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14 June 2013

Mr. Norm Hepner, P.E.
Washington State Department of Ecology
Toxics Cleanup Program – Central Region Office
15 West Yakima Avenue, Suite 200
Yakima, Washington 98902-3401

Subject: Quarterly Groundwater Event - March 2013
BNSF Railway Company (Ecology Agreed Order DE01TCPCR-3168)
Glacier Park East Site, Leavenworth, Washington
K/J 1396107*00

Dear Mr. Hepner:

This Quarterly Groundwater Event letter report (report) presents the findings of the March 2013 groundwater event performed at the Glacier Park East site (Site) on 18 March 2013. Data collected during groundwater monitoring/sampling activities since October 2001 are summarized in the attached tables. The Site is located at the northeastern corner of Chumstick Highway (aka Highway 209) and Front Street/U.S. Highway 2 in Leavenworth, Chelan County, Washington.

The work documented in this report was conducted on behalf of BNSF Railway Company (BNSF) and Chevron Products Company (Chevron) in general accordance with the *Sampling and Analysis Plan, Remedial Action, Glacier Park East Site, Leavenworth, Washington*, dated 9 May 2001. Environmental investigations and remedial cleanup action have been conducted under Washington State Department of Ecology (Ecology) Agreed Order DE01TCPCR-3168, dated 25 September 2001, between Ecology, BNSF, and Chevron.

March 2013 Groundwater Monitoring/Sampling Activities

The following groundwater monitoring and sampling activities were completed for the March 2013 quarterly groundwater event.

- Measured depth-to-water and assessed the potential presence of liquid-phase hydrocarbons (LPHs) at monitoring wells MW-1 through MW-5.
- Conducted limited well development/purging using U.S. Environmental Protection Agency (EPA)-approved low-flow technique via a submersible bladder pump at monitoring wells MW-2, MW-3, and MW-4.
- Recorded water quality field parameters (pH, conductivity, temperature, turbidity, dissolved oxygen, and oxidation reduction potential) during purging activities. Samples were collected after field parameters stabilized (refer to Attachment A).

- Collected representative groundwater samples from monitoring wells MW-2, MW-3, and MW-4 and submitted to ESC Lab Sciences (ESC) of Mount Juliet, Tennessee, for analysis. The containers were labeled and placed in a chilled ice chest and transported to ESC following standard chain-of-custody procedures.

- The samples were submitted for the following constituents of concern:
  - Gasoline-range total petroleum hydrocarbon (TPH) by Northwest Method NWTPH-Gx
  - Diesel- and heavy oil-range TPH by Northwest Method NWTPH-Dx with silica gel cleanup
  - Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B.

  Laboratory analytical results are presented in Table 1 and the ESC laboratory analytical report is provided in Attachment B.

- Groundwater samples have been collected and submitted for laboratory analyses of selected geochemical parameters that are potential indicators of natural attenuation processes since 2012. The parameters included the following:
  - Nitrate/nitrite by EPA Method 353.2
  - Ammonia by SM4500-NH3 D Method
  - Sulfate by EPA Method 300.0
  - Dissolved iron (ferrous iron) by SM3500-Fe B#4
  - Methane by RSK175 Method
  - Alkalinity by SM 2320B
  - Manganese by EPA Method 6010.

  Laboratory analytical results of geochemical parameters are summarized in Table 2. The ESC analytical report is provided in Attachment B.

- Compared analytical results for petroleum-related analytes to Ecology Model Toxics Control Act (MTCA) Method A groundwater cleanup levels.

- Evaluated results of geochemical parameters listed above to assess data trends that may suggest the occurrence of natural biodegradation at the Site.

- Completed groundwater potentiometric maps based on groundwater elevations measured during the March 2013 sampling event (refer to Figure 1 and Table 3).

Monitoring Results

Groundwater Elevation Data and Groundwater Flow Direction Evaluation

Groundwater elevation data for the March 2013 event, as well as previous monitoring events, are summarized in Table 3. The depth to groundwater for this event ranged from 59.31 feet (well MW-1) to 72.09 feet (well MW-5) below ground surface. The equivalent groundwater elevation (based on professionally surveyed benchmarks and data points in August 2010) ranged from 1,086 feet (well MW-5) to 1,094 feet (well MW-3) above mean sea level (refer to Table 3).

It should be noted that groundwater elevations measured in well MW-5 have consistently been 4 to 10 feet lower than the remainder of the wells at the Site. Groundwater elevations in the remaining four wells typically have a difference of 1 foot or less. It is possible that well MW-5 is installed in an area with localized perched conditions explaining the anomalous groundwater elevations. Groundwater beneath the Site, based on proximity to the Wenatchee River and general topography, would be expected to flow to the east-southeast, toward the river.

Groundwater elevations measured at monitoring wells MW-1 through MW-4 indicate a generally easterly groundwater flow direction for the March 2013 event (refer to Figure 1). Previous historical evaluations of the direction of groundwater flow for the Site range from east to southeasterly. If the groundwater elevation measurement from well MW-5 is included in the evaluation, the resulting data indicate a northwesterly groundwater flow direction at the Site, away from the Wenatchee River (refer to Figure 2).

Groundwater Analytical Results

Groundwater hydrographs for monitoring wells MW-3 and MW-4, showing the relationship between groundwater elevations and petroleum hydrocarbon concentrations, are shown on Figures 3 and 4, respectively. Laboratory analytical results for the March 2013 quarterly groundwater event are summarized below.

Groundwater Quality

- Constituents of concern were either not detected or were detected at concentrations less than MTCA Method A cleanup levels in groundwater samples collected from well MW-2. Monitoring well MW-2 is located near the east-southeastern perimeter of the Site, downgradient of the former bulk fuel aboveground storage tanks (ASTs).

- Gasoline-range petroleum hydrocarbons were either not detected or were detected at concentrations less than the MTCA Method A cleanup level in groundwater samples collected from the three monitoring wells that were sampled.

- Diesel-range petroleum hydrocarbons were detected at concentrations greater than the MTCA Method A cleanup level (500 micrograms per liter [µg/L) in the groundwater samples collected from wells MW-3 (1,800 µg/L) and MW-4 (1,400 µg/L).

- Heavy-oil-range petroleum hydrocarbons were detected at a concentration greater than the MTCA Method A cleanup level (500 µg/L) in the groundwater sample collected from well MW-3 (1,300 µg/L).

- Benzene was detected at a concentration greater than the MTCA Method A cleanup level (5 µg/L) in the groundwater sample collected from well MW-3 (5.2 µg/L). BTEX was either not detected or was detected at concentrations less than MTCA Method A cleanup levels in the remaining groundwater samples.

Natural Attenuation Monitoring

Selected geochemical parameters, as indicators of natural attenuation processes, have been collected during quarterly groundwater events from June 2012 through March 2013 to assess whether natural attenuation processes are in process at the Site. Collectively, these parameters may indicate appropriate subsurface conditions for natural attenuation, biological activity, and the aquifer capacity to degrade the residual contaminant mass.

- The groundwater analytical results indicate natural attenuation processes have occurred at the Site. However, based on the current limited available data for key geochemical indicator parameters, such as dissolved iron, sulfate, and methane from June 2012 to March 2013, the data do not suggest effective biological degradation of petroleum hydrocarbons. Trends indicating the potential for degradation of petroleum hydrocarbons may not be apparent due to the limited data set.

- Based on the current limited data, recent water quality parameters, such as dissolved oxygen and oxygen reduction potential, do not show a steady decreasing trend, which would potentially indicate and support, that during biodegradation, microbes are directly utilizing dissolved oxygen, nitrate, and sulfate. If steady biodegradation is occurring, it is expected that a decreasing trend in these compounds would be more evident in the data presented in Table 2. The decreasing trend would be indicative of depletion of electron acceptors and biodegradation within the dissolved plume.

- A more apparent trend in increases in the metabolic byproducts of the biodegradation process of petroleum hydrocarbons, such as dissolved manganese, dissolved iron, and methane within the dissolved plume, is also expected. The limited geochemical parameter data presented in Table 2 does not steadily support this trend at this time.

- Although the alkalinity concentrations of the groundwater do appear to increase within the dissolve plume, potentially indicative that biodegradation via natural attenuation is occurring, the limited data presented in Table 2 does not indicate a solid trend.

Data provided by others and presented in this report are assumed to be accurate to the best of Kennedy/Jenks Consultants' knowledge. Do not hesitate to contact the undersigned at (253) 835-6400 should you have questions regarding the information contained in this report.

Very truly yours,

KENNEDY/JENKS CONSULTANTS

Yen-Vy Van, L.Hg
Project Manager – Hydrogeologist

Terry Parks, L.Hg.
Senior Project Manager

Attachments:
Table 1 – Summary of Groundwater Analytical Results
Table 2 – Water Quality Indicator Parameters and Geochemical Parameters
Table 2 – Summary of Groundwater Elevation Data
Figure 1 – Groundwater Potentiometric Map – March 2012 (without MW-5)
Figure 2 – Groundwater Potentiometric Map – March 2012 (with MW-5)
Figure 3 – Groundwater/TPH Hydrographs – MW-3
Figure 4 – Groundwater/TPH Hydrographs – MW-4
Attachment A – Purge and Sample Field Data
Attachment B – Laboratory Analytical Report

cc: Scott MacDonald, BNSF
Dan Carrier, Chevron Environmental Management Company
Don E. Wyll, SAIC

Tables

TABLE 1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
October 2001 through March 2013
BNSF Glacier Park East, Leavenworth, Washington

Well ID	Date Sampled[a]	Total Petroleum Hydrocarbons (µg/L)[b]			Aromatic Volatile Organic Compounds (µg/L)[c]			
		Gasoline Range	Diesel Range	Heavy Oil Range	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-1	10/4/2001	<50.0[d]	<281 I[e]	<562 I	<0.500	1.79	<0.500	<1.00
	12/20/2001	<50.0	<250 UJ[f]	<500	<0.500	<0.500	<0.500	<1.00
	3/21/2002	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	6/26/2002	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	9/24/2002	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	12/18/2002	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	3/14/2003	<50.0	543	<500	<0.500	<0.500	<0.500	1.24
	5/30/2003	<50.0	710	<500	<0.500	<0.500	<0.500	<1.00
	3/26/2004	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	6/29/2004	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	9/27/2004	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	12/1/2004	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	3/9/2005	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	6/29/2005	<50.0/<50.0[g]	**1,710/1,040**	**1,130/722**	<0.500/<0.500	<0.500/<0.500	<0.500/<0.500	<1.00/<1.00
	9/23/2005	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	12/30/2005	<50.0	<281	<562	<0.500	<0.500	<0.500	<1.00
	3/28/2006	<50.0	<253	<505	<0.500	<0.500	<0.500	<1.00
	6/29/2006	<50.0	<253	<505	<0.500	<0.500	<0.500	<1.00
	9/5/2006	<80.0	<248	<495	<0.500	<0.500	<0.500	<1.00
	12/11/2006	<50.0[h]	<250	<500	<0.500[h]	<0.500[h]	<0.500[h]	<1.00[h]
	3/30/2007	<50.0	<248	<495	<0.500	<0.500	<0.500	<1.00
MW-2	10/4/2001	<50	Not analyzed	Not analyzed	<0.500	<0.500	<0.500	<1.00
	12/20/2001	102	<250 UJ	<500	0.52	<0.500	<0.500	<1.00
	3/21/2002	<50	<250	<500	<0.50	<0.500	<0.500	<1.00
	6/26/2002	82	<250	<500	<0.50	<0.500	<0.500	1.73
	9/24/2002	125	<250	<500	<0.50	<0.500	0.815	1.06 I
	12/18/2002	Not Sampled[i]	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled
	3/14/2003	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled
	5/30/2003	165	499	<500	1.18	<0.500	<0.500	<1.00
	3/26/2004	99.1	<250	<500	<0.500	<0.600	<0.500	1.30
	6/29/2004	71.2	<250	<500	<0.500	<0.500	<0.500	<1.00
	9/27/2004	96.9	264	<500	<0.500	<0.500	<0.500	<1.00
	12/1/2004	67.8	<250	<500	<0.500	<0.500	<0.500	<1.00
	3/9/2005	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	6/29/2005	55.6	<250	<500	<0.500	<0.500	<0.500	<1.00
	9/23/2005	54.6	<250	<500	<0.500	<0.500	<0.500	<1.00
	12/30/2005	84.6	<248	<495	<0.500	<0.500	0.763	2.74 I
	3/28/2006	180	<253	<505	0.558	<0.500	0.993	1.38
	6/29/2006	154	<250	<500	0.801	<0.500	<0.500	<1.00
	9/5/2006	98.2	<278	<556	0.932	<0.500	0.79	<1.00
	12/11/2006	71[h]	<250	<500	<0.500[h]	<0.500[h]	<0.500[h]	<1.00[h]
	3/30/2007	258	<245	<490	2.66	<0.500	1.11	2.12
	9/6/2007	341	<253	<505	5.28	<0.500	3.67	3.23
	4/29/2008	318	<250	<500	3.22	<0.500	0.968	1.28
	10/1/2008	563	<250	<500	2.97	0.608	3.93	2.88
	4/30/2009	154	<245	<490	0.604	<0.500	<0.500	1.10
	10/12/2009	300	180	470	1.0 H[j]	<1.0 H	<1.0 H	<1.0 H
	4/29/2010	160	<120	300	<0.50	<0.50	<0.50	1.8
	10/12/2010	190	220	<250	0.76	<0.50	<0.50	<1.0
	4/28/2011	97	<120	<240	<1.00	<1.00	<1.00	<1.00
	10/13/2011	590	140	<260	4.6	<1.00	6.4	2.7
	3/9/2012	580	75.2	<450	<1.00	<1.00	<1.00	<3.00
	6/20/2012	118	<76	<380	1.1	<1.00	<1.00	<3.00
	9/20/2012	74.7	<76	<380	<1.00	<1.00	<1.00	<3.00
	12/11/2012	<100	200	290	<1.00	<1.00	<1.00	<3.00
	3/18/2013	<100	240	<250	<0.50	<5.0	<0.50	<1.5

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October 2001 through March 2013
BNSF Glacier Park East, Leavenworth, Washington

Well ID	Date Sampled[a]	Total Petroleum Hydrocarbons (µg/L)[b]			Aromatic Volatile Organic Compounds (µg/L)[c]			
		Gasoline Range	Diesel Range	Heavy Oil Range	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-3	10/5/2001	**1,280 I**	**1,730**	<500	**28.1 I**	11.2 I	51.6 I	4.52 I
	12/20/2001	**977 I/950 I**	<250 UJ/<250 UJ	<500 UJ/<500 UJ	**19.2 I/19.3 I**	2.40 I/2.42 I	7.62 I/7.60 I	3.55 I/3.55 I
	3/21/2002	**993 I/963 I**	255/428	<500/<500	**14.9 I/16.7 I**	2.95 I/1.23 I	4.58 I/2.66 I	7.35 I/1.84 I
	6/26/2002	**823/762**	<250/<250	<500/<500	**16.6/15.4**	1.02 I/1.03 I	2.46 I/2.48 I	3.60 I/3.56 I
	9/24/2002	**1,020 I/1,030 I**	<250 UJ/<250 UJ	<500 UJ/<500 UJ	**16.2 I/16.3 I**	4.77 I/4.73 I	29.4 I/29.6 I	8.74 I/8.69 I
	12/18/2002	**1,300/1,250**	<250/<250	<500/<500	**20.7/21.1**	7.42/7.43	78.9/79.4	10.4/10.2
	3/14/2003	**919 I/849 I**	**2,330/2,200**	<500/<500	**12 I/11.4 I**	2.58 I/2.21 I	27.7 I/25.5 I	2.5 I/2.32 I
	5/30/2003	**959/845**	**2,820/3,610**	<500/580	**22.7/14.4**	6.01/3.88	42.8/27.0	7.12/3.46
	3/26/2004	**1,060/1090**	443/528	<500/<500	**19.7/19.1**	7.44/7.14	24.0/23.0	4.32/3.62
	6/29/2004	**1,260/1,050**	305/<250	<500/<500	**25.6/21.7**	8.11/6.82	20.7/17.4	2.99/2.61
	9/27/2004	**1,340**	**535**	<500	**19.4**	9.41	31.8	7.29
	12/1/2004	**1,450**	259	<500	**20.9**	8.06	27	4.82
	3/9/2005	698/639	**602/334**	<500/<500	**11.7/9.33**	2.52/1.98	4.84/3.84	1.28/<1.00
	6/29/2005	**909**	324	<500/<501	**11.0**	1.67	4.72	2.27
	9/23/2005	**718**	<250	<500	**7.38**	0.994	1.96	2.25
	12/30/2005	377	<248	<495	**5.01**	0.799	0.890	1.04
	3/28/2006	603	<250	<500	4.28	<0.500	0.918	1.99
	6/29/2006	**998**	<278	<500	**12.7**	1.61	10.5	3.03
	9/5/2006	655	366	<556	**20.1**	8.83	74.5	33.5
	12/11/2006	**959**	369	<490	4.66	<0.500	<0.500	2.06
	3/30/2007	**2,510**	341	<485	**32.3**	17.7	89.9	56.8
	9/6/2007	**2,080**	<250	<500	**30.7**	38.8	137	106
	4/29/2008	**1,550 UJ/2,000 UJ**	**419 I/<250**	<476/<500	**12.8/16.7**	16.2/19.9	48.4/54.6	29.9/31.7
	10/1/2008	**2,250 UJ/2,390 UJ**	<248/<240	<495/<481	**17.4/18.3**	24.2/25.4	117/118	84.2/88.9
	4/30/2009	**1,050/1,040**	<248/<238	**532/<476**	**9.39/9.36**	7.33/7.30	26.5/26.2	25.0/24.6
	10/12/2009	**4,600/4,700**	**980/910**	**720/570**	**27 H/27 H**	41 H/43 H	180 H/190 H	40 H/42 H
	4/29/2010	**1,100/890**	690/480	<250/<250	**9.9/9.0**	7.5/6.4	16/14	13/12
	10/12/2010	**1,300/1,300**	**1,600/2,700**	<240/370	**11/10**	18/18	69/70	68/69
	4/28/2011	65/74	120/150	<250/<250	1.00/1.00	<1.00/<1.00	<1.00/<1.00	<1.00/<1.00
	10/13/2011	<50/57	<130/<120	<260/<250	<1.00/<1.00	<1.00/<1.00	<1.00/<1.00	<1.00/<1.00
	3/9/2012	**1,080/985**	**3,800/4,100**	**1,400/1,500**	**10/9.1**	9.6/8.7	9.7/8.9	18.6/17.0
	6/20/2012	50.6/62.1	120/<82	<380/<410	1.4/1.6	<1.00/<1.00	<1.00/<1.00	<3.00/<3.00
	9/20/2012	<50/<50	93/<79	<420/<400	<1.00/<1.00	<1.00/<1.00	<1.00/<1.00	<3.00/<3.00
	12/11/2012	**1,460/708**	**1,800/1,600**	**1,300/1,300**	7.3/3.7	39.9/22.9	14.9/7.2	71.5/35.1
	3/18/2013	600/610	**1,800/1,100**	**1,300**/250	**5.2/5.4**	7.8/8.1	2.7/2.8	24/25
MW-4	10/5/2001	149/140	**1,940/2,180**	<561/<561	<0.500/<0.500	2.17/2.08	<0.500/<0.500	<1.00/<1.00
	12/20/2001	50.7	<250 UJ	<500 UJ	<0.500	<0.500	<0.500	<1.00
	3/21/2002	63.4	393	<500	<0.500	<0.500	<0.500	<1.00
	6/26/2002	244	<250	<500	2.73	<0.500	<0.500	1.06
	9/24/2002	253	<250	<500	3.31	<0.500	<0.500	1.01 I
	12/18/2002	236	<250	<500	1.73	<0.500	<0.500	<1.00
	3/14/2003	254	**2,830**	<500	0.847	<0.500	<0.500	<1.00
	5/30/2003	199	**2,980**	<500	0.602	<0.500	<0.500	<1.00
	3/26/2004	204	314	<500	<0.500	<0.500	<0.500	<1.00
	6/29/2004	204	469	<500	<0.500	<0.500	<0.500	<1.00
	9/27/2004	192	408	<500	<0.500	<0.500	<0.500	<1.00
	12/1/2004	196	<250	<500	<0.500	<0.500	<0.500	<1.00
	3/9/2005	153	378	<500	<0.500	<0.500	<0.500	<1.00
	6/29/2005	183	477	<500	<0.500	<0.500	<0.500	<1.00
	9/23/2005	180	<250	<500	<0.500	<0.500	<0.500	<1.00
	12/30/2005	137	<248	<495	<0.500	<0.500	<0.500	<1.00
	3/28/2006	170	<243	<485	<0.500	<0.500	<0.500	<1.00
	6/29/2006	132	<250	<500	<0.500	<0.500	<0.500	<1.00
	9/5/2006	<80.0	<263	<526	<0.500	<0.500	<0.500	<1.00
	12/11/2006	<50.0[h]	<245	<490	<0.500[h]	<0.500[h]	<0.500[h]	<1.00[h]
	3/30/2007	<50	<253	<505	<0.500	<0.500	<0.500	<1.00
	9/6/2007	267	<250	<500	0.65	<0.500	<0.500	<3.00
	4/29/2008	98.7	<248	<495	<0.500	<0.500	<0.500	<1.00
	10/1/2008	52.2	<248	<495	<0.500	<0.500	<0.500	<1.00
	4/30/2009	76.4	<245	<490	<0.500	<0.500	<0.500	<1.00
	10/12/2009	68	<120	<250	<1.0 H	<1.0 H	<1.0 H	<1.0 H
	4/29/2010	75	<120	<240	<0.500	<0.500	<0.500	<1.00
	10/12/2010	65	**580**	<240	<0.500	<0.500	<0.500	<1.00
	4/28/2011	<50.0	<120	<240	<1.00	<1.00	<1.00	<1.00
	10/13/2011	140	350	<250	<1.00	<1.00	<1.00	<1.00
	3/9/2012	<50.0	**2,800**	**1400**	<1.00	<1.00	<1.00	<3.00
	6/20/2012	<50	<79	<400	<1.00	<1.00	<1.00	<3.00
	9/20/2012	<50	<79	<400	<1.00	<1.00	<1.00	<3.00
	12/11/2012	<100	**2,100**	**1,800**	<1.00	<1.00	<1.00	<3.00
	3/18/2013	<100	**1,400**	400	<0.50	<5.0	<0.50	<1.5

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Well ID	Date Sampled[a]	Total Petroleum Hydrocarbons (µg/L)[b]			Aromatic Volatile Organic Compounds (µg/L)[c]			
		Gasoline Range	Diesel Range	Heavy Oil Range	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-5	10/5/2001	<50.0	Not analyzed	Not analyzed	<0.500	<0.500	<0.500	<1.00
	12/20/2001	<50.0	<250 UJ	<500	<0.500	<0.500	<0.500	<1.00
	3/21/2002	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	6/26/2002	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	9/24/2002	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	12/18/2002	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	3/14/2003	<50.0	<250	<500	<0.500	<0.500	<0.500	1.24
	5/30/2003	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	3/26/2004	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	6/29/2004	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	9/27/2004	<50.0/<50.0	<250/<250	<500/<500	<0.500/<0.500	<0.500/<0.500	<0.500/<0.500	<1.00/<1.00
	12/1/2004	<50.0/<50.0	<250/<250	<500/<500	<0.500/<0.500	<0.500/<0.500	<0.500/<0.500	<1.00/<1.00
	3/9/2005	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	6/29/2005	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00
	9/23/2005	<50.0/<50.0	<250/<250	<500/<500	<0.500/<0.500	<0.500/<0.500	<0.500/<0.500	<1.00/<1.00
	12/30/2005	<50.0/<50.0	<250/<248	<500/<495	<0.500/<0.500	<0.500/<0.500	<0.500/<0.500	<1.00/<1.00
	3/28/2006	<50.0/<50.0	<243/<250	<485/<500	<0.500/<0.500	<0.500/<0.500	<0.500/0.500	<1.00/<1.00
	6/29/2006	<50.0/<50.0	<250/<263	<500/<526	<0.500/<0.500	<0.500/<0.500	<0.500/0.500	<1.00/<1.00
	9/5/2006	<80.0/<80.0	<278/<253	<556/<505	<0.500/<0.500	<0.500/<0.500	<0.500/0.500	<1.00/<1.00
	12/11/2006	<50.0/<50.0[h]	<250/<248	<500/<495	<0.500/<0.500[h]	<0.500/<0.500[h]	<0.500/0.500[h]	<1.00/<1.00[h]
	3/30/2007	<50.0/<50.0	<245/<245	<490/<490	<0.500/<0.500	<0.500/<0.500	<0.500/0.500	<1.00/<1.00
MTCA Method A Cleanup Levels[k]		800	500	500	5	1,000	700	1,000

Notes:

(a) Analytical data prior to 26 March 2004 generated by GeoEngineers.

(b) Groundwater samples were analyzed for gasoline-range total petroleum hydrocarbons (TPH) using Northwest Method NWTPH-Gx and diesel-/heavy oil-range TPH using NWTPH-Dx/Dx Extended.

(c) Groundwater samples were analyzed for aromatic volatile organic compounds (VOC) by U.S. Environmental Protection Agency (EPA) Method 8021B.

(d) "<" indicates the compound was not detected at a concentration greater than the stated laboratory reporting limit.

(e) "I" indicates the analyte concentration may be artifically elevated because of co-eluting compounds or components.

(f) "UJ" indicates the surrogate recovery for this sample cannot be accurately quantified because of interference from co-eluting compounds and/or the surrogate recovery for the sample was outside established control limits because of a sample matrix effect.

(g) Where two values are displayed, the second value is the analytical result for a field blind duplicate sample.

(h) Samples MW-1, MW-2, MW-4, MW-5, and duplicate sample MW-100 had a pH >2 and were analyzed outside the 7-day hold time for unpreserved VOC samples (per Ecology Method 5035) due to power outage from wind storm.

(i) Well MW-2 was inaccessible, because the well head was elevated in anticipation of cap construction.

(j) "H" indicates the samples were analyzed outside of the analytical holding time due to an analyst oversight.

(k) Washington State Department of Ecology Model Toxics Control Act (MTCA) Method A groundwater cleanup levels (WAC 173-340) dated February 2001.

µg/L = micrograms per liter.

Concentrations above the cleanup level are shown in bold and shaded

TABLE 2

WATER QUALITY INDICATOR PARAMETERS AND GEOCHEMICAL PARAMETERS
BNSF Glacier Park East, Leavenworth, Washington

		Field Monitored Water Quality Parameters						Geochemical Parameters							
Well ID	Date	Temperature (°C)[a][b]	pH[a]	Conductivity (mS/cm)[a][c]	Turbidity (NTU)[d]	Dissolved Oxygen (mg/L)[a][e]	ORP (mV)[a][f][g]	Nitrate/Nitrite (µg/L)[h]	Ammonia (µg/L)[i]	Sulfate (µg/L)[j]	Sulfide (µg/L)[k]	Dissolved Iron (µg/L)[l]	Methane (µg/L)[m]	Alkalinity (µg/L)[n]	Manganese (µg/L)[o]
MW-1	06/20/12	11.20	6.80	0.896	5.24	2.19	51.3	280	<100	7,200	<400	<200	<6.6	--	--
	09/20/12	11.59	6.74	0.869	10.58	2.65	34.78	130	110	12,800	--	<200	<6.6	372,000	905
	12/11/12	10.17	6.77	0.540	9.13	1.39	112.7	150	70	12,800	--	<30	<6.6	378,000	866
	03/18/13	11.20	6.74	0.813	9.56	2.08	36.8	170	<100	11,000	--	<50	--	380,000	480
MW-2	3/9/12	8.09	6.66	0.989	6.18	3.88	2.5	<50 [p]	<100	18,500	<400	<200	13	--	--
MW-3	3/9/12	11.60	6.01	1.167	23.37	0.48	7.3	<50	<100	4,300	<400	<200	10	--	--
	6/20/12	17.02	6.26	0.958	9.43	1.29	25.7	<50	<100	4,900	2,600	<200	<6.6	--	--
	9/20/12	15.85	6.31	0.971	9.52	2.09	26.8	54	140	5,100	--	700	<6.6	661,000	4,190
	12/11/12	10.07	6.93	1.024	6.94	2.34	-7.3	<100	54	15,500	--	<30	<6.6	716,000	6,110
	3/18/13	11.53	6.90	1.030	15.98	2.08	-79.3	<100	<100	<5000	--	240	<10	620,000	5,800
MW-4	3/9/12	8.41	6.56	1.149	8.54	1.76	13.4	<50	<100	18,500	<400	<200	<6.6	--	--
	6/20/12	14.80	6.80	1.110	12.02	0.70	-49.0	53	<100	13,900	1,500	<200	<6.6	--	--
	9/20/12	14.27	6.82	1.118	12.43	1.18	-75.43	<50	<100	9,700	--	<200	<6.6	620,000	7,250
	12/11/12	11.24	6.81	1.024	8.84	3.19	-120.7	<100	57	4,330	--	<30	<6.6	640,000	8,680
	3/18/13	11.50	6.91	1.073	20.54	2.49	-18.4	<100	<100	14,000	--	87	<10	460,000	5,600

Notes:

(a) Measured using a YSI 556 Multiprobe.
(b) °C = degrees Celcius.
(c) mS/cm = millisiemens per centimeter.
(d) NTU = nephalometric turbidity units.
(e) mg/L = milligrams per liter.
(f) mV = millivolts.
(g) ORP = oxidation-reduction potential. ORP was measured using a YSI 566 Multiprobe.
(h) Method: EPA 353.2.
(i) Method: SM 4500-NH3 D.
(j) Method: EPA 300.0.
(k) Method: SM 4500-S-2 F.
(l) Method: SM-3500-Fe B#4.
(m) Method: RSK175.
(n) Method: SM 2320B.
(o) Method: EPA 6010.
(p) "<" indicates the compound was not detected at a concentration greater than the laboratory reporting limit.

µg/L = micrograms per liter.

TABLE 3

SUMMARY OF GROUNDWATER ELEVATION DATA
October 2001 through March 2013
BNSF Glacier Park East, Leavenworth, Washington

Well Designation	Well Elevation (feet msl)[a,b]	Measurement Date	Depth to Water (feet)	Water Level Elevation (feet msl)	Change in Water Elevation (feet)
MW-1	1,149.84	10/5/2001	59.12	1,090.72	
		12/20/2001	59.41	1,090.43	-0.29
		3/21/2002	59.12	1,090.72	0.29
		6/26/2002	57.29	1,092.55	1.83
		9/24/2002	57.70	1,092.14	-0.41
		12/18/2002	62.26	1,087.58	-4.56
	1,153.50	3/14/2003	65.22	1,088.28	0.70
		5/30/2003	60.30	1,093.20	4.92
	1,153.24	3/26/2004	60.44	1,092.80	-0.40
		6/29/2004	56.45	1,096.79	3.99
		9/27/2004	60.50	1,092.74	-4.05
		12/1/2004	60.69	1,092.55	-0.19
		3/9/2005	61.10	1,092.14	-0.41
		6/29/2005	61.11	1,092.13	-0.01
		9/23/2005	61.82	1,091.42	-0.71
		12/30/2005	61.69	1,091.55	0.13
		3/28/2006	61.76	1,091.48	-0.07
		6/29/2006	58.89	1,094.35	2.87
		9/5/2006	59.23	1,094.01	-0.34
		12/11/2006	59.14	1,094.10	0.09
		3/30/2007	57.85	1,095.39	1.29
		9/6/2007	Not measured	Not applicable	
		4/29/2008	59.30	1,093.94	
		10/1/2008	59.22	1,094.02	0.08
		4/30/2009	59.36	1,093.88	-0.14
		10/12/2009	58.94	1,094.30	0.42
		4/29/2010	59.85	1,093.39	-0.91
	1,153.21	8/17/2010	59.10	1,094.11	0.72
		10/12/2010	59.90	1,093.31	-0.80
		4/28/2011	60.02	1,093.38	0.07
		10/13/2011	58.29	1,095.11	1.73
		3/9/2012	59.34	1,093.87	-1.24
		6/20/2012	57.74	1,095.47	1.60
		9/20/2012	56.95	1,096.26	0.79
		12/11/2012	58.39	1,095.01	-1.25
		3/18/2013	59.31	1,093.90	-1.11
MW-2	1,150.95	10/5/2001	64.02	1,086.93	
		12/20/2001	63.24	1,087.71	0.78
		3/21/2002	64.02	1,086.93	-0.78
		6/26/2002	58.14	1,092.81	5.88
		9/24/2002	59.53	1,091.42	-1.39
		12/18/2002	Not measured	Not applicable	
		3/14/2003	Not measured	Not applicable	
		5/30/2003	60.35	1,090.60	
	1,161.19	3/26/2004	69.57	1,091.62	1.02
		6/29/2004	63.98	1,097.21	5.59
		9/27/2004	69.40	1,091.79	-5.42
		12/1/2004	69.98	1,091.21	-0.58
		3/9/2005	70.55	1,090.64	-0.57
		6/29/2005	70.20	1,090.99	0.35
		9/23/2005	72.34	1,088.85	-2.14
		12/30/2005	71.82	1,089.37	0.52
		3/28/2006	72.06	1,089.13	-0.24
		6/29/2006	66.46	1,094.73	5.60
		9/5/2006	68.72	1,092.47	-2.26
		12/11/2006	68.81	1,092.38	-0.09
		3/30/2007	66.48	1,094.71	2.33
		9/6/2007	67.05	1,094.14	-0.57
		4/29/2008	69.11	1,092.08	-2.06
		10/1/2008	68.96	1,092.23	0.15
		4/30/2009	68.23	1,092.96	0.73
		10/12/2009	68.60	1,092.59	-0.37
		4/29/2010	68.96	1,092.23	-0.36
	1,161.12	8/17/2010	68.02	1,093.10	0.87
		10/12/2010	68.91	1,092.21	-0.89
		4/28/2011	68.65	1,092.76	0.55
		10/13/2011	67.05	1,094.07	1.31
		3/9/2012	68.69	1,092.43	-1.64
		6/20/2012	66.03	1,095.09	2.66
		9/20/2012	66.40	1,094.72	-0.37
		12/11/2012	67.81	1,093.60	-1.12
		3/18/2013	68.02	1,093.10	-0.50

TABLE 3

SUMMARY OF GROUNDWATER ELEVATION DATA
October 2001 through March 2013
BNSF Glacier Park East, Leavenworth, Washington

Well Designation	Well Elevation (feet msl)[a,b]	Measurement Date	Depth to Water (feet)	Water Level Elevation (feet msl)	Change in Water Elevation (feet)
MW-3	1,151.20	10/5/2001	60.38	1,090.82	
		12/20/2001	61.06	1,090.14	-0.68
		3/21/2002	60.38	1,090.82	0.68
		6/26/2002	57.72	1,093.48	2.66
		9/24/2002	58.01	1,090.14	-3.34
		12/18/2002	64.56	1,086.64	-3.50
	1,156.35	3/14/2003	66.72	1,089.63	2.99
		5/30/2003	61.95	1,094.40	4.77
	1,156.34	3/26/2004	63.10	1,093.24	-1.16
		6/29/2004	59.22	1,097.12	3.88
		9/27/2004	62.88	1,093.46	-3.66
		12/1/2004	63.99	1,092.35	-1.11
		3/9/2005	63.95	1,092.39	0.04
		6/29/2005	63.90	1,092.44	0.05
		9/23/2005	64.98	1,091.36	-1.08
		12/30/2005	67.80	1,088.54	-2.82
		3/28/2006	65.01	1,091.33	2.79
		6/29/2006	61.27	1,095.07	3.74
		9/5/2006	60.89	1,095.45	0.38
		12/11/2006	61.81	1,094.53	-0.92
		3/30/2007	60.60	1,095.74	1.21
		9/6/2007	58.71	1,097.63	1.89
		4/29/2008	62.10	1,094.24	-3.39
		10/1/2008	61.35	1,094.99	0.75
		4/30/2009	62.12	1,094.22	-0.77
		10/12/2009	61.46	1,094.88	0.66
		4/29/2010	63.01	1,093.33	-1.55
	1,156.29	8/17/2010	61.49	1,094.80	1.47
		10/12/2010	62.66	1,093.63	-1.17
		4/28/2011	62.58	1,093.99	0.36
		10/13/2011	59.96	1,096.61	2.62
		3/9/2012	62.12	1,094.17	-2.44
		6/20/2012	60.43	1,095.86	1.69
		9/20/2012	59.64	1,096.65	0.79
		12/11/2012	61.33	1,095.24	-1.41
		3/18/2013	62.30	1,093.99	-1.25
MW-4	1,155.29	10/5/2001	64.03	1,091.26	
		12/20/2001	64.42	1,090.87	-0.39
		3/21/2002	64.03	1,091.26	0.39
		6/26/2002	61.72	1,093.57	2.31
		9/24/2002	61.26	1,094.03	0.46
		12/18/2002	65.92	1,089.37	-4.66
	1,158.42	3/14/2003	73.22	1,085.20	-4.17
		5/30/2003	63.90	1,094.52	9.32
	1,156.92	3/26/2004	63.70	1,093.22	-1.30
		6/29/2004	60.50	1,096.42	3.20
		9/27/2004	63.79	1,093.13	-3.29
		12/1/2004	64.29	1,092.63	-0.50
		3/9/2005	64.66	1,092.26	-0.37
		6/29/2005	64.72	1,092.20	-0.06
		9/23/2005	65.67	1,091.25	-0.95
		12/30/2005	66.11	1,090.81	-0.44
		3/28/2006	65.86	1,091.06	0.25
		6/29/2006	62.21	1,094.71	3.65
		9/5/2006	61.85	1,095.07	0.36
		12/11/2006	62.50	1,094.42	-0.65
		3/30/2007	61.38	1,095.54	1.12
		9/6/2007	59.75	1,097.17	1.63
		4/29/2008	62.90	1,094.02	-3.15
		10/1/2008	62.24	1,094.68	0.66
		4/30/2009	63.07	1,093.85	-0.83
		10/12/2009	62.33	1,094.59	0.74
		4/29/2010	63.89	1,093.03	-1.56
	1,156.90	8/17/2010	62.43	1,094.47	1.44
		10/12/2010	63.48	1,093.42	-1.05
		4/28/2011	63.63	1,093.27	-0.15
		10/13/2011	60.73	1,096.60	3.33
		3/9/2012	62.92	1,093.98	-2.62
		6/20/2012	61.32	1,095.58	1.60
		9/20/2012	60.48	1,096.42	0.84
		12/11/2012	62.11	1,095.22	-1.20
		3/19/2013	63.15	1,093.75	-1.47

TABLE 3

SUMMARY OF GROUNDWATER ELEVATION DATA
October 2001 through March 2013
BNSF Glacier Park East, Leavenworth, Washington

Well Designation	Well Elevation (feet msl)[a,b]	Measurement Date	Depth to Water (feet)	Water Level Elevation (feet msl)	Change in Water Elevation (feet)
MW-5	1,158.11	10/5/2001	75.57	1,082.54	
		12/20/2001	74.23	1,083.88	1.34
		3/21/2002	75.57	1,082.54	-1.34
		6/26/2002	67.96	1,090.15	7.61
		9/24/2002	73.87	1,084.24	-5.91
		12/18/2002	74.60	1,083.51	-0.73
	1,158.11	3/14/2003	73.09	1,085.02	1.51
		5/30/2003	68.95	1,089.16	4.14
		3/26/2004	72.15	1,085.96	-3.20
		6/29/2004	65.78	1,092.33	6.37
		9/27/2004	73.40	1,084.71	-7.62
		12/1/2004	72.99	1,085.12	0.41
		3/9/2005	73.25	1,084.86	-0.26
		6/29/2005	73.06	1,085.05	0.19
		9/23/2005	75.51	1,082.60	-2.45
		12/30/2005	73.86	1,084.25	1.65
		3/28/2006	73.65	1,084.46	0.21
		6/29/2006	68.18	1,089.93	5.47
		9/5/2006	73.52	1,084.59	-5.34
		12/11/2006	72.48	1,085.63	1.04
		3/30/2007	69.10	1,089.01	3.38
		9/6/2007	Not measured	Not applicable	
		4/29/2008	72.40	1,085.71	
		10/1/2008	73.66	1,084.45	-1.26
		4/30/2009	71.29	1,086.82	2.37
		10/12/2009	73.97	1,084.14	-2.68
		4/29/2010	71.60	1,086.51	2.37
	1,158.09	8/17/2010	72.17	1,085.92	-0.59
		10/12/2010	73.07	1,085.02	-0.90
		4/28/2011	71.56	1,087.05	2.03
		10/13/2011	72.23	1,085.86	-1.19
		3/9/2012	73.08	1,085.01	-0.85
		6/20/2012	67.64	1,090.45	5.44
		9/20/2012	71.23	1,086.86	-3.59
		12/11/2012	73.23	1,085.38	-1.48
		3/18/2013	72.09	1,086.00	0.62

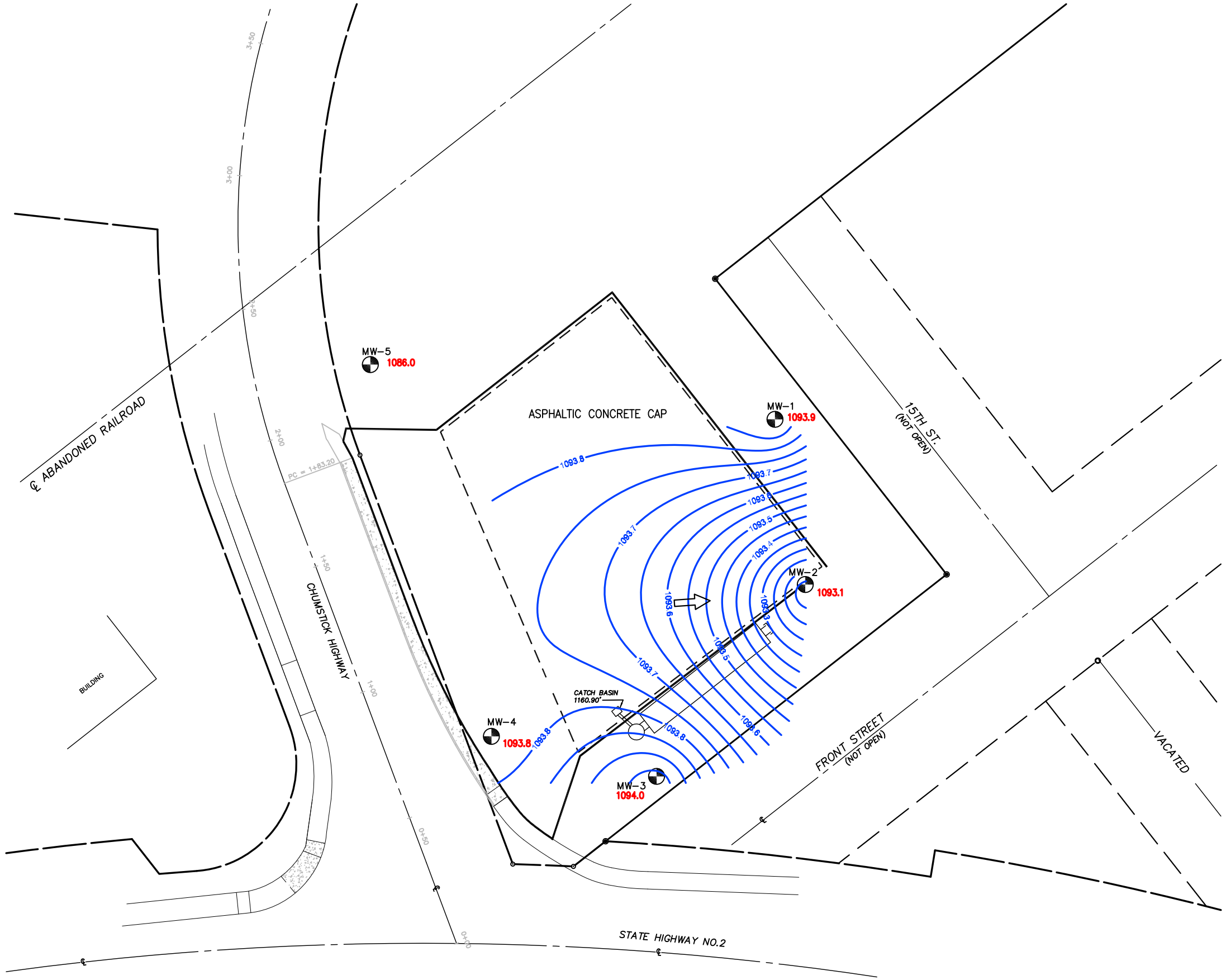
Notes:

(a) All site wells were surveyed following installation in October 2001 and re-surveyed in March 2003 to account for the raising of the wells in anticipation of future cap construction. Wells MW-1 through MW-4 were surveyed in October 2003 after completion of the Corrective Action Plan (CAP).

(b) The site including all monitoring wells were surveyed in August 2010.

msl = mean sea level.

Figures



LEGEND:

MW-1 MONITORING WELL

1093.9 GROUNDWATER ELEVATION

GROUNDWATER FLOW DIRECTION

1093.6 GROUNDWATER CONTOUR AND ELEVATION

NOTES:

1. SURVEY COMPLETED 17 AUGUST 2010. BASEMAP FROM LANDLINE SURVEYORS.
2. GROUNDWATER CONTOURS DRAFTED VIA SURFER.

0 20 40

APPROXIMATE SCALE IN FEET

N

Kennedy/Jenks Consultants

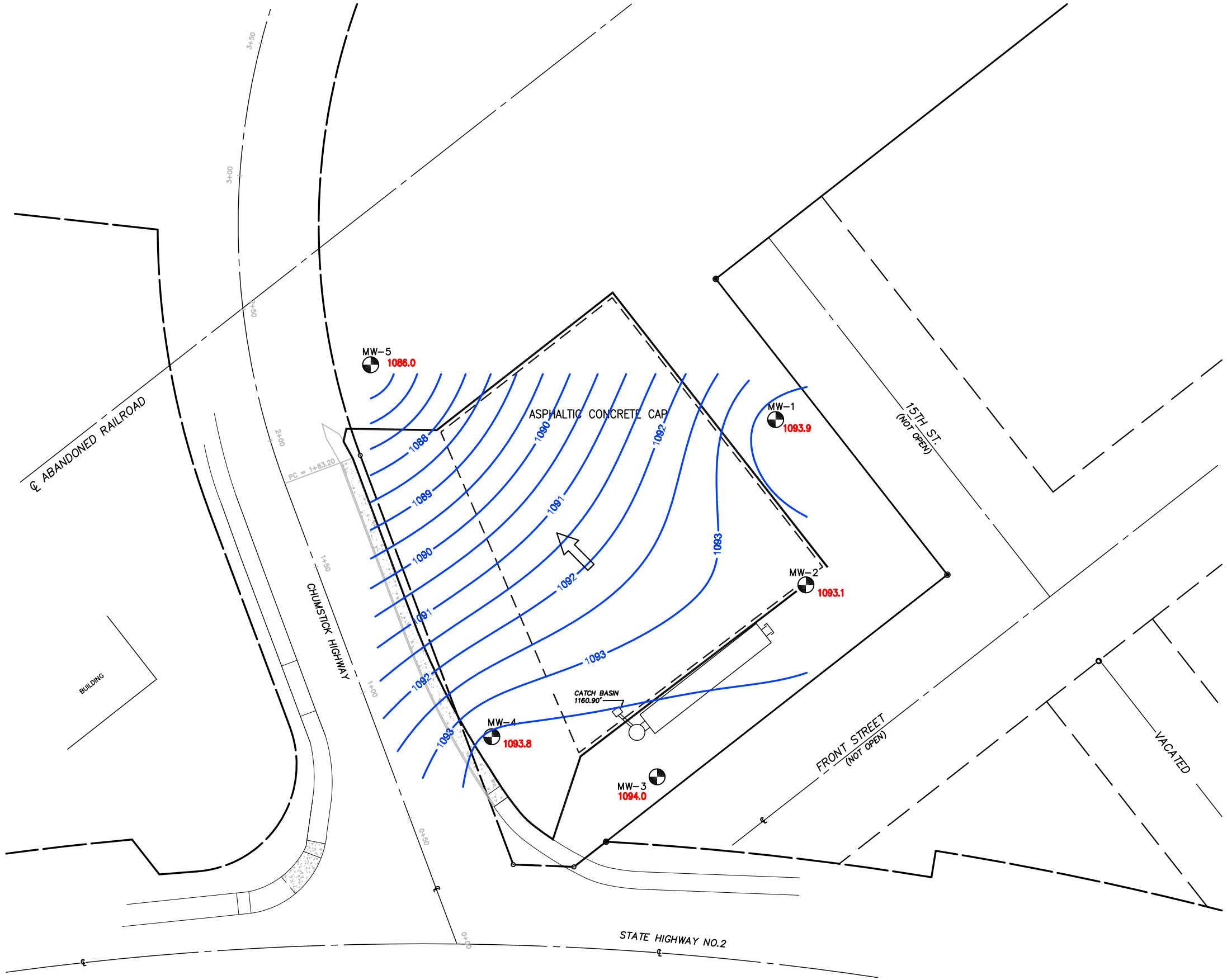
BNSF RAILWAY COMPANY
GLACIER PARK EAST

GROUNDWATER PONTENTIOMETRIC MAP MARCH 2013 (WITHOUT MW-5)

1396107.03\FIG-1_03-18-13_wo_MW-5

4/13

FIGURE 1



LEGEND:

- MW-1 — MONITORING WELL
- 1093.9 — GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION
- 1091 — GROUNDWATER CONTOUR AND ELEVATION

NOTES:

1. SURVEY COMPLETED 17 AUGUST 2010. BASEMAP FROM LANDLINE SURVEYORS.
2. GROUNDWATER CONTOURS DRAFTED VIA SURFER.

0 20 40
APPROXIMATE SCALE IN FEET

N

Kennedy/Jenks Consultants

BNSF RAILWAY COMPANY
GLACIER PARK EAST

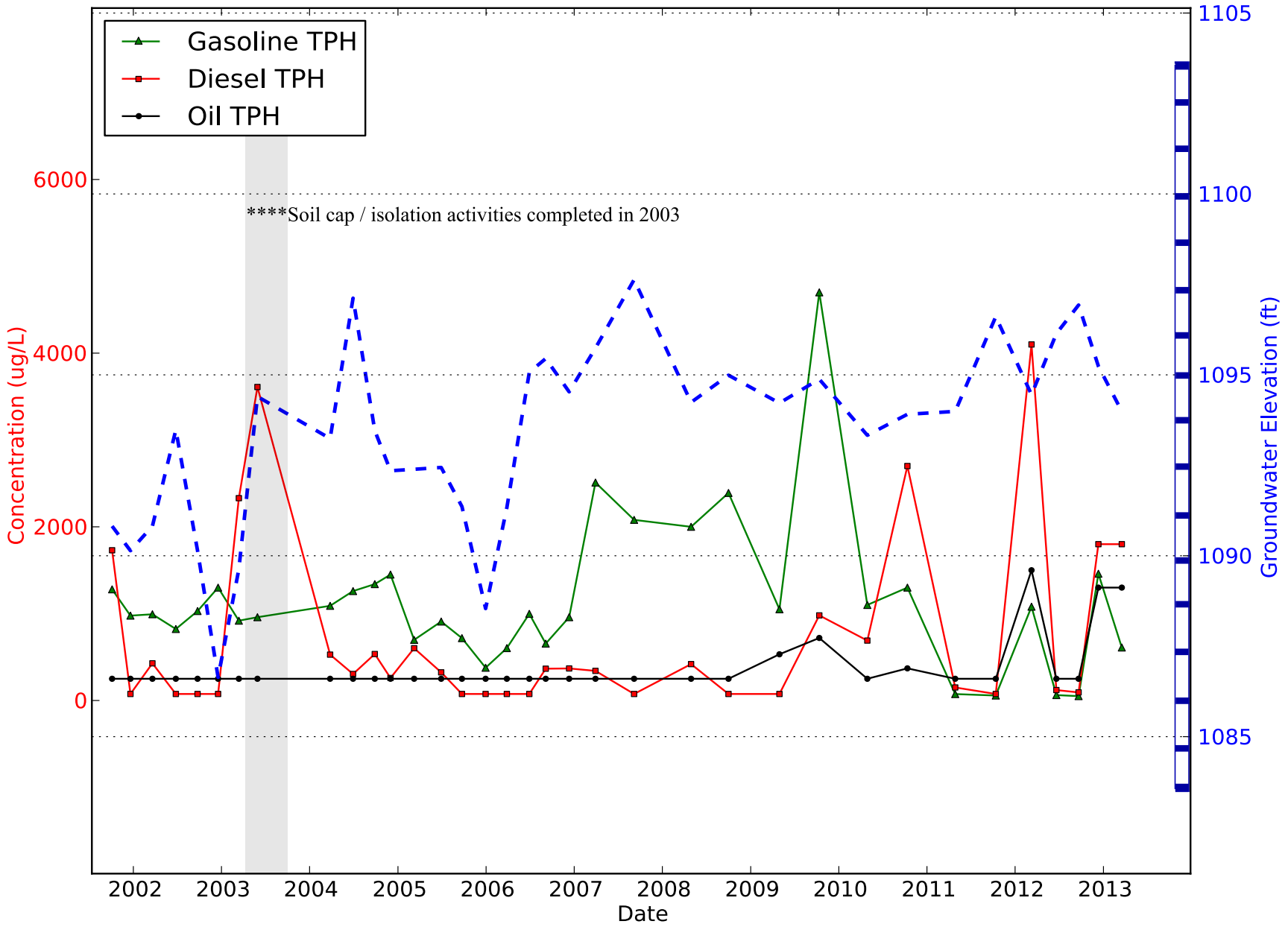
GROUNDWATER PONTENTIOMETRIC MAP MARCH 2013 (WITH MW-5)

1396107.03\FIG-2_03-18-13_w_MW-5

4/13

FIGURE 2

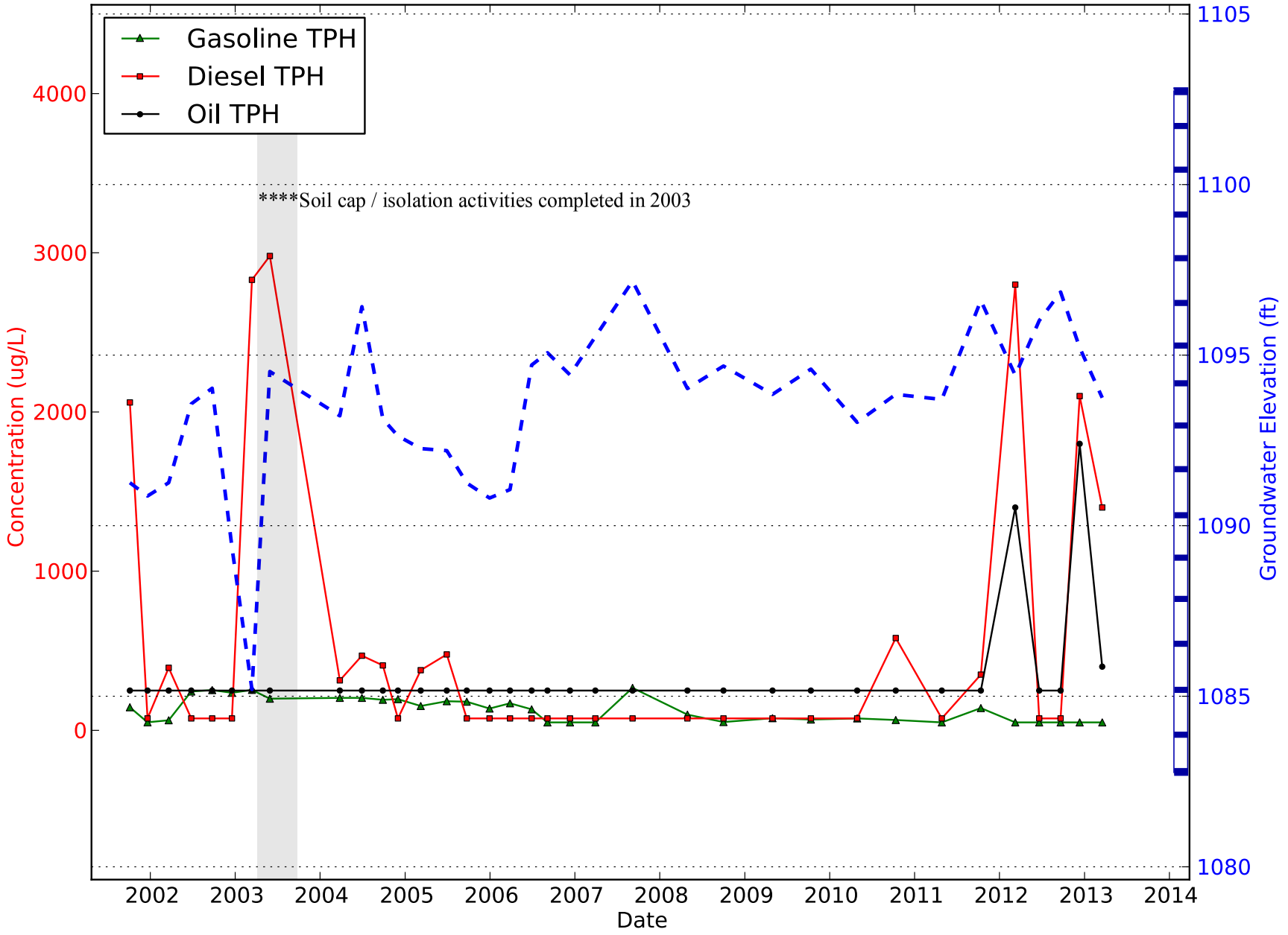
Figure 3 - Groundwater/TPH Hydrographs - MW-3



Notes:

1. Well screen interval from 1104' to 1084' as shown to the right of the plot
2. Figure plots highest recorded TPH analytical result where duplicate samples are recorded.

Figure 4 - Groundwater/TPH Hydrographs - MW-4



Notes:

1. Well screen interval from 1103' to 1083'
   as shown to the right of the plot

Attachment A

Purge and Sample Field Data Forms

Groundwater Purge and Sample Form

Kennedy/Jenks Consultants

Date: ~~12/11/2012~~ 3/18/13
Project Name: BNSF Glacier Park
Project Number: 1096016*02
Sampling Personnel: JPJ
Water Level Meter: Keck
Purging Equipment: Bladder Pump
Sampling Equipment: Bladder Pump
Sampling Time: 1055
Purge Depth (ft): ~ 70 ft
Total Discharge (L): 3.0 L
Water Disposal: Drum ~ 0.0 L
Weather: Light snow

Well Number: MW-1
Monument Type: Stickup: _____ (ft PVC) Flush: X
Well Diameter (in): 2
Well Condition: Good

		Reference:
Total Casing Depth (ft):	68.30	BGS
Screened Interval (ft):	Unknown	or
Depth to Groundwater (ft):	59.31	TOC
Depth to LNAPL (ft):	NA	
Water Column (ft):	8.99	

Water Quality Meter(s)	Model	Calibration Date/Time
Temp/pH/SC/ORP/DO:	YSI	3/18/2013 1000
Turbidity:	TPI	3/18/2013 1000
Other:		

QA/QC Samples		
Type	Sample ID	Time

Sample ID	Sample Containers				Field Filtered	Turbidity/ Color	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.				
MW-1	1	P	HCl	250 ml	N	Clear	Ammonia EPA 350.1/350.2	
MW-1	1	P	H2SO4	250 ml	N	Clear	Ferrous Iron 3500-Fe D	
MW-1	1	P		125 ml	N	Clear	Sulfate EPA 375.1/SW9035	
MW-1	1	P	HNO3	100 ml	N	Clear	Manganese	
MW-1	1	P		250 ml	N	Clear	Alkalinity	
MW-1	2	VOA		8060 ml	N	Clear	Methane RSK 175	

Time	1017	1022	1027	1032	1038	1044	1050		
Parameter (every 5 min)		5 min	5 min	5 min	6 min	6 min	6 min	min	min
Flow Rate (Lpd)									
Volume Purged (L)		0.5	1.0	1.5	2.0	2.5	3.0		
Water Depth (ft)		60.13	60.24	60.33	60.41	60.56	60.68		
Temperature (Celsius)		11.21	11.18	11.17	11.19	11.21	11.20		
pH		6.45	6.83	6.85	6.84	6.73	6.74		
Sp. Conductance (uS/cm)		0.785	0.801	0.811	0.810	0.812	0.813		
DO (mg/L)		3.86	3.12	2.86	2.42	2.42	2.08		
ORP (mV)		42.6	38.6	35.4	32.3	35.5	36.8		
Turbidity (NTU)		11.24	13.56	12.96	11.54	9.08	9.56		
Color		Clear	Clear	Clear	Clear	Clear	Clear		
Odor		N	N	N	N	N	N		

Notes: (i.e. actions taken if well dewaters or problems during purging/sampling, etc.)

Water inside of well monument
Missing one 3/8 screw
Sample for MNA

Groundwater Purge and Sample Form

Kennedy/Jenks Consultants

Date: 3/18/2013
Project Name: BNSF Glacier Park
Project Number: 1096016*02
Sampling Personnel: JPJ
Water Level Meter: Keck
Purging Equipment: Bladder Pump
Sampling Equipment: Bladder Pump
Sampling Time: 1210
Purge Depth (ft): ≈73
Total Discharge (L): 2.5
Water Disposal: Drum @ 0°C
Weather: Light rain

Well Number: MW-2
Monument Type: Stickup: _____ (ft PVC) Flush: X
Well Diameter (in): 2
Well Condition: Good

		Reference:
Total Casing Depth (ft):	82.48	BGS
Screened Interval (ft):	63 - 83	or
Depth to Groundwater (ft):	68.02	TOC
Depth to LNAPL (ft):	NA	
Water Column (ft):	14.46	

Water Quality Meter(s)	Model	Calibration Date/Time
Temp/pH/SC/ORP/DO:	YSI	3/18/2013 1000
Turbidity:	TPI	3/18/2013 1000
Other:		

QA/QC Samples		
Type	Sample ID	Time

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Turbidity/ Color	Analysis Requested	MS/MSD & Comments
MW-2	2	X VOA	HCl	2L 80ml	N	Clear	NWTPH-Dx w/silica gel cleanup	
MW-2	23	VOA	HCl	120 ml 40ml	N	Clear	NWTPH-Gx/BETX EPA 8021B	

1140 Time	1145	1150	1155	1200	1205			
Parameter (every 5 min)	5 min	5 min	5 min	5 min	5 min	min	min	min
Flow Rate (Lpd)								
Volume Purged (L)	0.5	1.0	1.5	2.0	2.5			
Water Depth (ft)	68.84	68.89	68.92	68.94	68.96			
Temperature (Celsius)	11.63	11.19	11.25	11.22	11.23			
pH	7.73	7.74	7.76	7.81	7.82			
Sp. Conductance (uS/cm)	1.105	1.116	1.123	1.156	1.153			
DO (mg/L)	3.54	2.96	2.84	2.56	2.49			
ORP (mV)	14.5	10.5	9.8	7.8	6.9			
Turbidity (NTU)	14.53	11.28	13.56	10.09	9.86			
Color	Clear	Clear	Clear	Clear	Clear			
Odor	N	N	N	N	N			

Notes: (i.e. actions taken if well dewaters or problems during purging/sampling, etc.)

Groundwater Purge and Sample Form

Kennedy/Jenks Consultants

Date: 3/18/2013
Project Name: BNSF Glacier Park
Project Number: 1096016*02
Sampling Personnel: JPJ
Water Level Meter: Keck
Purging Equipment: Bladder Pump
Sampling Equipment: Bladder Pump
Sampling Time: 1350
Purge Depth (ft): TOWC ≥ 68
Total Discharge (L): 2.0
Water Disposal: Drum @ 0.6 L
Weather: Sunny

Well Number: MW-3
Monument Type: Stickup: _____ (ft PVC) Flush: X
Well Diameter (in): 2
Well Condition: Good

		Reference:
Total Casing Depth (ft):	77.64	BGS
Screened Interval (ft):	58 - 78	or
Depth to Groundwater (ft):	62.30 ft	TOC
Depth to LNAPL (ft):	NA	
Water Column (ft):	15.34	

Water Quality Meter(s)	Model	Calibration Date/Time
Temp/pH/SC/ORP/DO:	YSI	3/18/2013 1000
Turbidity:	TPI	3/18/2013 1000
Other:		

QA/QC Samples		
Type	Sample ID	Time
Duplicate	MW-103	1500

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Turbidity/ Color	Analysis Requested	MS/MSD & Comments
MW-3	2	~~X~~ VOA	HCl	~~2X~~ 40 ml	N	clear	NWTPH-Dx w/silica gel cleanup	
MW-3	2 ~~8~~	VOA	HCl	~~80~~ 120 ml	N	clear	NWTPH-Gx/BETX EPA 8021B	
MW-~~X~~ 3	1	P	HCl	250 ml	N	clear	Ammonia EPA 350.1/350.2	
MW-~~X~~ 3	1	P	H2SO4	250 ml	N	clear	Ferrous Iron 3500-Fe D	
MW-~~X~~ 3	1	P		125 ml	N	clear	Sulfate EPA 375.1/SW9035	
MW-~~X~~ 3	1	P	HNO3	100 ml	N	clear	Manganese	
MW-~~X~~ 3	3	P		250 ml	N	clear	Alkalinity	
MW-~~X~~ 3	2 ~~8~~	VOA		~~80~~ ml 80	N	clear	Methane RSK 175	

1325 Time	1330	1335	1340	~~1345~~				
Parameter (every 5 min)	5 min	5 min	5 min	5 min	min	min	min	min
Flow Rate (Lpd)								
Volume Purged (L)	0.5	1.0	1.5	2.0				
Water Depth (ft)	62.54	62.60	62.63	62.67				
Temperature (Celsius)	11.89	11.52	11.48	11.53				
pH	6.89	6.87	6.91	6.90				
Sp. Conductance (uS/cm)	1,051	1,032	1,031	1,030				
DO (mg/L)	2.32	2.18	2.10	2.08				
ORP (mV)	-56.5	-73.6	-78.5	-79.3				
Turbidity (NTU)	18.54	21.56	17.54	15.98				
Color	clear	clear	clear	clear				
Odor	N	N	N	N				

Notes: (i.e. actions taken if well dewaters or problems during purging/sampling, etc.)

Water inside of well monument
Sample for all
Duplicate sample (MW-103) collected (1500)

Groundwater Purge and Sample Form

Kennedy/Jenks Consultants

Date: 3/18/2013
Project Name: BNSF Glacier Park
Project Number: 1096016*02
Sampling Personnel: JPJ
Water Level Meter: Keck
Purging Equipment: Bladder Pump
Sampling Equipment: Bladder Pump
Sampling Time: 1255
Purge Depth (ft): ~ 68
Total Discharge (L): 2.0
Water Disposal: Drum @ 0 gal
Weather: Sunny

Well Number: MW-4
Monument Type: Stickup: _____ (ft PVC) Flush: X
Well Diameter (in): 2
Well Condition: Good
Total Casing Depth (ft): 73.15
Screened Interval (ft): 57 - 74
Depth to Groundwater (ft): 63.15
Depth to LNAPL (ft): NA
Water Column (ft): 10.0
Reference: BGS or (TOC)

Water Quality Meter(s)	Model	Calibration Date/Time
Temp/pH/SC/ORP/DO:	YSI	3/18/2013 1000
Turbidity:	TPI	3/18/2013 1000
Other:		

QA/QC Samples		
Type	Sample ID	Time

Sample ID	Sample Containers				Field Filtered	Turbidity/ Color	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.				
MW-4	2	X VOA	HCl	2X 80ml	N	Clear	NWTPH-Dx w/silica gel cleanup	
MW-4	~~2~~ 3	VOA	HCl	120 ml 80	N	Clear	NWTPH-Gx/BETX EPA 8021B	
MW-1	1	P	HCl	250 ml	N	Clear	Ammonia EPA 350.1/350.2	
MW-1	1	P	H2SO4	250 ml	N	Clear	Ferrous Iron 3500-Fe D	
MW-1	1	P	—	125 ml	N	Clear	Sulfate EPA 375.1/SW9035	
MW-1	1	P	HNO3	100 ml	N	Clear	Manganese	
MW-1	~~1~~ 8	P	—	250 ml	N	Clear	Alkalinity	
MW-1	~~2~~ 8	VOA	—	~~80~~ ml	N	Clear	Methane RSK 175	

1236 Time	1235	1240	1245	1250				
Parameter (every 5 min)	5 min	5 min	5 min	5 min	min	min	min	min
Flow Rate (Lpd)								
Volume Purged (L)	0.5	1.0	1.5	2.0				
Water Depth (ft)	63.95	64.05	64.09	64.13				
Temperature (Celsius)	11.54	11.52	11.49	11.50				
pH	7.18	6.95	6.89	6.91				
Sp. Conductance (uS/cm)	1.076	1.072	1.073	1.073				
DO (mg/L)	2.81	2.73	2.56	2.49				
ORP (mV)	-12.8	-14.6	-17.3	-18.4				
Turbidity (NTU)	23.51	18.60	22.56	20.54				
Color	Clear	clear	clear	clear				
Odor	N	N	N	N				

Notes: (i.e. actions taken if well dewaters or problems during purging/sampling, etc.)

Water inside of well casing
2 Bolts stripped on lid
Sample for all

Attachment B

Laboratory Analytical Report

12065 Lebanon Rd.
Mt. Juliet, TN 37122
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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

John Jindra
Kennedy/Jenks Con-BNSF Region 1
32001 32nd Avenue South, Ste 100
Federal Way, WA 98001

Report Summary

Friday March 29, 2013

Report Number: L626019
Samples Received: 03/20/13
Client Project: TTB006-N02

Description: BNSF - Glacier Park East - Leavenworth, WA

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

John Jindra
Kennedy/Jenks Con-BNSF Region 1
32001 32nd Avenue South, Ste 100
Federal Way, WA 98001

March 29,2013

ESC Sample # : L626019-01

Site ID : 1096016T02

Project # : TTB006-N02

Date Received : March 20, 2013
Description : BNSF - Glacier Park East - Leavenworth, WA

Sample ID : MW-1

Collected By : John P Jindra
Collection Date : 03/18/13 10:55

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sulfate	11000	5000	ug/l	9056	03/23/13	1
Alkalinity	380000	20000	ug/l	2320 B-201	03/25/13	1
Ferrous Iron	BDL	50.	ug/l	3500Fe B-2	03/27/13	1
Ammonia Nitrogen	BDL	100	ug/l	350.1	03/27/13	1
Nitrate-Nitrite	170	100	ug/l	353.2	03/27/13	1
Manganese	480	10.	ug/l	6020	03/26/13	5

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 03/29/13 09:29 Printed: 03/29/13 09:30

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REPORT OF ANALYSIS

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Kennedy/Jenks Con-BNSF Region 1
32001 32nd Avenue South, Ste 100
Federal Way, WA 98001

March 29,2013

ESC Sample # : L626019-02

Site ID : 1096016T02

Project # : TTB006-N02

Date Received : March 20, 2013
Description : BNSF - Glacier Park East - Leavenworth, WA

Sample ID : MW-2

Collected By : John P Jindra
Collection Date : 03/18/13 12:10

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Gasoline Range Organics-NWTPH	BDL	100	ug/l	NWTPHGX	03/22/13	1
Benzene	BDL	0.50	ug/l	NWTPHGX	03/22/13	1
Toluene	BDL	5.0	ug/l	NWTPHGX	03/22/13	1
Ethylbenzene	BDL	0.50	ug/l	NWTPHGX	03/22/13	1
Total Xylene	BDL	1.5	ug/l	NWTPHGX	03/22/13	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	NWTPHGX	03/22/13	1
a,a,a-Trifluorotoluene(FID)	100.		% Rec.	NWTPHGX	03/22/13	1
Diesel Range Organics (DRO)	240	100	ug/l	NWTPHDX	03/25/13	1
Residual Range Organics (RRO)	BDL	250	ug/l	NWTPHDX	03/25/13	1
Surrogate Recovery						
o-Terphenyl	97.5		% Rec.	NWTPHDX	03/25/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

John Jindra
Kennedy/Jenks Con-BNSF Region 1
32001 32nd Avenue South, Ste 100
Federal Way, WA 98001

March 29,2013

ESC Sample # : L626019-03

Site ID : 1096016T02

Project # : TTB006-N02

Date Received : March 20, 2013
Description : BNSF - Glacier Park East - Leavenworth, WA

Sample ID : MW-4

Collected By : John P Jindra
Collection Date : 03/18/13 12:55

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sulfate	14000	5000	ug/l	9056	03/23/13	1
Alkalinity	460000	100000	ug/l	2320 B-201	03/25/13	5
Methane	BDL	10.	ug/l	RSK175	03/27/13	1
Ethane	BDL	13.	ug/l	RSK175	03/27/13	1
Ethene	BDL	13.	ug/l	RSK175	03/27/13	1
Propane	BDL	19.	ug/l	RSK175	03/27/13	1
Ferrous Iron	87.	50.	ug/l	3500Fe B-2	03/27/13	1
Ammonia Nitrogen	100	100	ug/l	350.1	03/27/13	1
Nitrate-Nitrite	BDL	100	ug/l	353.2	03/27/13	1
Manganese	5600	200	ug/l	6020	03/26/13	100
Gasoline Range Organics-NWTPH	BDL	100	ug/l	NWTPHGX	03/22/13	1
Benzene	BDL	0.50	ug/l	NWTPHGX	03/22/13	1
Toluene	BDL	5.0	ug/l	NWTPHGX	03/22/13	1
Ethylbenzene	BDL	0.50	ug/l	NWTPHGX	03/22/13	1
Total Xylene	BDL	1.5	ug/l	NWTPHGX	03/22/13	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	NWTPHGX	03/22/13	1
a,a,a-Trifluorotoluene(FID)	101.		% Rec.	NWTPHGX	03/22/13	1
Diesel Range Organics (DRO)	1400	100	ug/l	NWTPHDX	03/25/13	1
Residual Range Organics (RRO)	400	250	ug/l	NWTPHDX	03/25/13	1
Surrogate Recovery						
o-Terphenyl	101.		% Rec.	NWTPHDX	03/25/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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.
Reported: 03/29/13 09:29 Printed: 03/29/13 09:30

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REPORT OF ANALYSIS

John Jindra
Kennedy/Jenks Con-BNSF Region 1
32001 32nd Avenue South, Ste 100
Federal Way, WA 98001

March 29,2013

ESC Sample # : L626019-04

Site ID : 1096016T02

Project # : TTB006-N02

Date Received : March 20, 2013
Description : BNSF - Glacier Park East - Leavenworth, WA

Sample ID : MW-3

Collected By : John P Jindra
Collection Date : 03/18/13 13:50

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sulfate	BDL	5000	ug/l	9056	03/23/13	1
Alkalinity	620000	100000	ug/l	2320 B-201	03/26/13	5
Methane	BDL	10.	ug/l	RSK175	03/27/13	1
Ethane	BDL	13.	ug/l	RSK175	03/27/13	1
Ethene	BDL	13.	ug/l	RSK175	03/27/13	1
Propane	BDL	19.	ug/l	RSK175	03/27/13	1
Ferrous Iron	240	50.	ug/l	3500Fe B-2	03/27/13	1
Ammonia Nitrogen	BDL	100	ug/l	350.1	03/27/13	1
Nitrate-Nitrite	BDL	100	ug/l	353.2	03/27/13	1
Manganese	5800	200	ug/l	6020	03/26/13	100
Gasoline Range Organics-NWTPH	600	100	ug/l	NWTPHGX	03/22/13	1
Benzene	5.2	0.50	ug/l	NWTPHGX	03/22/13	1
Toluene	7.8	5.0	ug/l	NWTPHGX	03/22/13	1
Ethylbenzene	2.7	0.50	ug/l	NWTPHGX	03/22/13	1
Total Xylene	24.	1.5	ug/l	NWTPHGX	03/22/13	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	NWTPHGX	03/22/13	1
a,a,a-Trifluorotoluene(FID)	97.3		% Rec.	NWTPHGX	03/22/13	1
Diesel Range Organics (DRO)	1800	100	ug/l	NWTPHDX	03/25/13	1
Residual Range Organics (RRO)	650	250	ug/l	NWTPHDX	03/25/13	1
Surrogate Recovery						
o-Terphenyl	98.6		% Rec.	NWTPHDX	03/25/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 03/29/13 09:29 Printed: 03/29/13 09:30

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REPORT OF ANALYSIS

John Jindra
Kennedy/Jenks Con-BNSF Region 1
32001 32nd Avenue South, Ste 100
Federal Way, WA 98001

March 29,2013

ESC Sample # : L626019-05

Site ID : 1096016T02

Project # : TTB006-N02

Date Received : March 20, 2013
Description : BNSF - Glacier Park East - Leavenworth, WA

Sample ID : MW-103

Collected By : John P Jindra
Collection Date : 03/18/13 15:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Gasoline Range Organics-NWTPH	610	100	ug/l	NWTPHGX	03/22/13	1
Benzene	5.4	0.50	ug/l	NWTPHGX	03/22/13	1
Toluene	8.1	5.0	ug/l	NWTPHGX	03/22/13	1
Ethylbenzene	2.8	0.50	ug/l	NWTPHGX	03/22/13	1
Total Xylene	25.	1.5	ug/l	NWTPHGX	03/22/13	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	NWTPHGX	03/22/13	1
a,a,a-Trifluorotoluene(FID)	97.1		% Rec.	NWTPHGX	03/22/13	1
Diesel Range Organics (DRO)	1100	100	ug/l	NWTPHDX	03/25/13	1
Residual Range Organics (RRO)	250	250	ug/l	NWTPHDX	03/25/13	1
Surrogate Recovery						
o-Terphenyl	106.		% Rec.	NWTPHDX	03/25/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 03/29/13 09:29 Printed: 03/29/13 09:30

ESC LAB SCIENCES
YOUR LAB OF CHOICE

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

John Jindra
Kennedy/Jenks Con-BNSF Region 1
32001 32nd Avenue South, Ste 100
Federal Way, WA 98001

March 29,2013

ESC Sample # : L626019-06

Site ID : 1096016T02

Project # : TTB006-N02

Date Received : March 20, 2013
Description : BNSF - Glacier Park East - Leavenworth, WA

Sample ID : TRIP BLANK

Collected By : John P Jindra
Collection Date : 03/18/13 00:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Gasoline Range Organics-NWTPH	BDL	100	ug/l	NWTPHGX	03/27/13	1
Benzene	BDL	0.50	ug/l	NWTPHGX	03/27/13	1
Toluene	BDL	5.0	ug/l	NWTPHGX	03/27/13	1
Ethylbenzene	BDL	0.50	ug/l	NWTPHGX	03/27/13	1
Total Xylene	BDL	1.5	ug/l	NWTPHGX	03/27/13	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	NWTPHGX	03/27/13	1
a,a,a-Trifluorotoluene(FID)	102.		% Rec.	NWTPHGX	03/27/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 03/29/13 09:29 Printed: 03/29/13 09:30

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L626019-01	WG653022	SAMP	Ferrous Iron	R2596499	T8
L626019-03	WG653022	SAMP	Ferrous Iron	R2596499	T8
L626019-04	WG653022	SAMP	Ferrous Iron	R2596499	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
03/29/13 at 09:30:10

TSR Signing Reports: 134
R5 - Desired TAT

Sample: L626019-01 Account: BNSF1KEN Received: 03/20/13 09:00 Due Date: 03/27/13 00:00 RPT Date: 03/29/13 09:29
RSK175 includes Propane. Deleted RSK175 per MB MS 3/26/13
Sample: L626019-02 Account: BNSF1KEN Received: 03/20/13 09:00 Due Date: 03/27/13 00:00 RPT Date: 03/29/13 09:29

Sample: L626019-03 Account: BNSF1KEN Received: 03/20/13 09:00 Due Date: 03/27/13 00:00 RPT Date: 03/29/13 09:29
RSK175 includes Propane
Sample: L626019-04 Account: BNSF1KEN Received: 03/20/13 09:00 Due Date: 03/27/13 00:00 RPT Date: 03/29/13 09:29
RSK175 includes Propane
Sample: L626019-05 Account: BNSF1KEN Received: 03/20/13 09:00 Due Date: 03/27/13 00:00 RPT Date: 03/29/13 09:29

Sample: L626019-06 Account: BNSF1KEN Received: 03/20/13 09:00 Due Date: 03/27/13 00:00 RPT Date: 03/29/13 09:29

Kennedy/Jenks Con-BNSF Region 1

32001 32nd Avenue South, Ste 100
Federal Way, WA 98001

Billing information:

Scott MacDonald
2454 Occidental Ave S, Ste 1A

Seattle, WA 98134

Report to: John Jindra

Email: johnjindra@kennedyjenks.co

Project Description: BNSF - Glacier Park East - Leavenworth,

City/State Collected: Leavenworth, WA

Phone: (253) 835-6400
FAX:

Client Project #: TTB006-N02

Lab Project #: BNSF1KEN-TTB006N02

Collected by (print): John P Jindra

Site/Facility ID#: 109G016+02

P.O.#:

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day.....100%
___ Two Day.....50%
___ Three Day.....25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	ALK 500mlHDPE-NoPres	FERUSFE 250mlAmb-HCl	MNG 500mlHDPE-HNO3	NH3, NO2NO3 250mlHDPE-H2SO4	NWTPHDXLVI 40mlAmb-HCl-BT	NWTPHGXBTEX 40mlAmb HCl	RSK175 40mlAmb-NoPres	SULFATE 125mlHDPE-NoPres	Remarks/Contaminant	Sample # (lab only)
MW-1	G	GW		3/18	1055	7	X	X	X	X	~~X~~	~~X~~	X	X		
MW-2	G	GW		3/18	1210	4	~~X~~	~~X~~	~~X~~	~~X~~	X	X	~~X~~	~~X~~	MW-2 Dx/Gx/BTEX only	
MW-4	G	GW		3/18	1255	11	X	X	X	X	X	X	X	X		
MW-3	G	GW		3/18	1350	11	X	X	X	X	X	X	X	X		
MW-103	G	GW		3/18	1500	4	~~X~~	~~X~~	~~X~~	~~X~~	X	X	~~X~~	~~X~~	103 Dx/Gx/BTEX	
Trip Blank	G	GW				1					~~X~~	~~X~~			Trip BTEX only	

Chain of Custody
Page ___ of ___

L626615

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12065 Lebanon Road
Mt. Juliet, TN 37122

Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

J011

Acctnum: BNSF1KEN (lab use only)
Template/Prelogin: T85292/ P423768
Cooler #: 3-11136K
Shipped Via: FedEX Ground

*Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

5547 0234 0442

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	3/19/13	1500	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

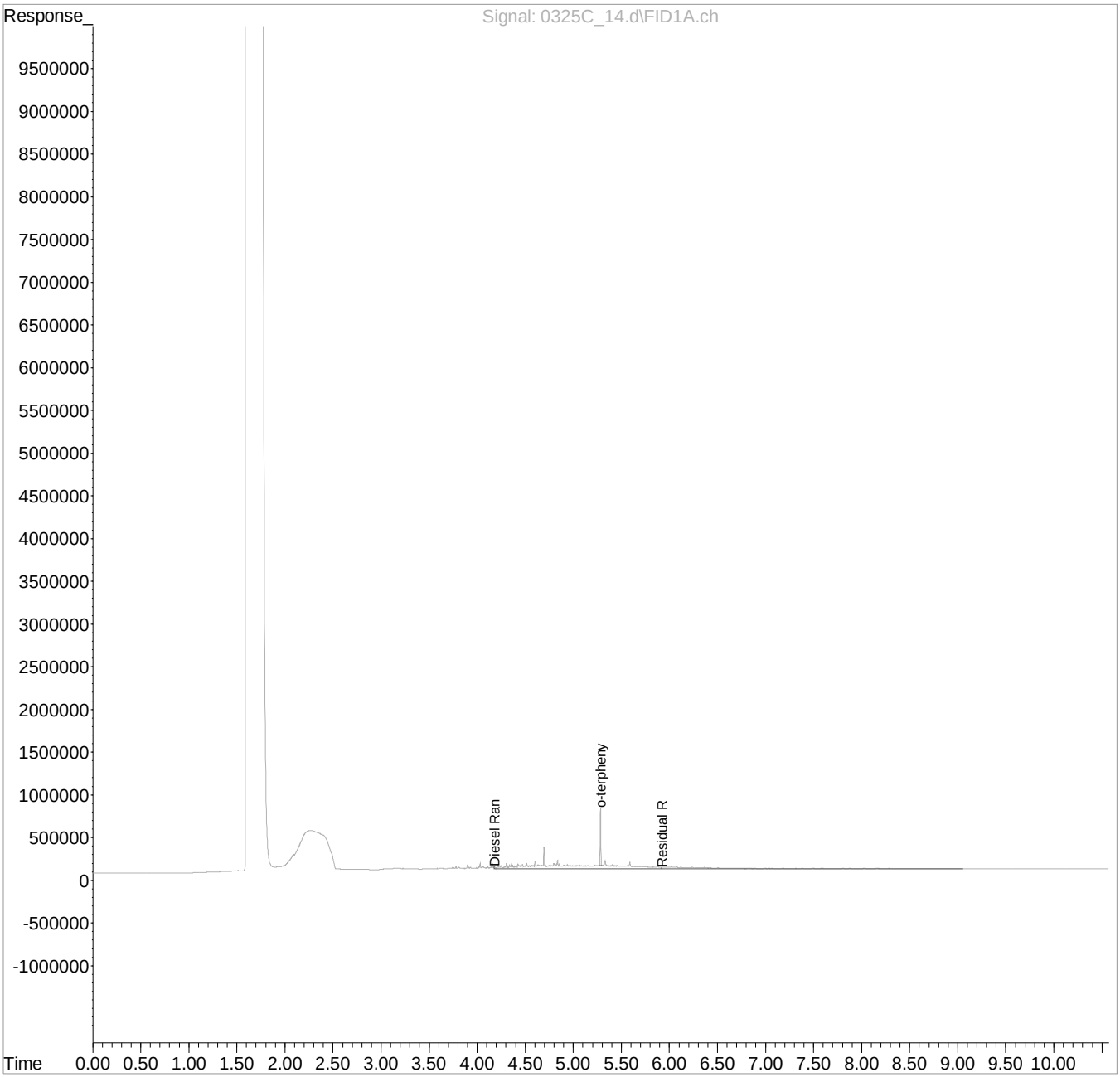
Samples returned via: ☑ FedEx ☐ UPS ☐ Courier ☐ _____
Temp: 3.2 Bottles Received: 38
Date: 3/20/13 Time: 0900

Condition: 31- (lab use only)
COC Seal Intact: ___Y ___N ___NA
pH Checked: 2 NCF:

Data Path : C:\msdchem\1\data\032513C\
Data File : 0325C 14.d
Signal(s) : FID1A.ch
Acq On : 25 Mar 2013 8:49 pm
Operator : 187
Sample : L626019-02 1X WG652475 40-2 03/23/13
Misc : WATER SUR13C22002SPK13C13408
ALS Vial : 11 Sample Multiplier: 0.05
InstName : SVGC27

Integration File: events.e
Quant Time: Mar 26 13:31:46 2013
Quant Method : C:\msdchem\1\methods\EP27C25M.m
Quant Title :
QLast Update : Tue Mar 26 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

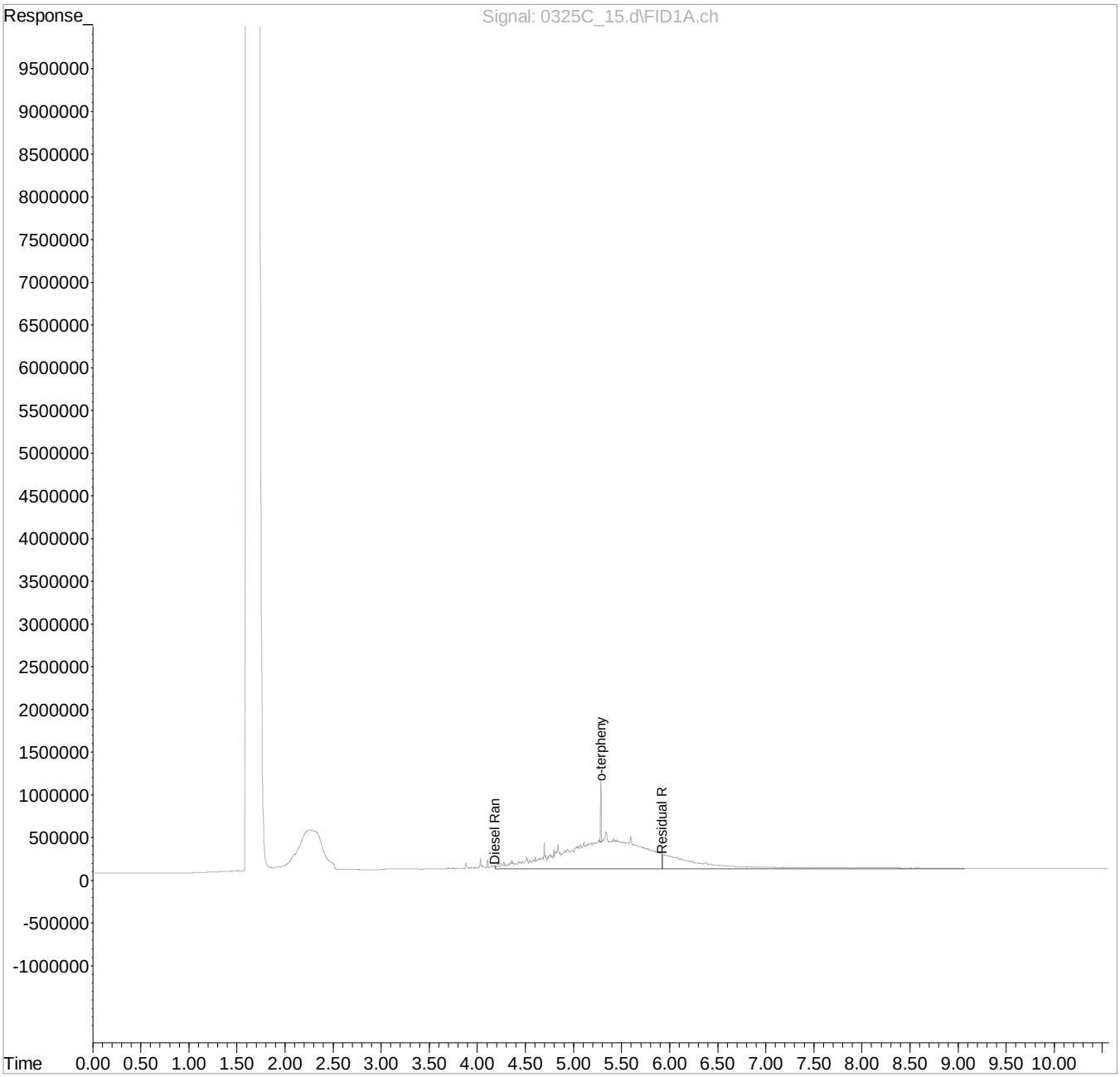
Volume Inj. :
Signal Phase :
Signal Info :
DataAcq Meth:EPH27A.M



Data Path : C:\msdchem\1\data\032513C\
Data File : 0325C 15.d
Signal(s) : FID1A.ch
Acq On : 25 Mar 2013 9:07 pm
Operator : 187
Sample : L626019-03 1X WG652475 40-2 03/23/13
Misc : WATER SUR13C22002SPK13C13408
ALS Vial : 12 Sample Multiplier: 0.05
InstName : SVGC27

Integration File: events.e
Quant Time: Mar 26 13:34:07 2013
Quant Method : C:\msdchem\1\methods\EP27C25M.m
Quant Title :
QLast Update : Tue Mar 26 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

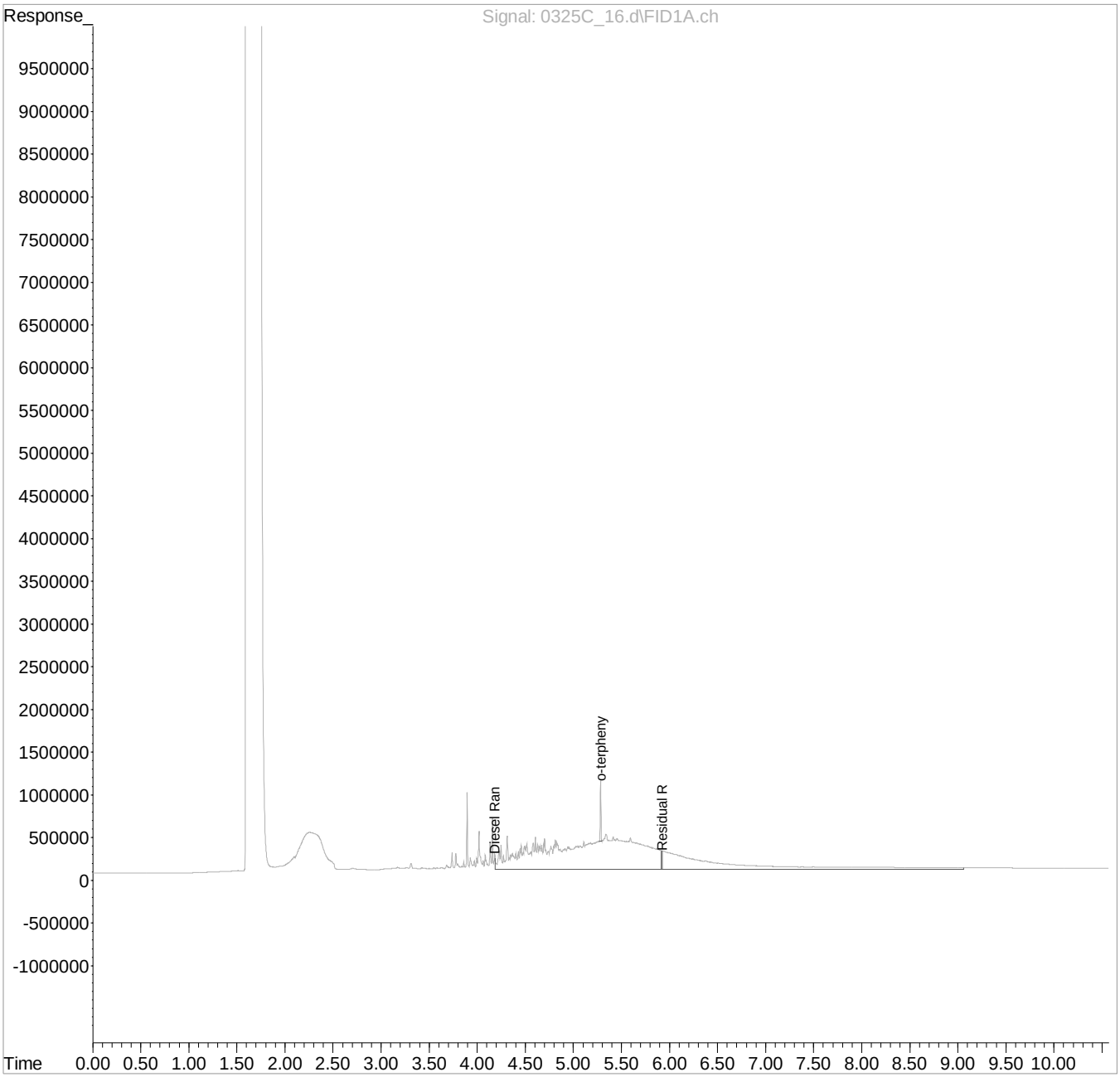
Volume Inj. :
Signal Phase :
Signal Info :
DataAcq Meth:EPH27A.M



Data Path : C:\msdchem\1\data\032513C\
Data File : 0325C 16.d
Signal(s) : FID1A.ch
Acq On : 25 Mar 2013 9:26 pm
Operator : 187
Sample : L626019-04 1X WG652475 40-2 03/23/13
Misc : WATER SUR13C22002SPK13C13408
ALS Vial : 13 Sample Multiplier: 0.05
InstName : SVGC27

Integration File: events.e
Quant Time: Mar 26 13:35:15 2013
Quant Method : C:\msdchem\1\methods\EP27C25M.m
Quant Title :
QLast Update : Tue Mar 26 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

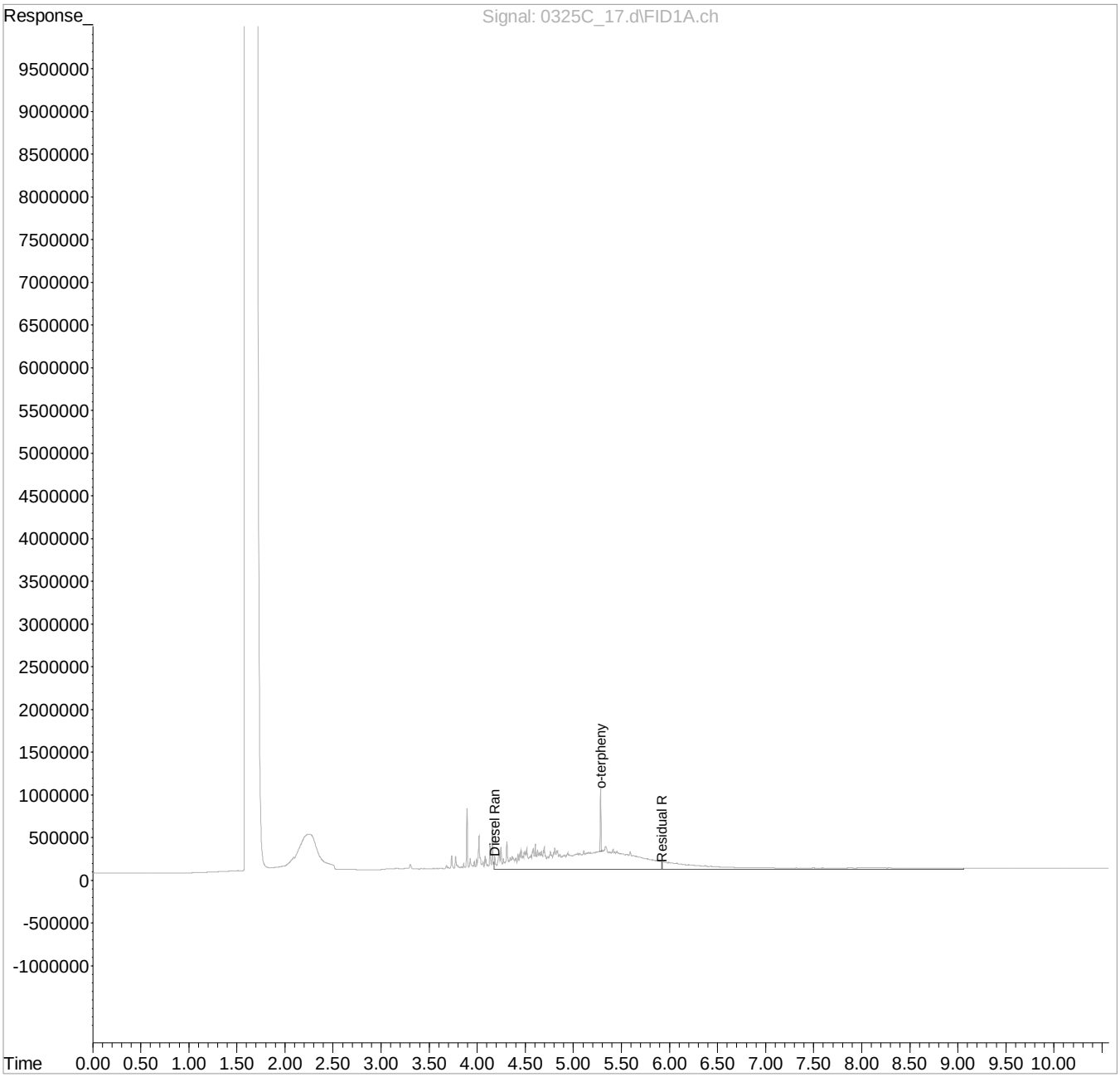
Volume Inj. :
Signal Phase :
Signal Info :
DataAcq Meth:EPH27A.M



Data Path : C:\msdchem\1\data\032513C\
Data File : 0325C 17.d
Signal(s) : FID1A.ch
Acq On : 25 Mar 2013 9:45 pm
Operator : 187
Sample : L626019-05 1X WG652475 40-2 03/23/13
Misc : WATER SUR13C22002SPK13C13408
ALS Vial : 14 Sample Multiplier: 0.05
InstName : SVGC27

Integration File: events.e
Quant Time: Mar 26 13:36:41 2013
Quant Method : C:\msdchem\1\methods\EP27C25M.m
Quant Title :
QLast Update : Tue Mar 26 09:48:18 2013
Response via : Initial Calibration
Integrator: ChemStation

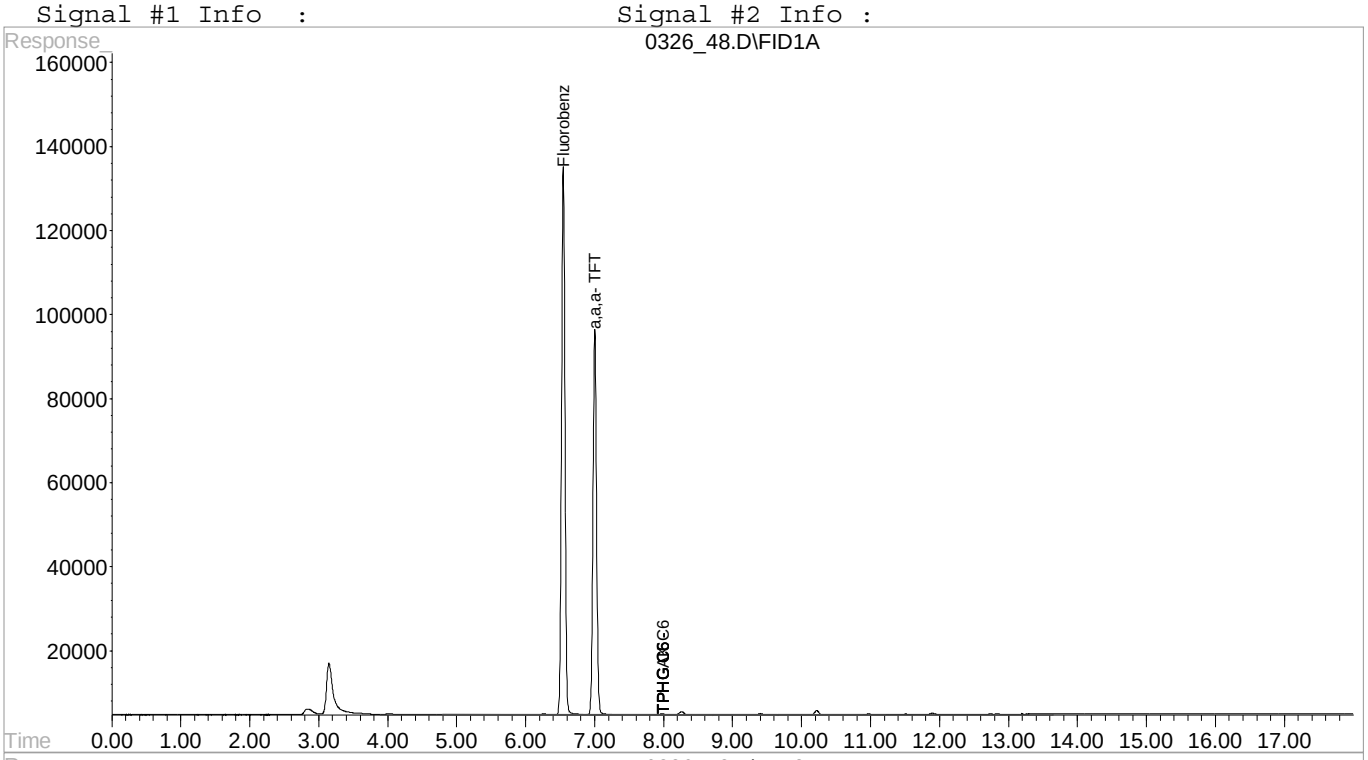
Volume Inj. :
Signal Phase :
Signal Info :
DataAcq Meth:EPH27A.M

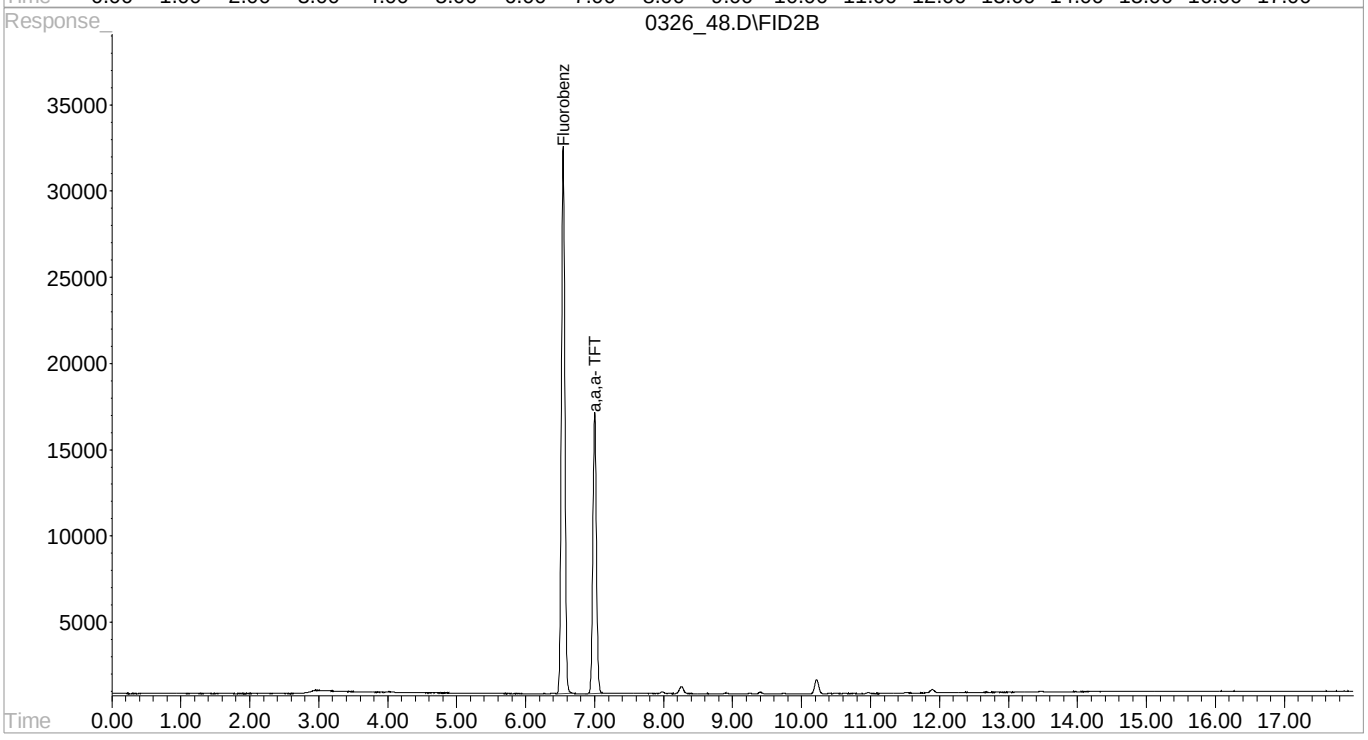


Signal #1 : C:\HPCHEM\1\DATA\032613\0326 48.D\FID1A.CH Vial: 48
Signal #2 : C:\HPCHEM\1\DATA\032613\0326 48.D\FID2B.CH
Acq On : 27 Mar 2013 4:05 am Operator: 403
Sample : L626019-06 1x WG653092 NWTPHGXBTEX Inst : VOCGC6
Misc : water SURIS12L14079 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS3.E
Quant Time: Mar 27 13:25 2013 Quant Results File: BG06A22M.RES

Quant Method : C:\HPCHEM\1\METHODS\BG06A22M.M (Chemstation Integrator)
Title : BTEXM/GRO VOCGC06
Last Update : Tue Jan 22 15:08:46 2013
Response via : Multiple Level Calibration
DataAcq Meth : BTEX.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

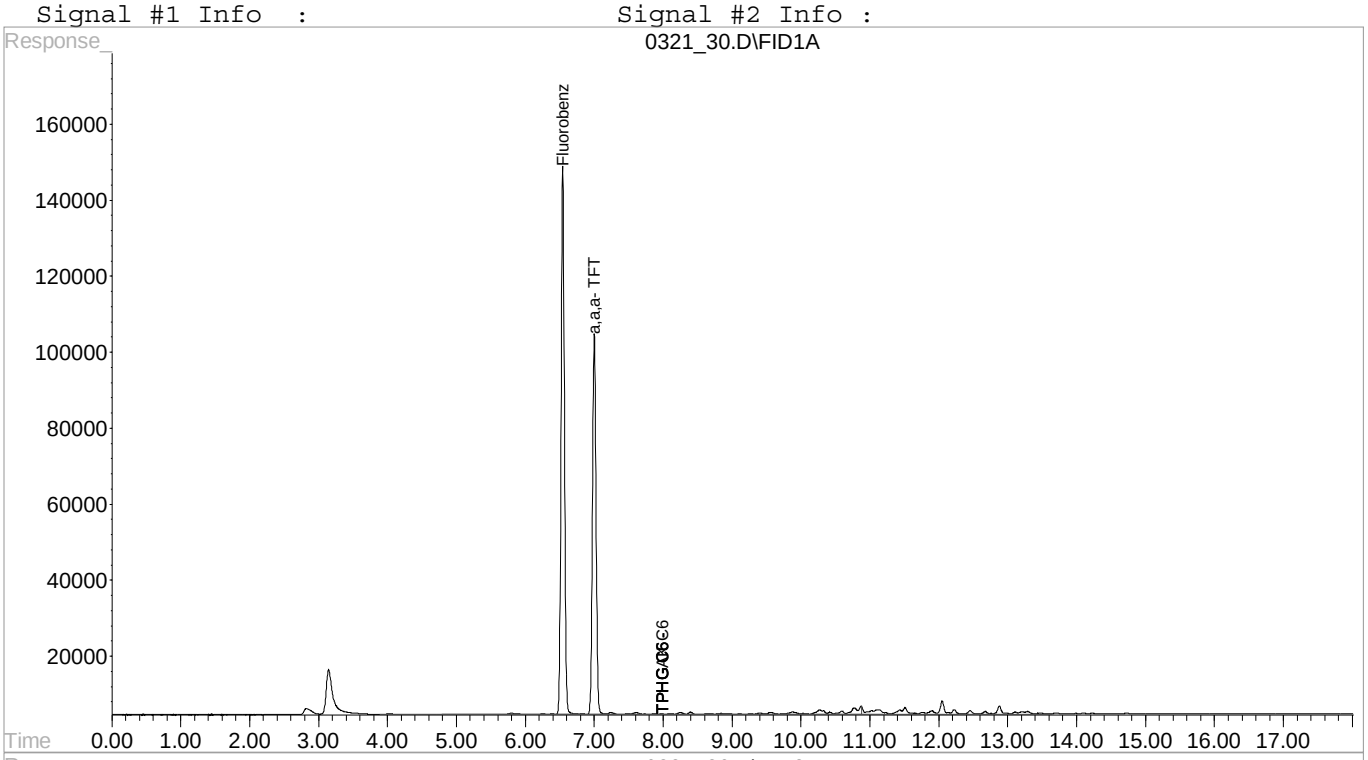


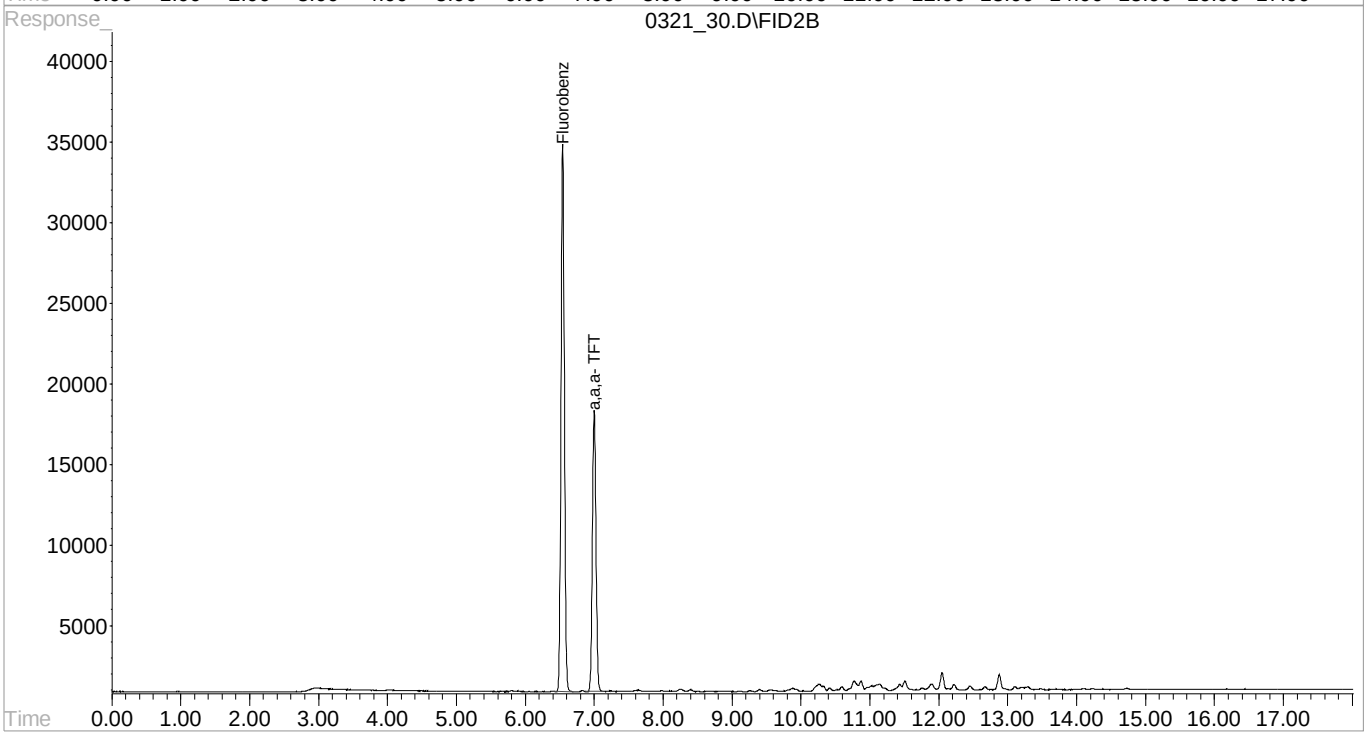


Signal #1 : C:\HPCHEM\1\DATA\032113\0321 30.D\FID1A.CH Vial: 30
Signal #2 : C:\HPCHEM\1\DATA\032113\0321 30.D\FID2B.CH
Acq On : 22 Mar 2013 6:14 am Operator: 403
Sample : L626019-02 1x WG652040 NWTPHGXBTEX Inst : VOCGC6
Misc : water SURIS12L14079 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS3.E
Quant Time: Mar 25 15:58 2013 Quant Results File: BG06A22M.RES

Quant Method : C:\HPCHEM\1\METHODS\BG06A22M.M (Chemstation Integrator)
Title : BTEXM/GRO VOCGC06
Last Update : Tue Jan 22 15:08:46 2013
Response via : Multiple Level Calibration
DataAcq Meth : BTEX.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

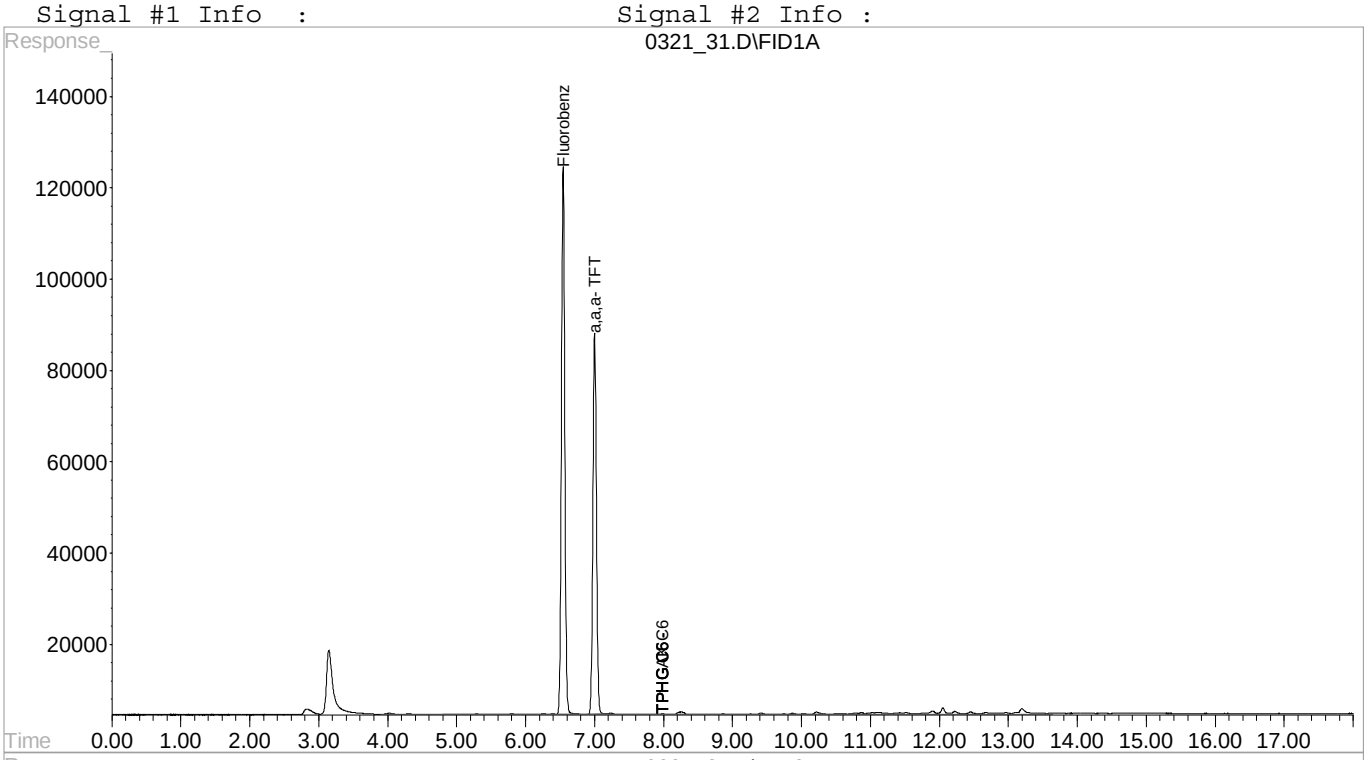


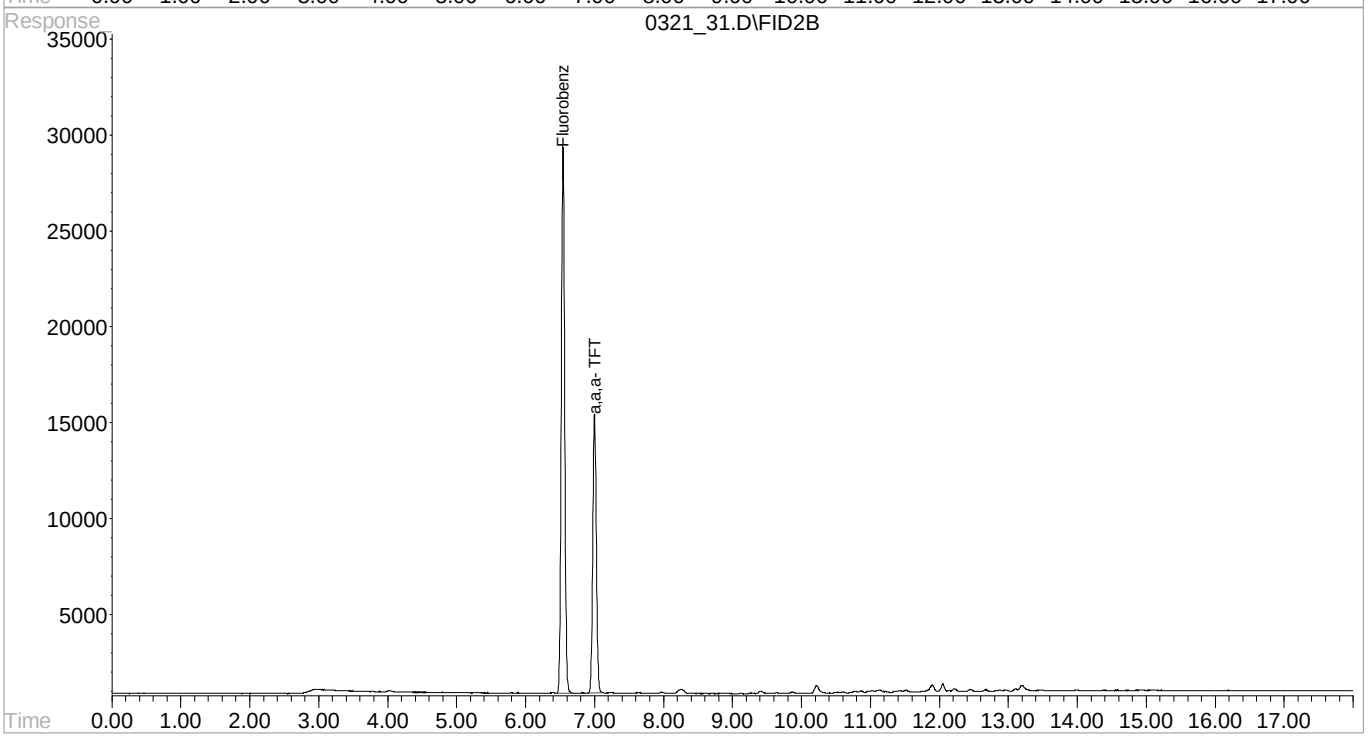


Signal #1 : C:\HPCHEM\1\DATA\032113\0321 31.D\FID1A.CH Vial: 31
Signal #2 : C:\HPCHEM\1\DATA\032113\0321 31.D\FID2B.CH
Acq On : 22 Mar 2013 6:37 am Operator: 403
Sample : L626019-03 1x WG652040 NWTPHGXBTEX Inst : VOCGC6
Misc : water SURIS12L14079 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS3.E
Quant Time: Mar 25 15:58 2013 Quant Results File: BG06A22M.RES

Quant Method : C:\HPCHEM\1\METHODS\BG06A22M.M (Chemstation Integrator)
Title : BTEXM/GRO VOCGC06
Last Update : Tue Jan 22 15:08:46 2013
Response via : Multiple Level Calibration
DataAcq Meth : BTEX.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

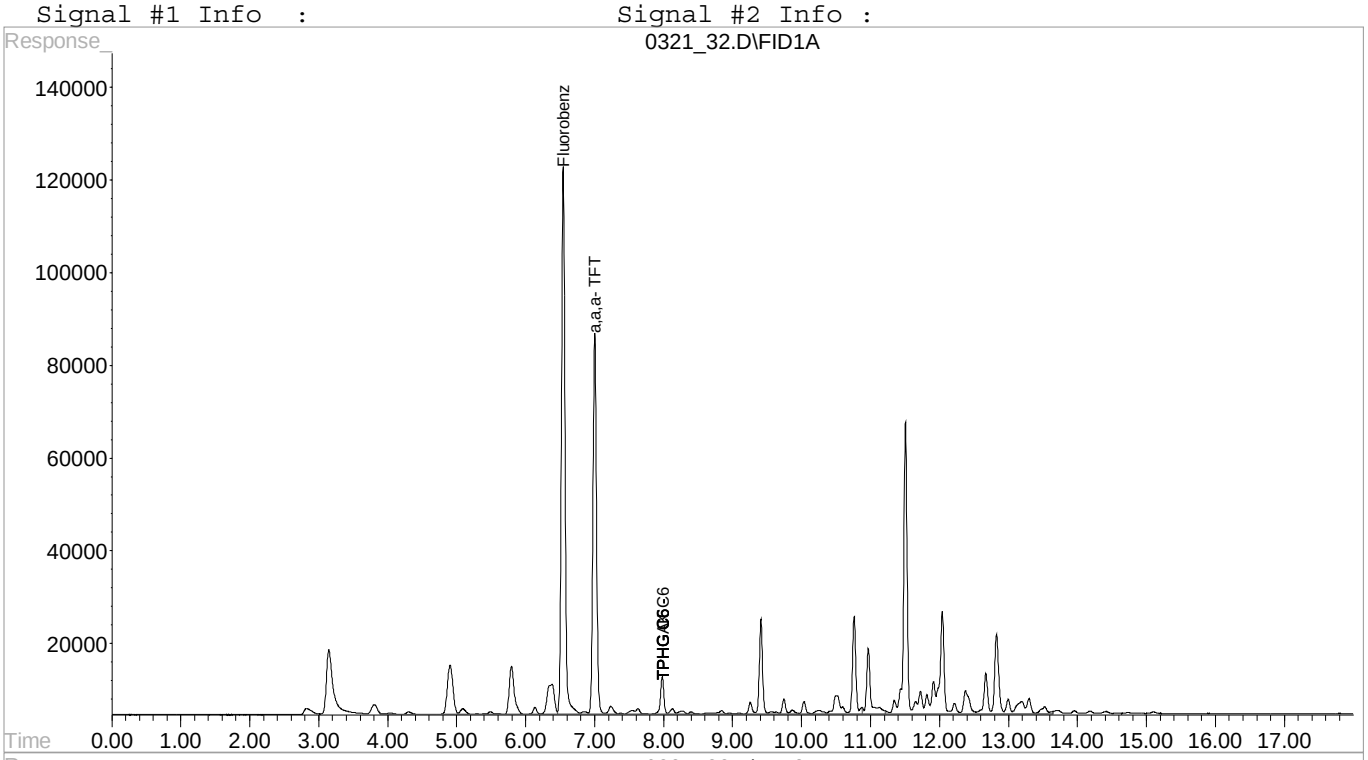


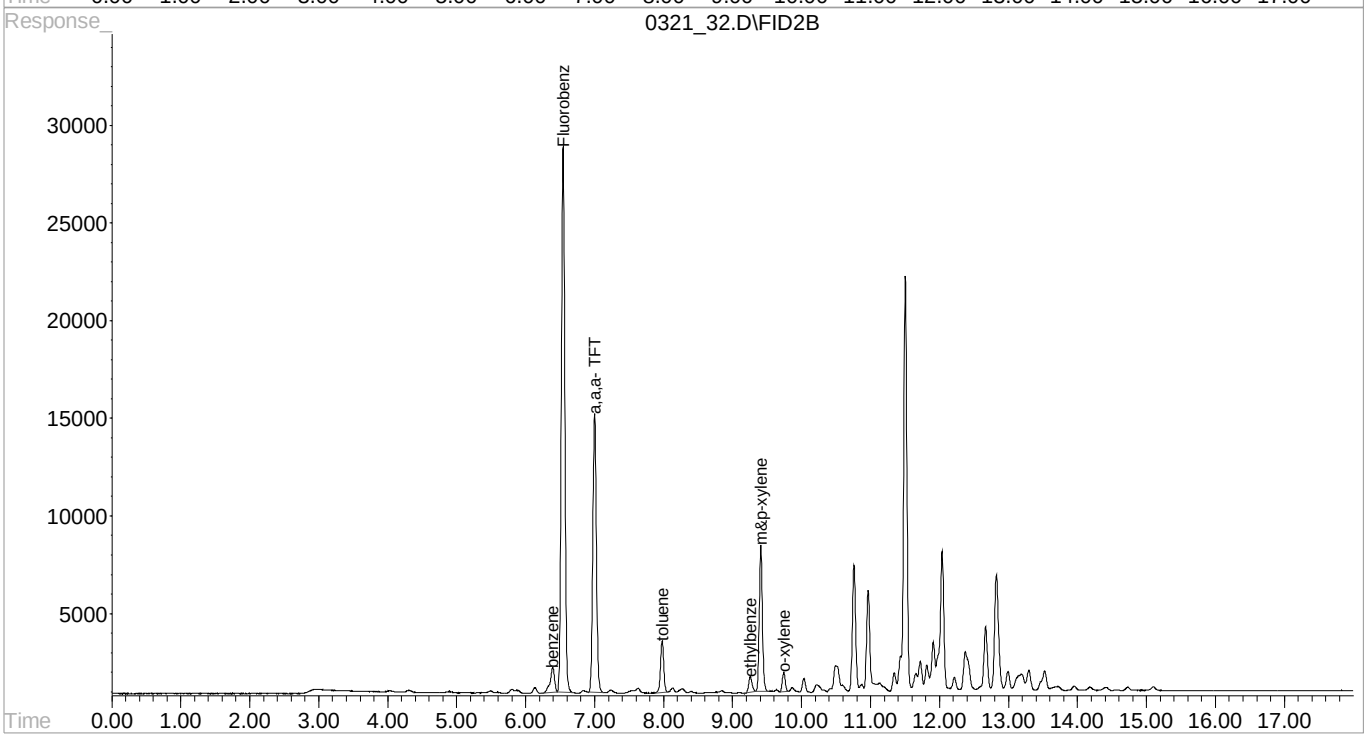


Signal #1 : C:\HPCHEM\1\DATA\032113\0321 32.D\FID1A.CH Vial: 32
Signal #2 : C:\HPCHEM\1\DATA\032113\0321 32.D\FID2B.CH
Acq On : 22 Mar 2013 7:00 am Operator: 403
Sample : L626019-04 1x WG652040 NWTPHGXBTEX Inst : VOCGC6
Misc : water SURIS12L14079 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS3.E
Quant Time: Mar 25 15:58 2013 Quant Results File: BG06A22M.RES

Quant Method : C:\HPCHEM\1\METHODS\BG06A22M.M (Chemstation Integrator)
Title : BTEXM/GRO VOCGC06
Last Update : Tue Jan 22 15:08:46 2013
Response via : Multiple Level Calibration
DataAcq Meth : BTEX.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\HPCHEM\1\DATA\032113\0321 33.D\FID1A.CH Vial: 33
Signal #2 : C:\HPCHEM\1\DATA\032113\0321 33.D\FID2B.CH
Acq On : 22 Mar 2013 7:23 am Operator: 403
Sample : L626019-05 1x WG652040 NWTPHGXBTEX Inst : VOCGC6
Misc : water SURIS12L14079 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS3.E
Quant Time: Mar 25 15:58 2013 Quant Results File: BG06A22M.RES

Quant Method : C:\HPCHEM\1\METHODS\BG06A22M.M (Chemstation Integrator)
Title : BTEXM/GRO VOCGC06
Last Update : Tue Jan 22 15:08:46 2013
Response via : Multiple Level Calibration
DataAcq Meth : BTEX.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :