 16, 2013

GETTLER-RYAN INC.
6805 Sierra Court, Suite G
Dublin, CA 94568
(925) 551-7555

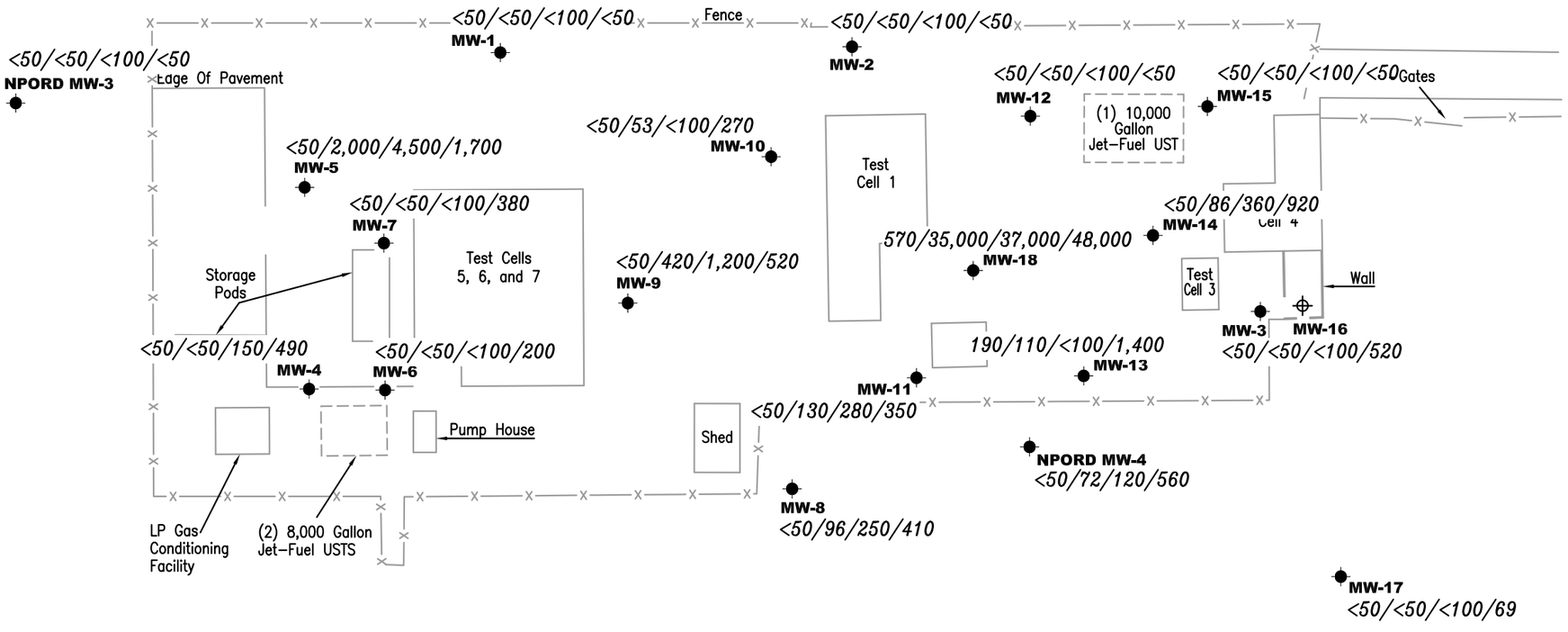
PROJECT NUMBER
948218.2

REVIEWED BY

FILE NAME: P:\Enviro\Rolls Royce\Q13-Rolls Royce.dwg | Layout Tab: Pot3

EXPLANATION

- ● Groundwater monitoring well
- ⊕ Proposed monitoring well – not installed location inaccessible by drill rig
- *A/B/C/D* Total Petroleum Hydrocarbons TPH as Gasoline/TPH as Diesel/ TPH as Motor Oil/TPH as Jet Fuel concentrations in ppb
- *NS* Not Sampled
- *SPH* Separate Phase Hydrocarbons



Source: Figure modified from drawing provided by Morrow Surveying, Dated: 10/8/07.

FIGURE 4

CONCENTRATION MAP
Rolls-Royce Engine Services Test Facility
6701 Old Earhart Road
Oakland, CA

GETTLER - RYAN INC.
6805 Sierra Court, Suite G
Dublin, CA 94568
(925) 551-7555

PROJECT NUMBER 948218.2
REVIEWED BY
DATE September 16, 2013
REVISED DATE

FILE NAME: P:\Enviro\Rolls Royce\Q13-Rolls Royce.dwg | Layout Tab: Con3

GR FIELD METHODS AND PROCEDURES - GROUNDWATER SAMPLING

Gettler-Ryan Inc. (GR) field personnel adhere to the following procedures for the collection and handling of groundwater samples prior to analysis by the analytical laboratory. All work is performed in accordance with the GR Health & Safety Plan and all client-specific programs. The scope of work and type of analysis to be performed is determined prior to commencing field work.

Prior to sampling, the presence or absence of free-phase hydrocarbons is determined using an interface probe. Product thickness, if present, is measured to the nearest 0.01 foot and is noted in the field notes. In addition, all depth to water level measurements are collected with a static water level indicator and are also recorded in the field notes, prior to purging and sampling any wells.

After water levels are collected and prior to sampling, if purging is to occur, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, peristaltic or Grundfos), or disposable bailers. Temperature, pH and electrical conductivity are measured a minimum of three times during the purging (additional parameters such as dissolved oxygen, oxidation reduction potential, turbidity may also be measured, depending on specific scope of work.). Purging continues until these parameters stabilize.

Groundwater samples are collected using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by analytical laboratories, are used. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards, as directed by the scope of work. The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials. The water samples are placed in a cooler, maintained at 4°C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

The chain of custody document includes the job number, type of preservation, if any, analysis requested, sample identification, date and time collected, and the sample collector's name. The chain of custody is signed and dated (including time of transfer) by each person who receives or surrenders the samples, beginning with the field personnel and ending with the laboratory personnel.

A laboratory supplied trip blank accompanies each sampling set. The trip blank is analyzed for some or all of the same compounds as the groundwater samples.

WELL CONDITION STATUS SHEET

Client/ Facility #: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA

Job #: 25-948218.1
Event Date: 9/16/13
Sampler: JH

WELL ID	Vault Frame Condition	Gasket/ O-Ring *(M) Missing (R) Replaced*	Bolts *(M) Missing (R) Replaced*	Bolt Flanges *B=Broken S=Stripped R=Retap*	Apron Condition *C=Cracked B=Broken G=Gone*	Grout Seal *(Deficient) Inches from TOC*	Casing *(Condition prevents tight cap seal)*	REPLACE LOCK Y / N	REPLACE CAP Y / N	WELL VAULT *Manufacture/Size/ # of Bolts*	Pictures Taken Y / N
MW-8	ok	———	———	———	———	———	——→	Y	Y 2"	8" MORRISON	N
N Portal MW-4	ok	N/A	———	——→	ok	———	——→	N	N	Monument; Lock Flange Broke	N
N Portal MW-3	ok	———	———	———	———	———	——→	↓	↓	12" MORRISON	↓
MW-4	ok	———	———	———	———	———	——→	↓	↓	8" MORRISON	↓
MW-6	ok	———	———	———	———	———	——→	↓	↓	↓	↓
MW-7	ok	———	———	———	———	———	——→	↓	↓	↓	↓

Comments

WELL CONDITION STATUS SHEET

Client/ Facility #: **Rolls Royce Engine Test**
Site Address: **6701 Old Earhart Road**
City: **Oakland, CA**

Job #: **25-948218.1**
Event Date: 9/16
Sampler: AW

WELL ID	Vault Frame Condition	Gasket/ O-Ring (M) Missing (R) Replaced	Bolts (M) Missing (R) Replaced	Bolt Flanges B=Broken S=Stripped R=Retap	Apron Condition C=Cracked B=Broken G=Gone	Grout Seal (Deficient) Inches from TOC	Casing (Condition prevents tight cap seal)	REPLACE LOCK Y/N	REPLACE CAP Y/N	WELL VAULT Manufacture/Size/ # of Bolts	Pictures Taken Y/N
MW-11	OK	→	→	1S	OK	→	→	N	N	morrison /8"/2	
MW-9	OK	→	→			→	→	↓	↓	↓	
MW-2	OK	→	→	3S	OK	→	→			BL/8"/3	
MW-10	OK	→	→			→	→			morrison /8"/2	
MW-5	OK	→	→	1S	OK	→	→			↓	
MW-1	OK	→	→	3S	OK	→	→	↓	↓	BL/8"/3	

Comments

WELL CONDITION STATUS SHEET

Client/ Facility #: **Rolls Royce Engine Test**
Site Address: **6701 Old Earhart Road**
City: **Oakland, CA**

Job #: **25-948218.1**
Event Date: 9.16.13
Sampler: FT

WELL ID	Vault Frame Condition	Gasket/ O-Ring (M) Missing (R) Replaced	Bolts (M) Missing (R) Replaced	Bolt Flanges B=Broken S=Stripped R=Retap	Apron Condition C=Cracked B=Broken G=Gone	Grout Seal (Deficient) Inches from TOC	Casing (Condition prevents tight cap seal)	REPLACE LOCK Y/N	REPLACE CAP Y/N	WELL VAULT Manufacture/Size/ # of Bolts	Pictures Taken Y/N
MW-3	OK	M	M=2	2 BROKEN BOLTS IN FLANGES S=1	OK	→	→	↓	↓	Bart L. | 8" | 3	
MW-12	OK	→	→	→	→	→	→			Morrison | 8" | 2	
MW-13	OK	→	→	→	→	→	→			Morrison | 12" | 2	
MW-14	OK	→	→	→	→	→	→			Morrison | 8" | 2	
MW-15	OK	→	→	→	→	→	→			Morrison | 8" | 2	
MW-17	OK	→	S=2	→	OK	→	→			Morrison | 8" | 2	
MW-18	OK	→	B=2	→	OK	→	→			" " "	

Comments

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA

Job Number: 25-948218.1
Event Date: 9/16/13 (inclusive)
Sampler: AW

Well ID: MW-1
Well Diameter: (2) 4 in.
Total Depth: 8.44 ft.
Depth to Water: 3.17 ft.

Date Monitored: 9-16-13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

5.27 xVF .17 = 0.89 x3 case volume = Estimated Purge Volume: 3.0 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 4.22

Purge Equipment:

Disposable Bailer	✓
Stainless Steel Bailer	
Stack Pump	
Suction Pump	
Grundfos	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	✓
Pressure Bailer	
Discrete Bailer	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1220
Sample Time/Date: 1245 / 9-16-13
Approx. Flow Rate: - gpm.
Did well de-water? N If yes, Time: - Volume: - gal. DTW @ Sampling: 3.55

Weather Conditions: Sunny
Water Color: Cloudy Odor: (Y) / N Slight
Sediment Description: Cloudy

Time (2400 hr.)	Volume (gal.)	pH	Conductivity µS (µmhos/cm - µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1223	1.0	9.19	out of range	24.6		
1226	2.0	8.98	↓	24.1		
1230	3.0	8.91	↓	23.7		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-1	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: **Rolls Royce Engine Test** Job Number: **25-948218.1**

Site Address: **6701 Old Earhart Road** Event Date: 9/16/13 (inclusive)

City: **Oakland, CA** Sampler: AW

Well ID MW-2 Date Monitored: 9-16-13

Well Diameter (2) 4 in.

Total Depth 8.95 ft.

Depth to Water 2.85 ft. ☐ Check if water column is less then 0.50 ft.

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

6.10 xVF .17 = 1.03 x3 case volume = Estimated Purge Volume: 3.5 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 4.07

Purge Equipment:

Disposable Bailer	✓
Stainless Steel Bailer	
Stack Pump	
Suction Pump	
Grundfos	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	✓
Pressure Bailer	
Discrete Bailer	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1030 Weather Conditions: Sunny

Sample Time/Date: 1100 / 9-16-13 Water Color: Cloudy Odor: Y / (N)

Approx. Flow Rate: — gpm. Sediment Description: Cloudy

Did well de-water? N If yes, Time: — Volume: — gal. DTW @ Sampling: 3.55

Time (2400 hr.)	Volume (gal.)	pH	Conductivity MS (µmhos/cm - µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1035	1.5	6.96	out of range	22.4		
1040	2.5	7.04	↓	22.3		
1045	3.5	7.08	↓	22.3		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-2	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA

Job Number: 25-948218.1
Event Date: 9.16.13 (inclusive)
Sampler: FT

Well ID: MW-3
Well Diameter: (2)/ 4 in.
Total Depth: 12.10 ft.
Depth to Water: 4.48 ft.

Date Monitored: 9.16.13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

7.62 xVF .17 = 1.29 x3 case volume = Estimated Purge Volume: 4.0 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 6.00

Purge Equipment:
- Disposable Bailer: ✓
- Stainless Steel Bailer:
- Stack Pump:
- Suction Pump:
- Grundfos:
- Peristaltic Pump:
- QED Bladder Pump:
- Other:

Sampling Equipment:
- Disposable Bailer: ✓
- Pressure Bailer:
- Discrete Bailer:
- Peristaltic Pump:
- QED Bladder Pump:
- Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1125
Sample Time/Date: 1145 / 9.16.13
Approx. Flow Rate: ✓ gpm.
Did well de-water? NO If yes, Time: _____ Volume: _____ gal. DTW @ Sampling: 4.52

Weather Conditions: SUNNY
Water Color: CLEAR Odor: Y / (N)
Sediment Description: NONE

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm (µS))	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1128	1.5	7.82	1584	21.8		
1131	3.0	7.79	1592	22.0		
1134	4.0	7.77	1606	22.5		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-3	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: BOAT L. (2 BROKEN BOLTS IN FLANGES) (1SF)

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA

Job Number: 25-948218.1
Event Date: 9/16/13 (inclusive)
Sampler: JH

Well ID: MW-4
Well Diameter: 2 in.
Total Depth: 9.95 ft.
Depth to Water: 5.78 ft.

Date Monitored: 9/16/13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

4.17 xVF .17 = .70 x3 case volume = Estimated Purge Volume: 2.12 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 6.61

Purge Equipment:

Disposable Bailer	X
Stainless Steel Bailer	
Stack Pump	
Suction Pump	
Grundfos	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	X
Pressure Bailer	
Discrete Bailer	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1155
Sample Time/Date: 1220 / 9/16/13
Approx. Flow Rate: — gpm.
Did well de-water? No If yes, Time: _____ Volume: _____ gal. DTW @ Sampling: 6.07

Weather Conditions: Clear
Water Color: Cloudy Odor: Y / (N)
Sediment Description: Lt Brn

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1157	.75	7.63	1863	22.9		
1159	1.5	7.61	1860	23.1		
1201	2.0	7.58	1854	23.2		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-4	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test | Job Number: 25-948218.1
Site Address: 6701 Old Earhart Road | Event Date: 9/16/13 (inclusive)
City: Oakland, CA | Sampler: AW

Well ID: MW-5 | Date Monitored: 9/16/13
Well Diameter: (2) 4 in.
Total Depth: 9.63 ft.
Depth to Water: 4.43 ft.

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

5.20 xVF .17 = 0.88 x3 case volume = Estimated Purge Volume: 3.0 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 5.47

Purge Equipment:
- Disposable Bailer: ✓
- Stainless Steel Bailer:
- Stack Pump:
- Suction Pump:
- Grundfos:
- Peristaltic Pump:
- QED Bladder Pump:
- Other:

Sampling Equipment:
- Disposable Bailer: ✓
- Pressure Bailer:
- Discrete Bailer:
- Peristaltic Pump:
- QED Bladder Pump:
- Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1145 | Weather Conditions: Sunny
Sample Time/Date: 1210 / 9/16/13 | Water Color: Cloudy | Odor: (Y) / N | Slight
Approx. Flow Rate: — gpm. | Sediment Description: Cloudy
Did well de-water? N | If yes, Time: — | Volume: — gal. | DTW @ Sampling: 5.40

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - mS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1148	1.0	7.86	6.80	22.7		
1151	2.0	7.80	6.47	22.9		
1155	3.0	7.74	6.21	23.2		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-5	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: Slight reaction to HCl

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test Job Number: 25-948218.1
Site Address: 6701 Old Earhart Road Event Date: 9/16/13 (inclusive)
City: Oakland, CA Sampler: JH

Well ID MW-6
Well Diameter (2)/4 in.
Total Depth 10.66 ft.
Depth to Water 5.51 ft.
5.15 xVF .17 = .87

Date Monitored: 9/16/13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

x3 case volume = Estimated Purge Volume: 2.62 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 6.18

Purge Equipment:
Disposable Bailer X
Stainless Steel Bailer
Stack Pump
Suction Pump
Grundfos
Peristaltic Pump
QED Bladder Pump
Other:

Sampling Equipment:
Disposable Bailer X
Pressure Bailer
Discrete Bailer
Peristaltic Pump
QED Bladder Pump
Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1120 Weather Conditions: Clear
Sample Time/Date: 1140 / 9/16/13 Water Color: Cloudy Odor: Y / (N)
Approx. Flow Rate: — gpm. Sediment Description: Light
Did well de-water? NO If yes, Time: ____ Volume: ____ gal. DTW @ Sampling: 6.01

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1123	1	7.83	1529	22.9		
1126	2	7.70	1505	22.7		
1128	2.5	7.65	1487	22.6		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-6	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS:

Add/Replaced Lock: ____ Add/Replaced Plug: ____ Add/Replaced Bolt: ____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA
Job Number: 25-948218.1
Event Date: 9/16/13 (inclusive)
Sampler: JH

Well ID: MW-7
Well Diameter: (2) 4 in.
Total Depth: 10.08 ft.
Depth to Water: 5.31 ft.
Date Monitored: 9/16/13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

4.77 xVF .17 = .81 x3 case volume = Estimated Purge Volume: 2.43 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 6.26

Purge Equipment:

Disposable Bailer	X
Stainless Steel Bailer	
Stack Pump	
Suction Pump	
Grundfos	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	X
Pressure Bailer	
Discrete Bailer	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1235
Sample Time/Date: 1300 / 9/16/13
Approx. Flow Rate: — gpm.
Did well de-water? NO If yes, Time: _____ Volume: _____ gal. DTW @ Sampling: 5.94

Weather Conditions: Clear
Water Color: Cloudy Odor: Y / (N)
Sediment Description: Light

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - (mS))	Temperature ((C) / F)	D.O. (mg/L)	ORP (mV)
1237	1	7.56	2241	23.1		
1239	2	7.50	2233	23.0		
1241	2.5	7.43	2228	22.9		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-7	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA
Job Number: 25-948218.1
Event Date: 9/16/13 (inclusive)
Sampler: JH

Well ID: MW-8
Well Diameter: 2 (4) in.
Total Depth: 9.79 ft.
Depth to Water: 4.25 ft.
Date Monitored: 9/16/13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

5.54 xVF .17 = .94 x3 case volume = Estimated Purge Volume: 2.82 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 5.35

Purge Equipment:

Disposable Bailer	X
Stainless Steel Bailer	
Stack Pump	
Suction Pump	
Grundfos	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	X
Pressure Bailer	
Discrete Bailer	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 0915
Sample Time/Date: 0945 / 9/16/13
Approx. Flow Rate: — gpm.
Did well de-water? No If yes, Time: Volume: gal. DTW @ Sampling: 4.95

Weather Conditions: Cloudy
Water Color: Cloudy Odor: Y / (N)
Sediment Description: Low

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
0919	1	7.94	out of Range	18.4		
0923	2	7.81	"	18.2		
0927	3	7.65	"	18.0		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-8	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS:

Add/Replaced Lock: X Add/Replaced Plug: X 2" Add/Replaced Bolt:

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: **Rolls Royce Engine Test** Job Number: **25-948218.1**
Site Address: **6701 Old Earhart Road** Event Date: 9/16/13 (inclusive)
City: **Oakland, CA** Sampler: AW

Well ID MW-9
Well Diameter 2 4 in.
Total Depth 9.95 ft.
Depth to Water 5.50 ft.
Date Monitored: 9/16/13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

4.45 xVF .17 = 0.75 x3 case volume = Estimated Purge Volume: 2.5 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 6.39

Purge Equipment:

Disposable Bailer	✓
Stainless Steel Bailer	
Stack Pump	
Suction Pump	
Grundfos	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	✓
Pressure Bailer	
Discrete Bailer	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 0950 Weather Conditions: Cloudy
Sample Time/Date: 1015 / 9-16-13 Water Color: Dark Odor: (Y) / N Slight
Approx. Flow Rate: — gpm. Sediment Description: Cloudy
Did well de-water? N If yes, Time: — Volume: gal. DTW @ Sampling: 6.00

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
0953	0.75	7.93	5.57	21.8		
0956	1.5	7.90	5.66	21.9		
1000	2.5	7.88	5.74	22.1		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-9	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: **Rolls Royce Engine Test** Job Number: **25-948218.1**

Site Address: **6701 Old Earhart Road** Event Date: 9/16/13 (inclusive)

City: **Oakland, CA** Sampler: AV

Well ID MW-10 Date Monitored: 9-16-13

Well Diameter (2) 4 in.

Total Depth 10.11 ft.

Depth to Water 3.60 ft.

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

6.51 xVF .17 = 1.10 x3 case volume = Estimated Purge Volume: 3.5 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 4.90

Purge Equipment:

Disposable Bailer	✓
Stainless Steel Bailer	
Stack Pump	
Suction Pump	
Grundfos	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	✓
Pressure Bailer	
Discrete Bailer	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1110 Weather Conditions: Sunny

Sample Time/Date: 1135 / 9-16-13 Water Color: Cloudy Odor: (Y) / N H2S odor moderate

Approx. Flow Rate: — gpm. Sediment Description: Cloudy

Did well de-water? N If yes, Time: — Volume: — gal. DTW @ Sampling: 4.14

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - ~~µS~~ mS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1115	1.5	7.36	8.44	23.8		
1120	2.5	7.31	8.30	23.9		
1125	3.5	7.28	8.20	23.8		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-10	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA

Job Number: 25-948218.1
Event Date: 9-16-13 (inclusive)
Sampler: AW

Well ID: MW-11
Well Diameter: (2) 4 in.
Total Depth: 9.70 ft.
Depth to Water: 3.87 ft.

Date Monitored: 9-16-13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

5.83 xVF .17 = 0.99 x3 case volume = Estimated Purge Volume: 3.0 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 5.03

Purge Equipment:

Disposable Bailer	✓
Stainless Steel Bailer	
Stack Pump	
Suction Pump	
Grundfos	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	✓
Pressure Bailer	
Discrete Bailer	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 0915
Sample Time/Date: 0940 / 9-16-13
Approx. Flow Rate: — gpm.
Did well de-water? N If yes, Time: — Volume: — gal. DTW @ Sampling: 4.16

Weather Conditions: Cloudy
Water Color: Black Odor: (Y) N H2S odor moderate
Sediment Description: Cloudy

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - ~~µS~~ mS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
0920	1.0	6.77	13.09	20.4		
0924	2.0	6.99	13.46	20.5		
0928	3.0	7.18	13.26	20.4		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-11	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA
Job Number: 25-948218.1
Event Date: 9.16.13 (inclusive)
Sampler: FT

Well ID: MW-12
Well Diameter: 0/4 in.
Total Depth: 9.95 ft.
Depth to Water: 3.44 ft.
Date Monitored: 9.16.13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

6.51 xVF .17 = 1.10 x3 case volume = Estimated Purge Volume: 3.0 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 4.74

Purge Equipment:
- Disposable Bailer: ✓
- Stainless Steel Bailer:
- Stack Pump:
- Suction Pump:
- Grundfos:
- Peristaltic Pump:
- QED Bladder Pump:
- Other:

Sampling Equipment:
- Disposable Bailer: ✓
- Pressure Bailer:
- Discrete Bailer:
- Peristaltic Pump:
- QED Bladder Pump:
- Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1200
Sample Time/Date: 1220 / 9.16.13
Approx. Flow Rate: ✓ gpm.
Did well de-water? ND If yes, Time: Volume: gal.
Weather Conditions: SUNNY
Water Color: CLEAR Odor: (Y) / N SLIGHT
Sediment Description: NONE
DTW @ Sampling: 3.47

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm (µS))	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1203	1.0	7.26	2146	23.8		
1206	2.0	7.30	2153	23.5		
1209	3.0	7.34	2161	23.2	✓	✓

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-12	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: Morrison 8" OK

Add/Replaced Lock: Add/Replaced Plug: Add/Replaced Bolt:

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA
Job Number: 25-948218.1
Event Date: 9.16.13 (inclusive)
Sampler: FT

Well ID: MW-13
Well Diameter: 2/④ in.
Total Depth: 9.53 ft.
Depth to Water: 2.28 ft.
7.25 xVF .66 = 4.78 x3 case volume = Estimated Purge Volume: 14.0 gal.
Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 3.73
Date Monitored: 9.16.13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

Purge Equipment:
Disposable Bailer ✓
Stainless Steel Bailer
Stack Pump
Suction Pump
Grundfos
Peristaltic Pump
QED Bladder Pump
Other:

Sampling Equipment:
Disposable Bailer ✓
Pressure Bailer
Discrete Bailer
Peristaltic Pump
QED Bladder Pump
Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1235
Sample Time/Date: 1315 / 9.16.13
Approx. Flow Rate: ✓ gpm.
Did well de-water? Yes If yes, Time: 1245 Volume: 5.0 gal. DTW @ Sampling: 3.73

Weather Conditions: SUNNY
Water Color: CLEAR Odor: Ⓨ / N MODERATE
Sediment Description: NONE

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - µS)	Temperature (Ⓒ / F)	D.O. (mg/L)	ORP (mV)
1244	4.5	7.54	2656	23.8	✓	✓

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-13	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: MORRISON 1211

Add/Replaced Lock: ✓ Add/Replaced Plug: ✓ 4" Add/Replaced Bolt:

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA
Job Number: 25-948218.1
Event Date: 4.16.13 (inclusive)
Sampler: FT

Well ID: MW-14
Well Diameter: 2 (4) in.
Total Depth: 10.05 ft.
Depth to Water: 2.53 ft.
Date Monitored: 4.16.13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

7.52 xVF .17 = 1.27 x3 case volume = Estimated Purge Volume: 4.0 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 4.03

Purge Equipment:
- Disposable Bailer: ✓
- Stainless Steel Bailer:
- Stack Pump:
- Suction Pump:
- Grundfos:
- Peristaltic Pump:
- QED Bladder Pump:
- Other:

Sampling Equipment:
- Disposable Bailer: ✓
- Pressure Bailer:
- Discrete Bailer:
- Peristaltic Pump:
- QED Bladder Pump:
- Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1050
Sample Time/Date: 1110 / 4.16.13
Approx. Flow Rate: ~ gpm.
Did well de-water? NO If yes, Time: Volume: gal.
Weather Conditions: SUNNY
Water Color: CLEAR Odor: (Y) / N MODERATE
Sediment Description: NONE
DTW @ Sampling: 2.53

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm) (uS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1053	1.5	7.50	2182	24.9		
1056	3.0	7.54	2170	24.7		
1059	4.0	7.57	2160	24.5		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-14	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: MORRISON 8" OK

Add/Replaced Lock: Add/Replaced Plug: Add/Replaced Bolt:

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: **Rolls Royce Engine Test** Job Number: **25-948218.1**

Site Address: **6701 Old Earhart Road** Event Date: 9.16.13 (inclusive)

City: **Oakland, CA** Sampler: FF

Well ID MW-15

Well Diameter 2 | 4 in.

Total Depth 10.00 ft.

Depth to Water 4.80 ft.

5.20 xVF .17 = .88

Date Monitored: 9.16.13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

x3 case volume = Estimated Purge Volume: 2.5 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 5.84

Purge Equipment:		Sampling Equipment:	
Disposable Bailer	✓	Disposable Bailer	✓
Stainless Steel Bailer		Pressure Bailer	
Stack Pump		Discrete Bailer	
Suction Pump		Peristaltic Pump	
Grundfos		QED Bladder Pump	
Peristaltic Pump		Other:	
QED Bladder Pump			
Other:			

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1015 Weather Conditions: CLOUDY / SUNNY

Sample Time/Date: 1035 / 9.16.13 Water Color: CLEAR Odor: Y / (N)

Approx. Flow Rate: ✓ gpm. Sediment Description: NONE

Did well de-water? NO If yes, Time: _____ Volume: _____ gal. DTW @ Sampling: 5.18

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1018	.75	6.89	2530	24.0		
1021	1.5	6.87	2589	24.3	✓	✓
1024	2.5	6.85	2637	24.5		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-15	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: MORRISON 8" OK

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: **Rolls Royce Engine Test** Job Number: **25-948218.1**
Site Address: **6701 Old Earhart Road** Event Date: 9.16.13 (inclusive)
City: **Oakland, CA** Sampler: FT

Well ID MW-17
Well Diameter (2) 4 in.
Total Depth 9.81 ft.
Depth to Water 2.88 ft.
6.93 xVF .17 = 1.17

Date Monitored: 9.16.13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

x3 case volume = Estimated Purge Volume: 4.0 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 4.26

Purge Equipment:
- Disposable Bailer ✓
- Stainless Steel Bailer
- Stack Pump
- Suction Pump
- Grundfos
- Peristaltic Pump
- QED Bladder Pump
- Other:

Sampling Equipment:
- Disposable Bailer ✓
- Pressure Bailer
- Discrete Bailer
- Peristaltic Pump
- QED Bladder Pump
- Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 0935
Sample Time/Date: 1000 / 9.16.13
Approx. Flow Rate: / gpm.
Did well de-water? NO If yes, Time: Volume: gal.

Weather Conditions: FOG
Water Color: CLEAR Odor: Y / (N)
Sediment Description: NONE
DTW @ Sampling: 4.24

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - (mS))	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
0938	1.5	6.78	1662	20.2		
0941	3.0	6.82	1671	19.8		
0944	4.0	6.88	1683	19.6		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-17	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: MORRISON 8" (2SF)

Add/Replaced Lock: Add/Replaced Plug: Add/Replaced Bolt:

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA

Job Number: 25-948218.1
Event Date: 9.16.13 (inclusive)
Sampler: FT

Well ID: MW-18
Well Diameter: 2 4 in.
Total Depth: 9.95 ft.
Depth to Water: 3.15 ft.
6.80 xVF .17 = 1.15

Date Monitored: 9.16.13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

x3 case volume = Estimated Purge Volume: 3.0 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 4.51

Purge Equipment:
- Disposable Bailer: ✓
- Stainless Steel Bailer
- Stack Pump
- Suction Pump
- Grundfos
- Peristaltic Pump
- QED Bladder Pump
- Other:

Sampling Equipment:
- Disposable Bailer: ✓
- Pressure Bailer
- Discrete Bailer
- Peristaltic Pump
- QED Bladder Pump
- Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1330
Sample Time/Date: 1350 / 9.16.13
Approx. Flow Rate: ✓ gpm.
Did well de-water? NO If yes, Time: _____ Volume: _____ gal. DTW @ Sampling: 3.17

Weather Conditions: SUNNY
Water Color: CLEAR/SLIGHT TINT Odor: Y (N) STRONG
Sediment Description: NONE

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - (mS))	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1333	1.0	7.76	1962	24.8		
1336	2.0	7.73	1978	25.1		
1339	3.0	7.69	1991	25.4		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-18	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: MONITOR 8" (2 BE) SOCK IN WELL

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA
Job Number: 25-948218.1
Event Date: 9/16/17 (inclusive)
Sampler: JH

Well ID NPORD MW-3
Well Diameter 2 (4) in.
Total Depth 16.46 ft.
Depth to Water 4.23 ft.
Date Monitored: 9/16/17

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

12.23 xVF .66 = 8.07 x3 case volume = Estimated Purge Volume: 24.21 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 6.67

Purge Equipment:

Disposable Bailer	
Stainless Steel Bailer	
Stack Pump	X
Suction Pump	
Grundfos	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	X
Pressure Bailer	
Discrete Bailer	
Peristaltic Pump	
QED Bladder Pump	
Other:	

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1035
Sample Time/Date: 1105 / 9/16/17
Approx. Flow Rate: 2 gpm.
Did well de-water? NO If yes, Time: Volume: gal. DTW @ Sampling: 5.10

Weather Conditions: Clear
Water Color: clear Odor: Y / (N)
Sediment Description: Lt Brn

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1039	8	7.65	out of Range	18.9		
1043	16	7.57	↓	18.7		
1047	24	7.43	↓	18.6		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
NPORD MW-3	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: Poly tubing in well

Add/Replaced Lock: Add/Replaced Plug: Add/Replaced Bolt:

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Rolls Royce Engine Test
Site Address: 6701 Old Earhart Road
City: Oakland, CA

Job Number: 25-948218.1
Event Date: 9/16/13 (inclusive)
Sampler: JH

Well ID NPORD MW-4
Well Diameter 2/4 in.
Total Depth 11.41 ft.
Depth to Water 6.25 ft.

Date Monitored: 9/16/13

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

5.16 xVF .17 = .87 x3 case volume = Estimated Purge Volume: 2.63 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 7.28

Purge Equipment:
Disposable Bailer X
Stainless Steel Bailer
Stack Pump
Suction Pump
Grundfos
Peristaltic Pump
QED Bladder Pump
Other:

Sampling Equipment:
Disposable Bailer X
Pressure Bailer
Discrete Bailer
Peristaltic Pump
QED Bladder Pump
Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1000
Sample Time/Date: 1025 / 9/16/13
Approx. Flow Rate: — gpm.
Did well de-water? NO If yes, Time: _____ Volume: _____ gal. DTW @ Sampling: 6.85

Weather Conditions: Clear
Water Color: Cloudy Odor: Y / N
Sediment Description: Light

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1003	1	7.80	out of Range	18.7		
1006	2	7.61	↓	18.4		
1008	2.5	7.47	↓	18.2		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
NPORD MW-4	7 x voa vial	YES	HCL	KIFF	TPH-JET FUEL/TPH-MO/TPH-DROw/sgc(8015)/ TPH-GRO/BTEX/MTBE/NAPHTHALENE(8260)

COMMENTS: Poly tubing in well - was down appx 2' down well - Lock tab on monument is broken off - well unsecure - Client Advised

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

BAG WEIGHT 20.5 GRAMS

PES Environmental, Inc.
Engineering & Environmental Services

SEPARATE-PHASE HYDROCARBON REMOVAL LOG

LOCATION: TESTCAL NL
PROJECT:
JOB NO.:

Date	Time	Well ID	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness (feet)	Amount of Product Removed	Notes
12/8/10	0930	MW18				421.5 GRAMS	
12/16/10	1045	MW18				396 GRAMS	
12/24/10	0940	MW18				403 GRAMS	
1/12/11	1310	MW18				417 GRAMS	
1/27/11	0845	MW18				400 GRAMS	
2/14/11	1320	MW18				421 GRAMS	
3/2/11	0910	MW18				418 GRAMS	
3/14/11	1145	MW18				410 GRAMS	
3/25/11	0845	MW18				427 GRAMS	
4/4/11	1320	MW18				416 GRAMS	
4/12/11	1020	MW18				398 GRAMS	
4/20/11	1310	MW18				412 GRAMS	

BAG WEIGHT 20.5 GRAMS

PES Environmental, Inc.
Engineering & Environmental Services

LOCATION: TEST CELL AL
PROJECT:
JOB NO.:

SEPARATE-PHASE HYDROCARBON REMOVAL LOG

Date	Time	Well ID	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness (feet)	Amount of Product Removed	Notes
4/27/11	1030	MW18				390 GRAMS	
5/3/11	1340	MW18				402 GRAMS	
5/11/11	1240	MW18				408 GRAMS	
5/17/11	1345	MW18				395 GRAMS	
5/25/11	0925	MW18				380 GRAMS	
6/1/11	1310	MW18				405 GRAMS	
6/9/11	1400	MW18				390 GRAMS	
6/16/11	0640	MW18				406 GRAMS	
6/21/11	1345	MW18				399 GRAMS	
6/22/11	1230	MW18				412 GRAMS	
7/5/11	1320	MW18				400 GRAMS	
7/12/11	1140	MW18				392 GRAMS	

BAG WEIGHTS 20.5 GRAMS

PES Environmental, Inc.
Engineering & Environmental Services

LOCATION: TEST CELL
PROJECT:
JOB NO.:

SEPARATE-PHASE HYDROCARBON REMOVAL LOG

Date	Time	Well ID	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness (feet)	Amount of Product Removed	Notes
7/19/11	1345	MW18				412 Grams	
7/27/11	1220	MW18				390 Grams	
8/4/11	1310	MW18				385 Grams	
8/10/11	1340	MW18				399 Grams	
8/17/11	0700	MW18				427 Grams	
8/25/11	0945	MW18				402 Grams	
9/2/11	0930	MW18				295 Grams	
9/7/11	10:29	MW18				326 Grams	TC
9/13/11	1145	MW18				308 Grams	
9/22/11	8:00	MW18				298 Grams	TC
9/30/11	1730	MW18				302 Grams	
10/7/11	1600	MW18				288 Grams	

Bag Weight 20.5 Grams

PES Environmental, Inc.
Engineering & Environmental Services

LOCATION: Test-Cell 11
PROJECT:
JOB NO.:

SEPARATE-PHASE HYDROCARBON REMOVAL LOG

Date	Time	Well ID	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness (feet)	Amount of Product Removed	Notes
10/19/11	9:04	MW18				423.5 Grams	TC
10/26/11	1310	MW18				401 Grams	
11/02/11	0705	MW18				353.7	
11/8/11	1000	MW18				402 Grams	
11/16/11	1240	MW18				389 Grams	
11/25/11	1000	MW18				370 Grams	
12/1/11	1146	MW18				390 Grams	
12/8/11	1325	MW18				407 Grams	
12/13/11	0930	MW18				400 Grams	
12/20/11	1320	MW18				392 Grams	
1/3/12	1030	MW18				380 Grams	
1/11/12	625 Am	MW18				416 Grams	

B/G WEIGHT
20.5 GRAMS

PES Environmental, Inc.
Engineering & Environmental Services

LOCATION: TEST CELL AR
PROJECT:
JOB NO.:

SEPARATE-PHASE HYDROCARBON REMOVAL LOG

Date	Time	Well ID	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness (feet)	Amount of Product Removed	Notes
01/15/12	6:20 AM	MW18				362.5 Grams	
1/26/12	1020	MW18				387 Grams	
02/03/12	8:01 AM	MW18				442.5 Grams	
2/9/12	1340	MW18				430 Grams	
2/16/12	1210	MW18				407 Grams	
2/23/12	0940	MW18				416 Grams	
3/1/12	1220	MW18				395 Grams	
3/7/12	6:15 AM	MW18				411 Grams	
3/14/12	6:15 AM	MW18				346.5 Grams	
3/22/12	1000	MW18				374 Grams	
3/28/12	6:30	MW18				419 Grams	
4/4/12	6:15	MW18				414 Grams	

BAG WEIGHT
20.5 GRAMS

PES Environmental, Inc.
Engineering & Environmental Services

LOCATION: TEST COIL AR
PROJECT:
JOB NO.:

SEPARATE-PHASE HYDROCARBON REMOVAL LOG

Date	Time	Well ID	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness (feet)	Amount of Product Removed	Notes
4/11/12	6:24	MW18				410 Grams	
4/18/12	6:14	MW18				3[illegible]	
4/25/12	0700	MW18				405 Grams	
5/2/12	0620	MW18				390 Grams	
5/7/12	0620	MW18				404 Grams	
5/11/12	0705	MW18				394 Grams	
5/16/12	6:06	MW18				339.5 Grams	
5/24/12	6:04	MW18				379.5 Grams	
5/30/12	6:15	MW18				351.5 Grams	
6/6/12	0620	MW18				382 Grams	
6/13/12	0609	MW18				321.5 Grams	
6/20/12	0609	MW18				326.5 Grams	

Bag weight new bags
20.5 Grams / 8 Grams

PES Environmental, Inc.
Engineering & Environmental Services

LOCATION: Test cell RR
PROJECT:
JOB NO.:

SEPARATE-PHASE HYDROCARBON REMOVAL LOG

Date	Time	Well ID	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness (feet)	Amount of Product Removed	Notes
6/27/12	6:10 AM	MW18				310.00	
7/5/12	6:10 AM	MW18				327.5	
7/11/12	6:10 AM	MW18				316.5	
7/18/12	6:10 AM	MW18				418.5	
7/25/12	6:10 AM	MW18				321.5	
8/2/12	6:10 AM	MW18				345.0	
8/8/12	6:10	MW18				333.5	
8/15/12	6:12	MW18				335.0	
AUG 22 2012	1:18 PM	MW18				253	
8/28/12	7:36 AM	MW18				249	
9/5/12	6:30 AM	MW18				248.5	
9/12/12	6:06 AM	MW18				274.5	

Bag weight 8grams

PES Environmental, Inc.
Engineering & Environmental Services

LOCATION: Tost Cell RR
PROJECT:
JOB NO.:

SEPARATE-PHASE HYDROCARBON REMOVAL LOG

Date	Time	Well ID	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness (feet)	Amount of Product Removed	Notes
9/19/12	6:12 AM	MW18				197.0	
10/3/12	6:45 AM	MW18				262.0	
10/10/12	6:10 AM	MW18				250.00	
10/17/12	6:10 AM	MW18				260.	
10/31/12	6:12	MW18				443	
11/7/12	6:36	MW18				246	

Bag weight 8.grams

PES Environmental, Inc.
Engineering & Environmental Services

LOCATION: Test Cell R.R.
PROJECT:
JOB NO.:

SEPARATE-PHASE HYDROCARBON REMOVAL LOG

Date	Time	Well ID	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Product Thickness (feet)	Amount of Product Removed	Notes
1-16-13	6:15	mw18	—	-	—	153	
1-23-13	6:20	mw18	—	-	—	139	
1-30-13	6:15	mw18	—	-	—	153.5	
2-14-13	7:08	mw18	—	-	—	374	
2-20-13	6:15	mw18	—	-	—	340	
2-27-13	6:15	mw18	—	-	—	308.5	
3-14-13	6:15	mw18	—	-	—	202	
3-20-13	6:22	mw18	—	-	—	156	
3-27-13	6:15	mw18	—	-	—	342	
4-3-13	6:35	mw18				502	
4-17-13	6:30	mw18				426	
4-24-13	8:07	mw18				268	

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Laboratory Results

Doug Lee
Gettler-Ryan Inc.
6805 Sierra Court, Suite G
Dublin, CA 94568

Subject : 20 Water Samples
Project Name : Rolls-Royce Engine Test Facility
Project Number : 25-948218.1

Dear Mr. Lee,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC and TNI 2009 standards. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Troy G. Turpen

Troy Turpen

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Subject : 20 Water Samples
Project Name : Rolls-Royce Engine Test Facility
Project Number : 25-948218.1

Case Narrative

Sample MW-5 was analyzed by EPA Method 8260B using bottles that contained headspace bubbles greater than 1/4 inch in diameter.

The Method Reporting Limit for Naphthalene has been increased due to the presence of an interfering compound for sample MW-18.

Matrix Spike/Matrix Spike Duplicate results associated with samples MW-7 and MW-12 for the analyte Methyl-t-butyl ether were affected by the analyte concentrations already present in the un-spiked sample.

A version of this report was previously issued on 09/23/13. The misplaced footnotes removed from this revised version replaces that report.

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**
Project Number : **25-948218.1**

Sample : **QA** Matrix : Water Lab Number : 85990-01
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:16
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:16
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:16
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:16
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:16
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 11:16
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:16
1,2-Dichloroethane-d4 (Surr)	98.9		% Recovery	EPA 8260B	09/18/13 11:16
Toluene - d8 (Surr)	98.3		% Recovery	EPA 8260B	09/18/13 11:16
4-Bromofluorobenzene (Surr)	89.6		% Recovery	EPA 8260B	09/18/13 11:16
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/19/13 14:43
TPH as Jet Fuel	< 50	50	ug/L	M EPA 8015	09/20/13 02:07
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 02:07
Octacosane (Silica Gel Surr)	104		% Recovery	M EPA 8015	09/19/13 14:43
Octacosane (Diesel Surrogate)	92.2		% Recovery	M EPA 8015	09/20/13 02:07

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**
Project Number : **25-948218.1**

Sample : **MW-1** Matrix : Water Lab Number : 85990-02
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:51
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:51
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:51
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:51
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:51
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 11:51
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 11:51
1,2-Dichloroethane-d4 (Surr)	97.5		% Recovery	EPA 8260B	09/18/13 11:51
Toluene - d8 (Surr)	98.8		% Recovery	EPA 8260B	09/18/13 11:51
4-Bromofluorobenzene (Surr)	87.9		% Recovery	EPA 8260B	09/18/13 11:51
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/19/13 15:17
TPH as Jet Fuel	< 50	50	ug/L	M EPA 8015	09/20/13 02:36
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 02:36
Octacosane (Silica Gel Surr)	107		% Recovery	M EPA 8015	09/19/13 15:17
Octacosane (Diesel Surrogate)	98.1		% Recovery	M EPA 8015	09/20/13 02:36

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**
Project Number : **25-948218.1**

Sample : **MW-2** Matrix : Water Lab Number : 85990-03
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 12:26
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 12:26
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 12:26
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 12:26
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 12:26
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 12:26
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 12:26
1,2-Dichloroethane-d4 (Surr)	96.8		% Recovery	EPA 8260B	09/18/13 12:26
Toluene - d8 (Surr)	98.4		% Recovery	EPA 8260B	09/18/13 12:26
4-Bromofluorobenzene (Surr)	86.2		% Recovery	EPA 8260B	09/18/13 12:26
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/19/13 15:51
TPH as Jet Fuel	< 50	50	ug/L	M EPA 8015	09/20/13 03:05
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 03:05
Octacosane (Silica Gel Surr)	106		% Recovery	M EPA 8015	09/19/13 15:51
Octacosane (Diesel Surrogate)	98.2		% Recovery	M EPA 8015	09/20/13 03:05

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**
Project Number : **25-948218.1**

Sample : **MW-3** Matrix : Water Lab Number : 85990-04
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:02
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:02
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:02
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:02
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:02
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 13:02
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:02
1,2-Dichloroethane-d4 (Surr)	97.9		% Recovery	EPA 8260B	09/18/13 13:02
Toluene - d8 (Surr)	99.0		% Recovery	EPA 8260B	09/18/13 13:02
4-Bromofluorobenzene (Surr)	88.1		% Recovery	EPA 8260B	09/18/13 13:02
TPH as Diesel (Silica Gel)	**62**	50	ug/L	M EPA 8015	09/19/13 16:26
TPH as Jet Fuel	**520**	50	ug/L	M EPA 8015	09/20/13 03:35
TPH as Motor Oil	**210**	100	ug/L	M EPA 8015	09/20/13 03:35
Octacosane (Silica Gel Surr)	95.2		% Recovery	M EPA 8015	09/19/13 16:26
Octacosane (Diesel Surrogate)	84.3		% Recovery	M EPA 8015	09/20/13 03:35

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**
Project Number : **25-948218.1**

Sample : **MW-4** Matrix : Water Lab Number : 85990-05
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:37
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:37
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:37
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:37
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:37
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 13:37
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 13:37
1,2-Dichloroethane-d4 (Surr)	97.1		% Recovery	EPA 8260B	09/18/13 13:37
Toluene - d8 (Surr)	98.6		% Recovery	EPA 8260B	09/18/13 13:37
4-Bromofluorobenzene (Surr)	88.9		% Recovery	EPA 8260B	09/18/13 13:37
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/19/13 17:01
TPH as Jet Fuel	**490**	50	ug/L	M EPA 8015	09/20/13 04:04
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	**150**	100	ug/L	M EPA 8015	09/20/13 04:04
(Note: Hydrocarbons are lower-boiling than typical Motor Oil)					
Octacosane (Silica Gel Surr)	105		% Recovery	M EPA 8015	09/19/13 17:01
Octacosane (Diesel Surrogate)	108		% Recovery	M EPA 8015	09/20/13 04:04

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**
Project Number : **25-948218.1**

Sample : **MW-5** Matrix : Water Lab Number : 85990-06
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:12
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:12
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:12
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:12
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:12
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 14:12
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:12
1,2-Dichloroethane-d4 (Surr)	97.8		% Recovery	EPA 8260B	09/18/13 14:12
Toluene - d8 (Surr)	98.8		% Recovery	EPA 8260B	09/18/13 14:12
4-Bromofluorobenzene (Surr)	86.8		% Recovery	EPA 8260B	09/18/13 14:12
TPH as Diesel (Silica Gel)	**2000**	50	ug/L	M EPA 8015	09/19/13 17:35
(Note: Hydrocarbons are higher-boiling than typical Diesel Fuel.)					
TPH as Jet Fuel	**1700**	250	ug/L	M EPA 8015	09/20/13 08:37
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	**4500**	250	ug/L	M EPA 8015	09/20/13 08:37
Octacosane (Silica Gel Surr)	84.2		% Recovery	M EPA 8015	09/19/13 17:35
Octacosane (Diesel Surrogate)	72.1		% Recovery	M EPA 8015	09/20/13 08:37

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**
Project Number : **25-948218.1**

Sample : **MW-6** Matrix : Water Lab Number : 85990-07
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 11:46
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 11:46
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 11:46
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 11:46
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 11:46
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/19/13 11:46
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 11:46
1,2-Dichloroethane-d4 (Surr)	98.0		% Recovery	EPA 8260B	09/19/13 11:46
Toluene - d8 (Surr)	99.2		% Recovery	EPA 8260B	09/19/13 11:46
4-Bromofluorobenzene (Surr)	98.5		% Recovery	EPA 8260B	09/19/13 11:46
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/19/13 22:47
TPH as Jet Fuel	**200**	50	ug/L	M EPA 8015	09/20/13 08:08
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 08:08
Octacosane (Silica Gel Surr)	106		% Recovery	M EPA 8015	09/19/13 22:47
Octacosane (Diesel Surrogate)	104		% Recovery	M EPA 8015	09/20/13 08:08

KIFF Analytical LLC

Report Number : 85990
Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**
Project Number : **25-948218.1**

Sample : **MW-7** Matrix : Water Lab Number : 85990-08
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:57
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:57
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:57
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:57
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:57
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 15:57
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:57
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	09/18/13 15:57
Toluene - d8 (Surr)	109		% Recovery	EPA 8260B	09/18/13 15:57
4-Bromofluorobenzene (Surr)	96.4		% Recovery	EPA 8260B	09/18/13 15:57
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/19/13 23:22
TPH as Jet Fuel	**380**	50	ug/L	M EPA 8015	09/20/13 14:27
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 14:27
Octacosane (Silica Gel Surr)	103		% Recovery	M EPA 8015	09/19/13 23:22
Octacosane (Diesel Surrogate)	92.5		% Recovery	M EPA 8015	09/20/13 14:27

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Sample : **MW-8** Matrix : Water Lab Number : 85990-09
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:25
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:25
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:25
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:25
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:25
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 14:25
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:25
1,2-Dichloroethane-d4 (Surr)	98.6		% Recovery	EPA 8260B	09/18/13 14:25
Toluene - d8 (Surr)	98.5		% Recovery	EPA 8260B	09/18/13 14:25
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	09/18/13 14:25
TPH as Diesel (Silica Gel)	**96**	50	ug/L	M EPA 8015	09/19/13 23:57
(Note: Hydrocarbons are higher-boiling than typical Diesel Fuel.)					
TPH as Jet Fuel	**410**	50	ug/L	M EPA 8015	09/20/13 09:06
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	**250**	100	ug/L	M EPA 8015	09/20/13 09:06
Octacosane (Silica Gel Surr)	106		% Recovery	M EPA 8015	09/19/13 23:57
Octacosane (Diesel Surrogate)	101		% Recovery	M EPA 8015	09/20/13 09:06

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Project Name : **Rolls-Royce Engine Test Facility**
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Sample : **MW-9** Matrix : Water Lab Number : 85990-10
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:58
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:58
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:58
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:58
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:58
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 14:58
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 14:58
1,2-Dichloroethane-d4 (Surr)	99.1		% Recovery	EPA 8260B	09/18/13 14:58
Toluene - d8 (Surr)	98.9		% Recovery	EPA 8260B	09/18/13 14:58
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	09/18/13 14:58
TPH as Diesel (Silica Gel)	**420**	50	ug/L	M EPA 8015	09/20/13 00:32
(Note: Hydrocarbons are higher-boiling than typical Diesel Fuel.)					
TPH as Jet Fuel	**520**	50	ug/L	M EPA 8015	09/20/13 09:35
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	**1200**	100	ug/L	M EPA 8015	09/20/13 09:35
Octacosane (Silica Gel Surr)	105		% Recovery	M EPA 8015	09/20/13 00:32
Octacosane (Diesel Surrogate)	107		% Recovery	M EPA 8015	09/20/13 09:35

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Project Name : **Rolls-Royce Engine Test Facility**
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Sample : **MW-10** Matrix : Water Lab Number : 85990-11
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 09:31
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 09:31
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 09:31
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 09:31
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 09:31
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 09:31
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 09:31
1,2-Dichloroethane-d4 (Surr)	99.4		% Recovery	EPA 8260B	09/18/13 09:31
Toluene - d8 (Surr)	98.7		% Recovery	EPA 8260B	09/18/13 09:31
4-Bromofluorobenzene (Surr)	99.7		% Recovery	EPA 8260B	09/18/13 09:31
TPH as Diesel (Silica Gel)	**53**	50	ug/L	M EPA 8015	09/20/13 01:06
TPH as Jet Fuel	**270**	50	ug/L	M EPA 8015	09/20/13 10:04
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 10:04
Octacosane (Silica Gel Surr)	105		% Recovery	M EPA 8015	09/20/13 01:06
Octacosane (Diesel Surrogate)	94.6		% Recovery	M EPA 8015	09/20/13 10:04

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Sample : **MW-11** Matrix : Water Lab Number : 85990-12
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 15:04
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 15:04
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 15:04
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 15:04
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 15:04
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/19/13 15:04
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 15:04
1,2-Dichloroethane-d4 (Surr)	99.4		% Recovery	EPA 8260B	09/19/13 15:04
Toluene - d8 (Surr)	99.8		% Recovery	EPA 8260B	09/19/13 15:04
4-Bromofluorobenzene (Surr)	97.8		% Recovery	EPA 8260B	09/19/13 15:04
TPH as Diesel (Silica Gel)	**130**	50	ug/L	M EPA 8015	09/20/13 08:03
(Note: Hydrocarbons are higher-boiling than typical Diesel Fuel.)					
TPH as Jet Fuel	**350**	50	ug/L	M EPA 8015	09/20/13 10:34
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	**280**	100	ug/L	M EPA 8015	09/20/13 10:34
Octacosane (Silica Gel Surr)	109		% Recovery	M EPA 8015	09/20/13 08:03
Octacosane (Diesel Surrogate)	102		% Recovery	M EPA 8015	09/20/13 10:34

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Sample : **MW-12** Matrix : Water Lab Number : 85990-13
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:00
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:00
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:00
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:00
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:00
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 17:00
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:00
1,2-Dichloroethane-d4 (Surr)	92.5		% Recovery	EPA 8260B	09/18/13 17:00
Toluene - d8 (Surr)	111		% Recovery	EPA 8260B	09/18/13 17:00
4-Bromofluorobenzene (Surr)	96.0		% Recovery	EPA 8260B	09/18/13 17:00
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/20/13 08:38
TPH as Jet Fuel	< 50	50	ug/L	M EPA 8015	09/20/13 13:29
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 13:29
Octacosane (Silica Gel Surr)	106		% Recovery	M EPA 8015	09/20/13 08:38
Octacosane (Diesel Surrogate)	107		% Recovery	M EPA 8015	09/20/13 13:29

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Project Name : **Rolls-Royce Engine Test Facility**
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Sample : **MW-13** Matrix : Water Lab Number : 85990-14
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:30
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:30
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:30
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:30
Methyl-t-butyl ether (MTBE)	**1.7**	0.50	ug/L	EPA 8260B	09/18/13 15:30
TPH as Gasoline	**190**	50	ug/L	EPA 8260B	09/18/13 15:30
(Note: Primarily compounds not found in typical Gasoline)					
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 15:30
1,2-Dichloroethane-d4 (Surr)	98.8		% Recovery	EPA 8260B	09/18/13 15:30
Toluene - d8 (Surr)	98.3		% Recovery	EPA 8260B	09/18/13 15:30
4-Bromofluorobenzene (Surr)	99.4		% Recovery	EPA 8260B	09/18/13 15:30
TPH as Diesel (Silica Gel)	**110**	50	ug/L	M EPA 8015	09/20/13 01:41
TPH as Jet Fuel	**1400**	50	ug/L	M EPA 8015	09/20/13 13:00
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 13:00
Octacosane (Silica Gel Surr)	106		% Recovery	M EPA 8015	09/20/13 01:41
Octacosane (Diesel Surrogate)	105		% Recovery	M EPA 8015	09/20/13 13:00

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Sample : **MW-14** Matrix : Water Lab Number : 85990-15
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:03
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:03
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:03
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:03
Methyl-t-butyl ether (MTBE)	**0.74**	0.50	ug/L	EPA 8260B	09/18/13 16:03
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 16:03
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:03
1,2-Dichloroethane-d4 (Surr)	99.3		% Recovery	EPA 8260B	09/18/13 16:03
Toluene - d8 (Surr)	98.6		% Recovery	EPA 8260B	09/18/13 16:03
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	09/18/13 16:03
TPH as Diesel (Silica Gel)	**86**	50	ug/L	M EPA 8015	09/20/13 02:16
(Note: Hydrocarbons are higher-boiling than typical Diesel Fuel.)					
TPH as Jet Fuel	**920**	50	ug/L	M EPA 8015	09/20/13 11:03
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	**360**	100	ug/L	M EPA 8015	09/20/13 11:03
Octacosane (Silica Gel Surr)	107		% Recovery	M EPA 8015	09/20/13 02:16
Octacosane (Diesel Surrogate)	104		% Recovery	M EPA 8015	09/20/13 11:03

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Sample : **MW-15** Matrix : Water Lab Number : 85990-16
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:35
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:35
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:35
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:35
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:35
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 16:35
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 16:35
1,2-Dichloroethane-d4 (Surr)	99.1		% Recovery	EPA 8260B	09/18/13 16:35
Toluene - d8 (Surr)	99.0		% Recovery	EPA 8260B	09/18/13 16:35
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	09/18/13 16:35
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/20/13 02:51
TPH as Jet Fuel	< 50	50	ug/L	M EPA 8015	09/20/13 13:58
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 13:58
Octacosane (Silica Gel Surr)	109		% Recovery	M EPA 8015	09/20/13 02:51
Octacosane (Diesel Surrogate)	98.6		% Recovery	M EPA 8015	09/20/13 13:58

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Sample : **MW-17** Matrix : Water Lab Number : 85990-17
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:07
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:07
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:07
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:07
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:07
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/13 17:07
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/13 17:07
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	09/18/13 17:07
Toluene - d8 (Surr)	99.6		% Recovery	EPA 8260B	09/18/13 17:07
4-Bromofluorobenzene (Surr)	99.8		% Recovery	EPA 8260B	09/18/13 17:07
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/20/13 03:26
TPH as Jet Fuel	**69**	50	ug/L	M EPA 8015	09/20/13 11:32
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 11:32
Octacosane (Silica Gel Surr)	104		% Recovery	M EPA 8015	09/20/13 03:26
Octacosane (Diesel Surrogate)	104		% Recovery	M EPA 8015	09/20/13 11:32

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Project Name : **Rolls-Royce Engine Test Facility**
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Sample : **MW-18** Matrix : Water Lab Number : 85990-18
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 01:13
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 01:13
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 01:13
Total Xylenes	**1.2**	0.50	ug/L	EPA 8260B	09/19/13 01:13
Methyl-t-butyl ether (MTBE)	**1.8**	0.50	ug/L	EPA 8260B	09/19/13 01:13
TPH as Gasoline	**570**	50	ug/L	EPA 8260B	09/19/13 01:13
Naphthalene	< 0.80	0.80	ug/L	EPA 8260B	09/19/13 01:13
1,2-Dichloroethane-d4 (Surr)	98.0		% Recovery	EPA 8260B	09/19/13 01:13
Toluene - d8 (Surr)	99.0		% Recovery	EPA 8260B	09/19/13 01:13
4-Bromofluorobenzene (Surr)	98.0		% Recovery	EPA 8260B	09/19/13 01:13
TPH as Diesel (Silica Gel)	**35000**	50	ug/L	M EPA 8015	09/20/13 04:00
(Note: Some hydrocarbons lower-boiling, some higher-boiling than Diesel.)					
TPH as Jet Fuel	**48000**	1000	ug/L	M EPA 8015	09/20/13 07:38
TPH as Motor Oil	**37000**	1000	ug/L	M EPA 8015	09/20/13 07:38
Octacosane (Silica Gel Surr)	113		% Recovery	M EPA 8015	09/20/13 04:00
Octacosane (Diesel Surrogate)	Diluted Out		% Recovery	M EPA 8015	09/20/13 07:38

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Project Name : **Rolls-Royce Engine Test Facility**
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Sample : **NPORD-MW-3** Matrix : Water Lab Number : 85990-19
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:54
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:54
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:54
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:54
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:54
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/19/13 12:54
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:54
1,2-Dichloroethane-d4 (Surr)	98.9		% Recovery	EPA 8260B	09/19/13 12:54
Toluene - d8 (Surr)	99.5		% Recovery	EPA 8260B	09/19/13 12:54
4-Bromofluorobenzene (Surr)	99.3		% Recovery	EPA 8260B	09/19/13 12:54
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/20/13 07:28
TPH as Jet Fuel	< 50	50	ug/L	M EPA 8015	09/20/13 12:01
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/13 12:01
Octacosane (Silica Gel Surr)	106		% Recovery	M EPA 8015	09/20/13 07:28
Octacosane (Diesel Surrogate)	104		% Recovery	M EPA 8015	09/20/13 12:01

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Project Name : **Rolls-Royce Engine Test Facility**
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Sample : **NPORD-MW-4** Matrix : Water Lab Number : 85990-20
Sample Date :09/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:20
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:20
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:20
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:20
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:20
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/19/13 12:20
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/19/13 12:20
1,2-Dichloroethane-d4 (Surr)	97.9		% Recovery	EPA 8260B	09/19/13 12:20
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	09/19/13 12:20
4-Bromofluorobenzene (Surr)	99.6		% Recovery	EPA 8260B	09/19/13 12:20
TPH as Diesel (Silica Gel)	**72**	50	ug/L	M EPA 8015	09/19/13 18:10
TPH as Jet Fuel	**560**	50	ug/L	M EPA 8015	09/20/13 12:30
(Note: Higher boiling hydrocarbons present, atypical for Jet Fuel.)					
TPH as Motor Oil	**120**	100	ug/L	M EPA 8015	09/20/13 12:30
(Note: Hydrocarbons are lower-boiling than typical Motor Oil)					
Octacosane (Silica Gel Surr)	108		% Recovery	M EPA 8015	09/19/13 18:10
Octacosane (Diesel Surrogate)	105		% Recovery	M EPA 8015	09/20/13 12:30

Report Number : 85990

Date : 01/02/2014

QC Report : Method Blank Data

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	09/19/2013
TPH as Jet Fuel	< 50	50	ug/L	M EPA 8015	09/20/2013
TPH as Motor Oil	< 100	100	ug/L	M EPA 8015	09/20/2013
Octacosane (Diesel Surrogate)	104		%	M EPA 8015	09/20/2013
Octacosane (Silica Gel Surr)	100		%	M EPA 8015	09/19/2013
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/2013
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
1,2-Dichloroethane-d4 (Surr)	99.2		%	EPA 8260B	09/18/2013
4-Bromofluorobenzene (Surr)	118		%	EPA 8260B	09/18/2013
Toluene - d8 (Surr)	103		%	EPA 8260B	09/18/2013
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/2013
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
1,2-Dichloroethane-d4 (Surr)	97.6		%	EPA 8260B	09/18/2013
4-Bromofluorobenzene (Surr)	88.7		%	EPA 8260B	09/18/2013
Toluene - d8 (Surr)	99.2		%	EPA 8260B	09/18/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/2013
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
1,2-Dichloroethane-d4 (Surr)	97.8		%	EPA 8260B	09/18/2013
4-Bromofluorobenzene (Surr)	97.1		%	EPA 8260B	09/18/2013
Toluene - d8 (Surr)	98.9		%	EPA 8260B	09/18/2013
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/19/2013
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
1,2-Dichloroethane-d4 (Surr)	99.1		%	EPA 8260B	09/19/2013
4-Bromofluorobenzene (Surr)	97.9		%	EPA 8260B	09/19/2013
Toluene - d8 (Surr)	99.4		%	EPA 8260B	09/19/2013

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 85990

QC Report : Method Blank Data

Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/18/2013
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/18/2013
1,2-Dichloroethane-d4 (Surr)	99.3		%	EPA 8260B	09/18/2013
4-Bromofluorobenzene (Surr)	98.6		%	EPA 8260B	09/18/2013
Toluene - d8 (Surr)	98.6		%	EPA 8260B	09/18/2013
Benzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
Toluene	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	09/19/2013
Naphthalene	< 0.50	0.50	ug/L	EPA 8260B	09/19/2013
1,2-Dichloroethane-d4 (Surr)	100		%	EPA 8260B	09/19/2013
4-Bromofluorobenzene (Surr)	96.3		%	EPA 8260B	09/19/2013
Toluene - d8 (Surr)	99.8		%	EPA 8260B	09/19/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
TPH-D (Si Gel)														
	BLANK	<50	1000	1000	914	956	ug/L	M EPA 8015	9/19/13	91.4	95.6	4.40	70-130	25
TPH as Diesel														
	BLANK	<50	1000	1000	1150	1130	ug/L	M EPA 8015	9/20/13	115	113	1.70	70-130	25
Benzene														
	85986-13	<0.50	40.0	40.0	39.6	39.9	ug/L	EPA 8260B	9/18/13	98.9	99.6	0.727	70.0-130	25
Ethylbenzene														
	85986-13	<0.50	40.0	40.0	42.3	41.5	ug/L	EPA 8260B	9/18/13	106	104	1.82	70.0-130	25
Methyl-t-butyl ether														
	85986-13	75	39.9	39.9	124	132	ug/L	EPA 8260B	9/18/13	122	**144**	16.6	70.0-130	25
Naphthalene														
	85986-13	<0.50	40.0	40.0	42.9	43.4	ug/L	EPA 8260B	9/18/13	107	109	1.32	70.0-130	25
P + M Xylene														
	85986-13	<0.50	40.0	40.0	43.0	42.0	ug/L	EPA 8260B	9/18/13	108	105	2.49	70.0-130	25
Toluene														
	85986-13	<0.50	40.0	40.0	34.9	42.1	ug/L	EPA 8260B	9/18/13	87.2	105	18.8	70.0-130	25
Benzene														
	85986-12	<0.50	40.0	40.0	42.9	42.0	ug/L	EPA 8260B	9/18/13	107	105	2.30	70.0-130	25

Report Number : 85990

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Ethylbenzene														
	85986-12	<0.50	40.0	40.0	43.1	42.5	ug/L	EPA 8260B	9/18/13	108	106	1.29	70.0-130	25
Methyl-t-butyl ether														
	85986-12	2.4	39.9	39.9	42.6	42.3	ug/L	EPA 8260B	9/18/13	101	100	0.732	70.0-130	25
Naphthalene														
	85986-12	<0.50	40.0	40.0	43.2	42.6	ug/L	EPA 8260B	9/18/13	108	106	1.44	70.0-130	25
P + M Xylene														
	85986-12	<0.50	40.0	40.0	41.8	41.2	ug/L	EPA 8260B	9/18/13	105	103	1.51	70.0-130	25
Toluene														
	85986-12	<0.50	40.0	40.0	42.2	41.0	ug/L	EPA 8260B	9/18/13	105	103	2.68	70.0-130	25
Benzene														
	85994-03	<0.50	40.0	40.0	40.8	40.1	ug/L	EPA 8260B	9/18/13	102	100	1.78	70.0-130	25
Ethylbenzene														
	85994-03	<0.50	40.0	40.0	41.7	40.9	ug/L	EPA 8260B	9/18/13	104	102	1.93	70.0-130	25
Methyl-t-butyl ether														
	85994-03	1.5	39.9	39.9	41.7	41.3	ug/L	EPA 8260B	9/18/13	101	99.8	0.906	70.0-130	25
Naphthalene														
	85994-03	<0.50	40.0	40.0	41.2	40.8	ug/L	EPA 8260B	9/18/13	103	102	1.15	70.0-130	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
P + M Xylene														
	85994-03	<0.50	40.0	40.0	43.1	42.3	ug/L	EPA 8260B	9/18/13	108	106	1.87	70.0-130	25
Toluene														
	85994-03	<0.50	40.0	40.0	41.2	40.2	ug/L	EPA 8260B	9/18/13	103	100	2.47	70.0-130	25
Benzene														
	86005-05	<0.50	40.0	40.0	40.0	38.9	ug/L	EPA 8260B	9/19/13	100	97.3	2.83	70.0-130	25
Ethylbenzene														
	86005-05	<0.50	40.0	40.0	41.2	40.2	ug/L	EPA 8260B	9/19/13	103	100	2.64	70.0-130	25
Methyl-t-butyl ether														
	86005-05	<0.50	39.9	39.9	40.5	40.0	ug/L	EPA 8260B	9/19/13	102	100	1.21	70.0-130	25
Naphthalene														
	86005-05	<0.50	40.0	40.0	39.7	39.0	ug/L	EPA 8260B	9/19/13	99.2	97.5	1.75	70.0-130	25
P + M Xylene														
	86005-05	<0.50	40.0	40.0	42.4	41.4	ug/L	EPA 8260B	9/19/13	106	104	2.31	70.0-130	25
Toluene														
	86005-05	<0.50	40.0	40.0	40.4	39.3	ug/L	EPA 8260B	9/19/13	101	98.2	2.66	70.0-130	25
Benzene														
	85990-11	<0.50	40.0	40.0	40.4	39.8	ug/L	EPA 8260B	9/18/13	101	99.5	1.49	70.0-130	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 01/02/2014

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Ethylbenzene														
	85990-11	<0.50	40.0	40.0	42.2	41.2	ug/L	EPA 8260B	9/18/13	106	103	2.54	70.0-130	25
Methyl-t-butyl ether														
	85990-11	<0.50	39.9	39.9	35.7	37.0	ug/L	EPA 8260B	9/18/13	89.4	92.9	3.78	70.0-130	25
Naphthalene														
	85990-11	<0.50	40.0	40.0	40.1	40.8	ug/L	EPA 8260B	9/18/13	100	102	1.70	70.0-130	25
P + M Xylene														
	85990-11	<0.50	40.0	40.0	41.9	40.9	ug/L	EPA 8260B	9/18/13	105	102	2.46	70.0-130	25
Toluene														
	85990-11	<0.50	40.0	40.0	40.4	39.4	ug/L	EPA 8260B	9/18/13	101	98.5	2.53	70.0-130	25
Benzene														
	86001-02	<0.50	40.0	40.0	40.5	38.5	ug/L	EPA 8260B	9/19/13	101	96.2	5.16	70.0-130	25
Ethylbenzene														
	86001-02	<0.50	40.0	40.0	42.6	40.0	ug/L	EPA 8260B	9/19/13	106	100	6.32	70.0-130	25
Methyl-t-butyl ether														
	86001-02	<0.50	39.9	39.9	38.0	37.7	ug/L	EPA 8260B	9/19/13	95.2	94.6	0.563	70.0-130	25
Naphthalene														
	86001-02	<0.50	40.0	40.0	41.9	41.0	ug/L	EPA 8260B	9/19/13	105	102	2.23	70.0-130	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
P + M Xylene														
	86001-02	<0.50	40.0	40.0	40.9	38.8	ug/L	EPA 8260B	9/19/13	102	97.0	5.39	70.0-130	25
Toluene														
	86001-02	<0.50	40.0	40.0	41.0	39.0	ug/L	EPA 8260B	9/19/13	102	97.6	4.89	70.0-130	25

QC Report : Laboratory Control Sample (LCS)

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	39.8	ug/L	EPA 8260B	9/18/13	98.7	70.0-130
Ethylbenzene	39.8	ug/L	EPA 8260B	9/18/13	104	70.0-130
Methyl-t-butyl ether	39.7	ug/L	EPA 8260B	9/18/13	94.8	70.0-130
Naphthalene	39.8	ug/L	EPA 8260B	9/18/13	104	70.0-130
P + M Xylene	39.8	ug/L	EPA 8260B	9/18/13	103	70.0-130
TPH as Gasoline	494	ug/L	EPA 8260B	9/18/13	100	70.0-130
Toluene	39.8	ug/L	EPA 8260B	9/18/13	106	70.0-130
Benzene	40.1	ug/L	EPA 8260B	9/18/13	105	70.0-130
Ethylbenzene	40.1	ug/L	EPA 8260B	9/18/13	108	70.0-130
Methyl-t-butyl ether	40.0	ug/L	EPA 8260B	9/18/13	99.1	70.0-130
Naphthalene	40.1	ug/L	EPA 8260B	9/18/13	107	70.0-130
P + M Xylene	40.1	ug/L	EPA 8260B	9/18/13	105	70.0-130
TPH as Gasoline	492	ug/L	EPA 8260B	9/18/13	102	70.0-130
Toluene	40.1	ug/L	EPA 8260B	9/18/13	104	70.0-130
Benzene	40.1	ug/L	EPA 8260B	9/18/13	95.5	70.0-130
Ethylbenzene	40.1	ug/L	EPA 8260B	9/18/13	98.9	70.0-130
Methyl-t-butyl ether	40.0	ug/L	EPA 8260B	9/18/13	97.1	70.0-130
Naphthalene	40.1	ug/L	EPA 8260B	9/18/13	96.8	70.0-130
P + M Xylene	40.1	ug/L	EPA 8260B	9/18/13	102	70.0-130
TPH as Gasoline	493	ug/L	EPA 8260B	9/18/13	97.5	70.0-130

QC Report : Laboratory Control Sample (LCS)

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Toluene	40.1	ug/L	EPA 8260B	9/18/13	96.5	70.0-130
Benzene	40.2	ug/L	EPA 8260B	9/19/13	100	70.0-130
Ethylbenzene	40.2	ug/L	EPA 8260B	9/19/13	104	70.0-130
Methyl-t-butyl ether	40.1	ug/L	EPA 8260B	9/19/13	100	70.0-130
Naphthalene	40.2	ug/L	EPA 8260B	9/19/13	99.4	70.0-130
P + M Xylene	40.2	ug/L	EPA 8260B	9/19/13	107	70.0-130
TPH as Gasoline	493	ug/L	EPA 8260B	9/19/13	103	70.0-130
Toluene	40.2	ug/L	EPA 8260B	9/19/13	102	70.0-130
Benzene	40.0	ug/L	EPA 8260B	9/18/13	102	70.0-130
Ethylbenzene	40.0	ug/L	EPA 8260B	9/18/13	107	70.0-130
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	9/18/13	92.7	70.0-130
Naphthalene	40.0	ug/L	EPA 8260B	9/18/13	98.4	70.0-130
P + M Xylene	40.0	ug/L	EPA 8260B	9/18/13	105	70.0-130
TPH as Gasoline	494	ug/L	EPA 8260B	9/18/13	97.7	70.0-130
Toluene	40.0	ug/L	EPA 8260B	9/18/13	102	70.0-130
Benzene	39.8	ug/L	EPA 8260B	9/19/13	99.6	70.0-130
Ethylbenzene	39.8	ug/L	EPA 8260B	9/19/13	104	70.0-130
Methyl-t-butyl ether	39.7	ug/L	EPA 8260B	9/19/13	91.4	70.0-130
Naphthalene	39.8	ug/L	EPA 8260B	9/19/13	102	70.0-130

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Laboratory Control Sample (LCS)

Project Name : **Rolls-Royce Engine Test Facility**

Project Number : **25-948218.1**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
P + M Xylene	39.8	ug/L	EPA 8260B	9/19/13	100	70.0-130
TPH as Gasoline	495	ug/L	EPA 8260B	9/19/13	99.2	70.0-130
Toluene	39.8	ug/L	EPA 8260B	9/19/13	101	70.0-130

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

85990

Global ID #: T06019775776

☐ Yes
☐ No

KIFF Analytical LLC

Chain-of-Custody-Record

Direct Bill To:
Douglas Lee
Gettler-Ryan Inc.
6747 Sierra Court
Suite J
Dublin, CA 94568

Facility: Rolls-Royce Engine Test Facility
Facility Address: 6701 Old Earhart Road, Oakland, CA
Consultant Project #: 25-948218.1
Consultant Name: GETTLER-RYAN INC.
Address: 6747 Sierra Court Suite J, Dublin, CA 94568
Project Contact: (Name) Douglas Lee
(Phone) 925-551-7444 x123 (e-mail) dlee@grinc.com

(Name) Douglas Lee
(Phone) 925-551-7444 x123
Laboratory Name: Kiff Analytical
Laboratory Service Order:
Laboratory Service Code:
Samples Collected by: (Name) Jim Heran
Signature:

State Method: ☑ CA ☐ OR ☐ WA ☐ NW Series ☐ CO ☐ UT ☐ ID

Sample I.D.	Number of Containers	Matrix S= Soil A=Air W=Water C=Charcoal	DATE/SAMPLE COLLECTION TIME	TPH-Jet A Fuel (8015) (HCL)	TPH-MO (8015) (HCL)	TPH-DRO with Silica Gel Cleanup (8015) (HCL)	TPH-GRO/BTEX/MTBE/ Naphthalene (8260) (HCL)	TPH-Jet A Fuel (8015) (NP)	TPH-MO (8015) (NP)	TPH-DRO with Silica Gel Cleanup (8015) (NP)	TPH-GRO/BTEX/MTBE/ Naphthalene (8260) (NP)	Remarks / Lab Sample No.
QA	2	W	9/16/13 —	X	X	X	X					EDF NEEDED 1.52
MW-1	7	W	1245									01
MW-2			1100									02
MW-3			1145									03
MW-4			1220									04
MW-5			1210									05
MW-6			1140									06
MW-7			1300									07
MW-8			0945									08
MW-9			1015									09
MW-10			1135									10
MW-11			0940									11
MW-12			1220									12
MW-13			1315									13

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Iced (Y/N)
	Gettler-Ryan	9/16/13 1600	GETTLER-RYAN FRIDGE	09-17-13 0700		
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Iced (Y/N)
	G-Ryan	09-17-13 1200				
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	Iced (Y/N)
				Kiff Analytical	091713 1200	

Turn Around Time (Circle Choice)

24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

85990

Global ID #: T06019775776

☐ Yes
☐ No

KIFF Analytical LLC

Chain-of-Custody-Record

Direct Bill To: *Douglas Lee* *Gettler-Ryan Inc.* *6747 Sierra Court* *Suite J* *Dublin, CA 94568*	Facility: Rolls-Royce Engine Test Facility Facility Address: 6701 Old Earhart Road, Oakland, CA Consultant Project #: 25-948218.1 Consultant Name: GETTLER-RYAN INC. Address: 6747 Sierra Court Suite J, Dublin, CA 94568 Project Contact: (Name) Douglas Lee (Phone) 925-551-7444 x123 (e-mail) dlee@grinc.com
	(Name) Douglas Lee (Phone) 925-551-7444 x123 Laboratory Name: Kiff Analytical Laboratory Service Order: Laboratory Service Code: Samples Collected by: (Name) Jim Heaps Signature:

State Method: ☑ CA ☐ OR ☐ WA ☐ NW Series ☐ CO ☐ UT ☐ ID

Sample I.D.	Number of Containers	Matrix S=Soil A=Air W=Water C=Charcoal	DATE/SAMPLE COLLECTION TIME	TPH-Jet A Fuel (8015) (HCL)	TPH-MO (8015) (HCL)	TPH-DRO with Silica Gel Cleanup (8015) (HCL)	TPH-GRO/BTEX/MTBE/ Naphthalene (8260) (HCL)	TPH-Jet A Fuel (8015) (NP)	TPH-MO (8015) (NP)	TPH-DRO with Silica Gel Cleanup (8015) (NP)	TPH-GRO/BTEX/MTBE/ Naphthalene (8260) (NP)	Remarks: EDF NEEDED 2 of 2 — Lab Sample No.
MW-14	7	W	9/16/13 1110	X	X	X	X	X	X			85
MW-15			1035									86
MW-17			1000									87
MW-18			1350									88
NPORDMW-3			1105									89
NPORDMW-4			1025									90

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Iced (Y/N)
	Gettler-Ryan	9/16/13 1600	Gettler-Ryan Fridge	G Rinc	09-17-13 0700	
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Iced (Y/N)
	G-Rinc	09-17-13 1200				
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	Iced (Y/N)
					091713 1200	

Turn Around Time (Circle Choice)

24 Hrs.
48 Hrs.
5 Days
10 Days
(As Contracted)

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

SRG #: 85990

Sample Receipt	**Initials/Date:** Kg 091713	**Storage Time:** 1458	**Sample Login**	**Initials/Date:** TJB 091713	
TAT: ☑ Standard	☐ Rush	☐ Split	☐ None	**Method of Receipt:** ☑ Courier	☐ Over-the-counter ☐ Shipped
Temp °C -0.8 ☐ N/A	Therm ID IR-1	Time 1425	Coolant present ☑ Yes	☐ No ☐ Water	☐ Temp Excursion
For Shipments Only:	Cooler Receipt Initials/Date/Time:		Custody Seals ☐ N/A	☐ Intact	☐ Broken

Chain-of-Custody:	**Yes**	**No**
Is COC present?	✓	
Is COC signed by relinquisher?	✓	
Is COC dated by relinquisher?	✓	
Is the sampler's name on the COC?	✓	
Are there analyses or hold for all samples?	✓	

Documented on	**COC**	**Labels**	**Discrepancies:**
Sample ID	X	X	
Project ID	X	X	
Sample Date	X	X	
Sample Time	X	X	
Does COC match project history?	☐ N/A	☐ Yes	☒ No (-01 analysis)

Samples:	**N/A**	**Yes**	**No**
Are sample custody seals intact?	✓		
Are sample containers intact?		✓	
Is preservation documented?		✓	
In-house Analysis:	**N/A**	**Yes**	**No**
Are preservatives acceptable?		✓	
Are samples within holding time?		✓	
Are sample container types correct?		✓	
Is there adequate sample volume?		✓	

Comments: There was no actual person that received the samples since the samples were placed in the client's refrigerator according to the received by section of the COC. kg 091713 1200

Possible insufficient samples for sample -01. kg 091713 1200

Bubbles are present in samples -06 (all VOAs), -12 (VOA 7), -14 (4-7). TJB 091713

Receipt Details:

Matrix	Container Type	# of Containers
WA	VOA	135

CS Required: ☒

Proceed With Analysis: ☑ YES ☐ NO Init/Date: SLF 091813

Client Communication: