



**PARAMOUNT
PETROLEUM**

DAVID BRODERICK, E.I.T.
Environmental Compliance Specialist

5501 NW Front Avenue
Portland, Oregon 97210

Bus: (503) 273-4741
Cell: (971) 322-4214
Fax: (503) 274-9758
dbroderick@ppcla.com

Q-Time

423.13

Craig Docktor / Hart - Gower



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**PARAMOUNT
PETROLEUM**

a subsidiary of
ALON-USA

D. MARK WELLS, P.E.
Manager, Environmental Services

20555 Richmond Beach Drive, N.W.
Seattle, WA 98177
www.paramountasphalt.com

Cell: (206) 794-9759
Fax: (206) 546-0521
Email: mwells@ppcla.com



HARTCROWSER

1281
spill-com

www.hartcrowser.com

Paramount
Naphtha Spill

MEMORANDUM

DATE: May 21, 2014

TO: Shaun Kizewski, General Manager of GSE &T, Arc Terminals

FROM: Chris Martin, PE, Project Engineer, Hart Crowser, Inc.

RE: Groundwater and LNAPL Gauging – May 2014
15812-00/Task 1

CC: Nathan Eggers, Terminal Manager, Arc Terminals

The purpose of this memorandum is to document the static water elevations and thickness of light non-aqueous phase liquid (LNAPL) in the four monitoring wells and eight sumps immediately downgradient of tank T-113. This memorandum discusses the measurements collected in May 2014. A table of our findings from the last four visits (May 2013, October 2013, February 2014, and May 2014) is included as an attachment to this memorandum.

Findings

On May 16, 2014, a Hart Crowser representative mobilized to the Arc Terminals Portland facility to conduct groundwater and LNAPL measurements at the four monitoring wells (A-4, W-32, W-33, and W-34) and eight sumps (S-1 through S-8) near the Naphtha spill site at tank T-113 (Figure 1). These 12 locations were previously measured in May and October of 2013 and February 2014.

To collect water levels and LNAPL thickness, the wells and sumps are first opened and allowed to equilibrate. The wells and sumps are then measured using an oil/water interface probe in order of least likely to have LNAPL present to most likely to have LNAPL present. If LNAPL is detected, the measurement is repeated three times to ensure that the measurement is accurate.

LNAPL was present in 4 of the 12 locations (S-3, S-4, S-7, and S-8) in May 2014. Sumps S-4 and S-7 had a trace of LNAPL (detectable amount but less than 0.01 feet thick). Sump S-3 had 0.02 feet of LNAPL, and S-8 had 0.13 feet of LNAPL. Water level measurements ranged between 3.32 and 6.31 feet below ground surface in May, which is shallower than elevation measured previously at the site. The field notes from this event and the previous three events are included as an attachment to this memorandum.



Arc Terminals
May 21, 2014

15812-00/Task 1
Page 2

LNAPL thicknesses in S-1, S-5, and S-6 have gone away completely since May 2013, while a trace amount of LNAPL has accumulated in S-4. LNAPL thickness in S-3 has varied between a trace and 0.02 feet thick since May 2013, and LNAPL thickness in S-7 has varied from 0.06 feet to a trace in May 2013 and May 2014, respectively. The LNAPL thickness in S-8 has increased from 0.01 feet in May 2013 to 0.13 feet in May 2014; presumably due to increased water level elevations.

Attachments:

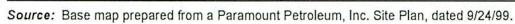
Table 1 – Depth to Product and Water

Figure 1 – Site Plan

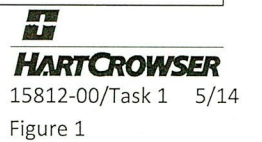
Field Notes – May 20, 2013;
October 14, 2013;
February 3, 2014; and
May 16, 2014

Table 1 - Depth to Product and Water Levels
Arc Terminals Portland Facility
Portland, Oregon
15812-00/Task 1

Monitoring Point	Date	Casing Elevation (msl)	Depth to Water (ft)	Depth to Product (ft)	Measured Product Thickness (ft)	Water Level (msl)
A-4	20-May-13	37.25	8.12	--	0.00	29.13
	14-Oct-13		7.48	--	0.00	29.77
	3-Feb-14		8.49	--	0.00	28.76
	16-May-14		6.31	--	0.00	30.94
W-32	20-May-13	34.56	5.34	--	0.00	29.22
	14-Oct-13		5.03	--	0.00	29.53
	3-Feb-14		5.78	--	0.00	28.78
	16-May-14		3.66	--	0.00	30.90
W-33	20-May-13	34.66	5.69	--	0.00	28.97
	14-Oct-13		5.24	--	0.00	29.42
	3-Feb-14		6.12	--	0.00	28.54
	16-May-14		4.07	--	0.00	30.59
W-34	20-May-13	34.13	4.88	--	0.00	29.25
	14-Oct-13		4.32	--	0.00	29.81
	3-Feb-14		5.26	--	0.00	28.87
	16-May-14		3.32	--	0.00	30.81
S-1	20-May-13	36.25	6.10	6.05	0.05	30.19
	14-Oct-13		5.38	--	0.00	30.87
	3-Feb-14		6.17	--	0.00	30.08
	16-May-14		4.08	--	0.00	32.17
S-2	20-May-13	35.87	5.88	--	0.00	29.99
	14-Oct-13		5.67	--	0.00	30.20
	3-Feb-14		6.23	--	0.00	29.64
	16-May-14		4.18	--	0.00	31.69
S-3	20-May-13	35.73	5.83	5.83	0.00	29.90
	14-Oct-13		5.55	5.54	0.01	30.19
	3-Feb-14		6.19	6.19	0.00	29.54
	16-May-14		4.05	4.03	0.02	31.70
S-4	20-May-13	35.80	6.45	--	0.00	29.35
	14-Oct-13		5.92	--	0.00	29.88
	3-Feb-14		6.81	--	0.00	28.99
	16-May-14		4.53	4.53	0.00	31.27
S-5	20-May-13	35.63	6.54	6.54	0.00	29.09
	14-Oct-13		5.92	--	0.00	29.71
	3-Feb-14		6.92	--	0.00	28.71
	16-May-14		4.52	--	0.00	31.11
S-6	20-May-13	35.30	6.35	6.34	0.01	28.96
	14-Oct-13		5.99	5.98	0.01	29.32
	3-Feb-14		6.71	6.70	0.01	28.60
	16-May-14		4.32	--	0.00	30.98
S-7	20-May-13	36.23	7.25	7.19	0.06	29.03
	14-Oct-13		6.43	6.42	0.01	29.81
	3-Feb-14		7.46	7.42	0.04	28.81
	16-May-14		5.14	5.14	0.00	31.09
S-8	20-May-13	36.88	6.28	6.27	0.01	30.61
	14-Oct-13		6.48	6.47	0.01	30.41
	3-Feb-14		6.83	6.82	0.01	30.06
	16-May-14		4.76	4.63	0.13	32.24



S-6 ● Sump Location and Number



Groundwater Sampling Data

Project Paramount Petroleum
Field Rep. Sasha R. Miles

Job No. 17203-52

Date 05/20/13

WELL NUMBER	DATE (TIME)	WELL DEPTH IN FEET	DEPTH TO WATER IN FEET	DEPTH TO PRODUCT IN FEET	PRODUCT THICKNESS IN FEET	METHOD OF SAMPLING	COMMENTS (color, sheen, sediment, odor, bubbles)	Liters	Temp °C	pH	EC µMHOS	ORP mV	DO mg/L	TIME	CASING VOL. GALS	PURGE VOLUME GALS (EST)
W-34 W-32 W-33 A-4	0755		4.88 5.34 5.69 8.12			Purge and sample with a small peristaltic pump through a YSI 600XL flowcell										
S-8 S-1 S-2 S-3 S-4			6.23 6.10 5.83 5.83 6.45	6.27 6.05 5.83	Trace	w/610D display (purge only) using new 1/4" poly tubing Using a low flow										
S-5 S-6 S-7	0820		6.54 6.35 7.19	6.54 6.34 7.25	Trace	technique of <500 ml/min										
W-34 (0905)							Clear. No odor sediment or sheen.	Int	13.75	6.55	0.048	209.0	9.21	0852		
								1	13.06	6.30	0.044	223.5	9.28	0856		
								2	12.92	6.15	0.043	226.1	9.28	0857		
								3	13.01	6.17	0.043	222.0	9.26	0902		
W-32 (0931)							Clear. No odor sediment or sheen.	Int	14.77	6.77	0.228	199.7	1.75	0919		
								1	14.75	6.79	0.240	192.6	1.08	0922		
								2	14.79	6.80	0.245	186.8	0.60	0925		
								3	14.79	6.81	0.245	182.5	0.42	0928		
W-33 (0952)							Clear. No odor sediment or sheen.	Int	13.62	7.40	0.042	172.8	7.54	0940		
								1	13.47	6.82	0.039	191.0	7.22	0943		
								2	13.45	6.63	0.038	195.0	7.15	0946		
								3	13.45	6.56	0.037	196.3	7.12	0949		
								4	13.38	6.52	0.036	194.6	6.98	0952		

Groundwater Sampling Data

Project Paramount Petroleum

Job No. 17203-52

Field Rep. Jason R. Miles

Date 05/20/13

WELL NUMBER	DATE (TIME)	WELL DEPTH IN FEET	DEPTH TO WATER IN FEET	DEPTH TO PRODUCT IN FEET	PRODUCT THICKNESS IN FEET	METHOD OF SAMPLING	COMMENTS (color, sheen, sediment, odor, bubbles)	Liters	Temp °C	pH	EC µMHOS	ORP mV	DO mg/L	TIME	CASING VOL. GALS	PURGE VOLUME GALS (EST)
A-4	(1019)	(5 VOAs)				Purge and sample with a small peristaltic pump through a YSI 600XL flowcell	Slightly cloudy, light grey. Petro odor, slight sheen.	Int	12.71	6.63	0.064	-190.3	1.96	1007		
								1	12.77	6.56	0.064	-196.0	0.74	1010		
								2	12.85	6.57	0.065	-188.0	0.71	1013		
								3	12.84	6.57	0.066	-189.4	0.42	1016		
S-2	(1048)					w/610D display (purge only) using new 1/4" poly tubing Using a low flow	Black and tan color flock Petro odor, light sheen.	Int	15.85	6.48	0.402	-148.9	2.23	1035		
								1	15.83	6.51	0.399	-162.6	0.59	1037		
								2	15.86	6.51	0.396	-166.7	0.45	1042		
								3	15.92	6.50	0.385	-168.3	0.33	1045		
S-3	(1123)	S-3 Dup taken (3 CONTAINS)				technique of <500 ml/min	Attempted to remove trace product. Very little recovered. Clear. Heavy sheen Petro odor.	Int	16.53	6.60	0.617	-122.3	0.69	1111		
								1	16.58	6.59	0.622	-126.9	0.26	1114		
								2	16.61	6.60	0.622	-129.1	0.17	1117		
								3	16.62	6.60	0.622	-130.4	0.21	1120		
S-4	(1149)	4 VOAs					Grey tint. Some bubbles. Sheen Petro odor.	Int	17.56	6.59	1.023	-114.5	1.04	1137		
								1	17.20	6.57	1.021	-121.4	0.87	1140		
								2	17.23	6.58	1.023	-126.5	0.58	1143		
								3	17.23	6.58	1.026	-127.9	0.43	1146		
S-5	(1221)						Clear. Sheen. Petro odor.	Int	17.41	6.64	0.752	-111.7	1.22	1209		
								1	16.96	6.53	0.736	-110.5	0.42	1212		
								2	17.04	6.52	0.734	-110.2	0.41	1215		
								3	17.06	6.51	0.731	-111.2	0.23	1218		
S-6	(1305)					↓	No sheen. Petro odor. No sediment	Int	17.39	6.85	0.447	-97.2	1.38	1252		
								1	16.59	6.65	0.427	-107.4	0.85	1256		
								2	16.57	6.63	0.422	-109.5	0.39	1259		
								3	16.66	6.62	0.419	-109.8	0.29	1302		

TB# 345 04/11/13
Lunch from 1225-1245

Hart Crowser, Inc.

Groundwater Sampling Data

Project Paramount Petroleum
Field Rep. Sason R. Mills

Job No. 17203-52

Date 05/20/13

[illegible]

Groundwater Sampling Data

Project Paramount Petroleum
Field Rep. Jason R. Miles

Job No. 17203-53
Date 10/14/2013

WELL NUMBER	DATE (TIME)	WELL DEPTH IN FEET	DEPTH TO WATER IN FEET	DEPTH TO PRODUCT IN FEET	PRODUCT THICKNESS IN FEET	METHOD OF SAMPLING	COMMENTS	Liter	T °C	pH mV	EC mS/cm	ORP mV	DO mg/L	TIME
W-34 W-32 W-33 A-4	0748		4.32 5.03 5.24 7.48	- - - -		Purge and sample using small peristaltic pump through YSI 600XL flow cell with 650D display using dedicated 1/4 inch poly tubing. Low flow technique of <500 ml/min.								
S-2 S-3 S-4 S-5 S-6			5.67 5.55 5.92 5.92 5.98	- - - - 5.98										
S-7 S-1 S-8			6.43 5.38 6.48	6.42 - 6.47										
W-34 (0840)							Clear. No odor, sediment, or sheen.	Int 16.33	8.40	0.106	116.2	7.27	0824	
								1 16.19	6.97	0.096	165.9	7.04	0828	
								2 16.02	6.51	0.095	178.5	7.02	0831	
								3 15.94	6.26	0.094	185.6	7.06	0834	
								4 15.84	6.14	0.094	187.5	7.01	0837	
W-32 (0906)							Clear. No odor sediment or sheen.	Int 17.90	6.38	0.341	167.8	2.03	0850	
								1 17.77	6.49	0.348	160.2	1.13	0854	
								2 17.80	6.51	0.353	157.5	1.01	0857	
								3 17.86	6.53	0.357	156.1	0.90	0900	
W-33 (0929)							Clear. No odor sediment, or sheen.	Int 16.12	7.22	0.061	143.5	6.29	0914	
								1 16.06	6.95	0.058	162.8	6.21	0917	
								2 15.92	6.79	0.055	170.0	6.17	0920	
								3 15.85	6.71	0.055	172.7	6.17	0923	
								4 15.83	6.62	0.054	174.9	6.14	0926	

Trip Blank into TB# 348

9/25/13

Hart Crowser, Inc.

Trip Blank into
TB# 348
1 cont.

9/25/13

Hart Crowser, Inc.

Groundwater Sampling Data

Project Paramount Petroleum
Field Rep. Jason R. Miles

Job No. 17203-53
Date 10/14/2013

WELL NUMBER	DATE (TIME)	WELL DEPTH IN FEET	DEPTH TO WATER IN FEET	DEPTH TO PRODUCT IN FEET	PRODUCT THICKNESS IN FEET	METHOD OF SAMPLING	COMMENTS	Liter	T °C	pH mV	EC mS/cm	ORP mV	DO mg/L	TIME
A-4	(0956)					Purge and sample using small peristaltic pump through YSI	Slightly cloudy, light grey tint. No bubbles. Petro odor.	Int	15.42	6.58	0.672	75.1	1.81	0940
								1	15.44	6.44	0.080	49.6	0.93	0944
								2	15.48	6.38	0.086	44.0	0.76	0947
								3	15.50	6.35	0.088	38.2	0.65	0950
S-2	(1022)					600XL flow cell with 650D display using dedicated 1/4 inch poly tubing. Low flow technique of <500 ml/min.	Cloudy light grey. Some dark grey floc. Petro odor. No sheen.	Int	18.05	6.36	0.635	-103.5	0.89	1008
								1	18.10	6.43	0.639	-99.5	0.59	1013
								2	18.25	6.45	0.639	-109.5	0.46	1016
								3	18.33	6.43	0.637	-115.3	0.48	1019
S-4	(1047)	S-4 Dup collected					Cloudy, light brown tint. Strong petro odor, sheen. Some black floc.	Int	19.68	6.54	1.277	-78.0	0.82	1032
								1	19.38	6.55	1.270	-93.7	0.57	1035
								2	19.32	6.56	1.267	-99.4	0.41	1038
								3	19.35	6.57	1.266	-103.0	0.39	1041
S-3	(1134)						Removed ~ 1/2 gallon of product. Strong petro odor, sheen.	Int	20.25	6.88	0.957	-109.2	1.05	1118
								1	19.93	6.71	0.943	-111.1	0.55	1122
								2	19.81	6.68	0.935	-112.8	0.37	1125
								3	19.75	6.68	0.933	-113.5	0.38	1128
S-5	(1158)						Cloudy. Light brown tint. Petro odor, sheen.	Int	20.66	6.77	1.000	-93.2	1.21	1143
								1	20.61	6.66	0.957	-49.1	0.87	1146
								2	20.60	6.64	0.951	-52.9	0.58	1149
								3	20.58	6.64	0.951	-56.4	0.40	1152
S-6	(1229)						Removed ~ 1 gallon product. Cloudy grey-brown. Petro odor and sheen. Some black floc.	Int	20.18	6.96	1.056	-53.3	0.65	1213
								1	19.93	6.83	1.007	-82.4	0.60	1217
								2	19.83	6.78	0.973	-90.0	0.47	1220
								3	19.74	6.76	0.952	-94.3	0.45	1223

Groundwater Sampling Data

Project Paramount Petroleum
Field Rep. Jason R. Miles

Job No. 17203-53

Date 10/14/2013

[illegible]

Groundwater Sampling Data

Project Paramount Petroleum - Will bridge Fac. Job No. 17203-53

Field Rep. Jason R. Miles

Date 02-03-2014

[illegible]

Groundwater Sampling Data

Project Arc Terminals Job No. 15812-00 / Task 1
Field Rep. Cwm Date 5/16/14

[illegible]

ORR Jim

From: Dan York [DYork@arcterminals.com]
Sent: Friday, July 31, 2015 11:46 AM
To: ORR Jim
Cc: Clayton Curtis
Subject: FW: Arc Terminals Ground Water Monitoring Results (Paramount Naphtha Leak 2011)
Attachments: May 2014 Elevation Monitoring Memo.pdf

Mr. Orr,

Please find attached the May 2014 ground water monitoring results from the wells associated with the 2011 naphtha leak which occurred at 5501 NW Front Avenue, Portland, OR 97210 under Paramount Petroleum operation. Arc Terminals Holdings, LLC would like to take the necessary stapes to close the remediation and monitoring actions related to the spill. Please contact myself (onsite contact) or Clayton Curtis (Arc Terminals Corporate VP Regulatory Affairs) with any questions or for more information.

Best Regards,

Dan York, CPLP

Safety and Training Manager

Arc Terminals

P: (503) 273-4736

C: (360) 910-0242

F: (503) 274-9758

dyork@arcterminals.com



Oregon

John A. Kitzhaber, MD, Governor

Department of Environmental Quality

Northwest Region
2020 SW 4th Avenue, # 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-5471

October 31, 2013

Also Sent Via Email

David Broderick
Paramount Petroleum
5501 NW Front Avenue
Portland, OR 97210

Re: Paramount Petroleum Naphtha Spill October 23, 2013 Monitoring Report
OERS No. 11-1718

Dear Mr. Broderick:

DEQ approves your plan to discontinue operations of the treatment system and monitoring product thickness quarterly for one year. If product thickness measurements for the year indicate that there is not an accumulation of more than 0.1 of a foot, then DEQ will consider the spill response completed. Please report to DEQ the quarterly results of the product thickness monitoring.

If you have any questions about this letter, please contact Jim Orr at (503) 229-5039.

Sincerely,

Jim Orr, R.G.
Project Manager
DEQ NW Region Cleanup Section

cc: Mike Greenburg, DEQ NWR

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October 23, 2013

Jim Orr
Oregon DEQ NWR
Remedial Action Project Manager
2020 SW 4th Ave., Suite 400
Portland, OR 97201-4987

RE: Paramount Petroleum Naphtha Leak

Dear Mr. Orr:

Paramount Petroleum has been operating a dual phase pump system since October 27, 2011 as part of the emergency cleanup of the naphtha leak discovered on July 18, 2011. Paramount believes that the usefulness of the system has ended and would like to discontinue its operation. This letter will provide an update on the status of the cleanup and provide Paramount's proposed path forward.

For the last month the system has been shut off to determine the rebound that would occur. There was no significant rebound. A summary of the rebound is shown in Table 1 and Figure 1. Additionally, on October 14, 2013, analytical samples were collected from the eight recovery sumps (S-1 through S-8) and the four closest down gradient groundwater monitoring wells to measure the concentration of dissolved contaminants in the groundwater. The analytical results are summarized in Table 2 as well as Figures 2 and 3 (complete laboratory results are attached). The "limits" referenced in Table 2 are the concentrations for Groundwater in Excavation from the Oregon DEQ's Risk-Based Concentrations Table, revision 11/15/11. Based on this round (as well as the initial sampling round in May) concentrations of dissolved contaminants in the groundwater are below the DEQ's Risk-Based Concentrations for cleanup.

Paramount feels that the environmental benefits of continued operation of the pump are insignificant. There is little if any risk of the product moving as demonstrated by the groundwater monitoring results for the down gradient wells A-4, W-32, WS-3 and W-34.

Therefore, Paramount proposes to discontinue use of the dual phase pump system and consider the spill response complete. Paramount will continue to monitor free product thickness quarterly and remove any free phase product until there has been no statistical change in the





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Portland, OR 97210

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free phase product level for four consecutive quarters. Once this is achieved, Paramount will cease free phase product monitoring.

We would be happy to provide any additional information you may require. Please feel free to contact me to discuss our proposal.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Broderick', written over a horizontal line.

David Broderick

Attachments

Table 1: Rebound

	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	Average of sumps	A-4	W-32	W-33	W-34
	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft
8/23/2013	0.020	0.000	0.005	0.005	0.000	0.030	0.080	0.010	0.019				
10/14/2013	0.000	0.000	0.010	0.000	0.000	0.010	0.010	0.000	0.004	0.000	0.000	0.000	0.000

Figure 1: Graph of Average Sump Free Product Thickness

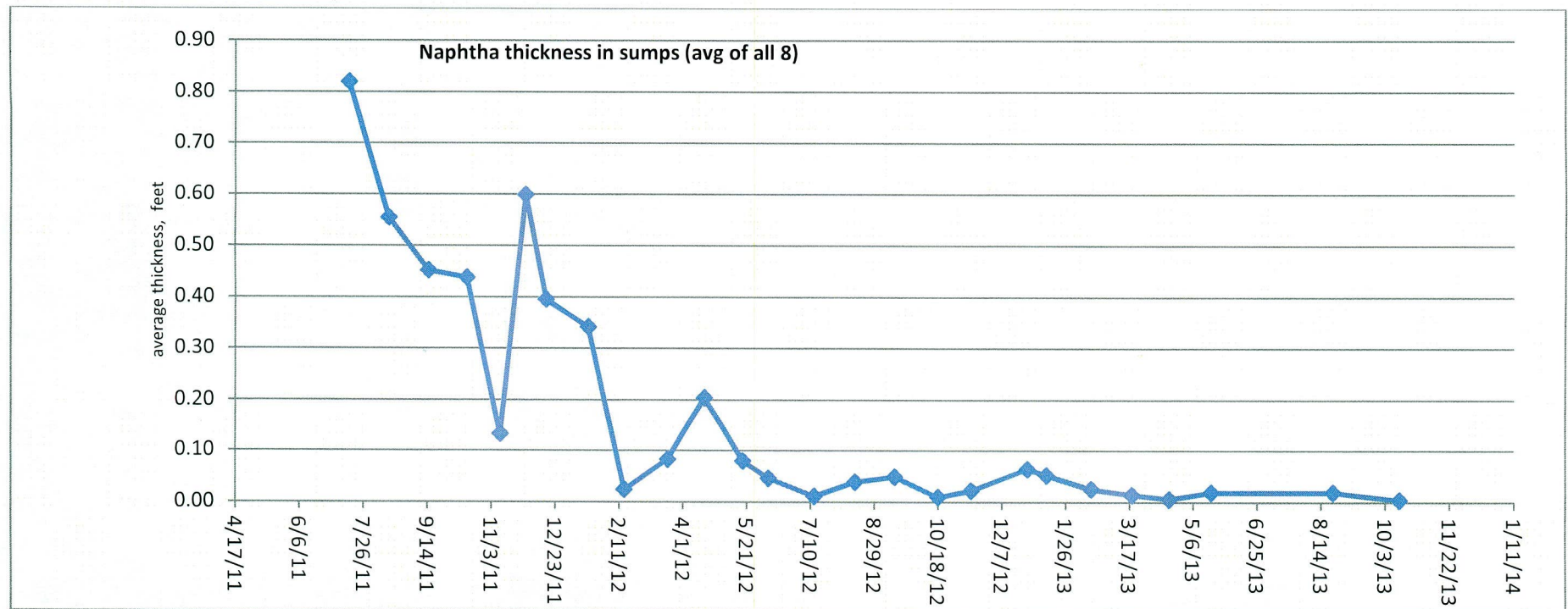
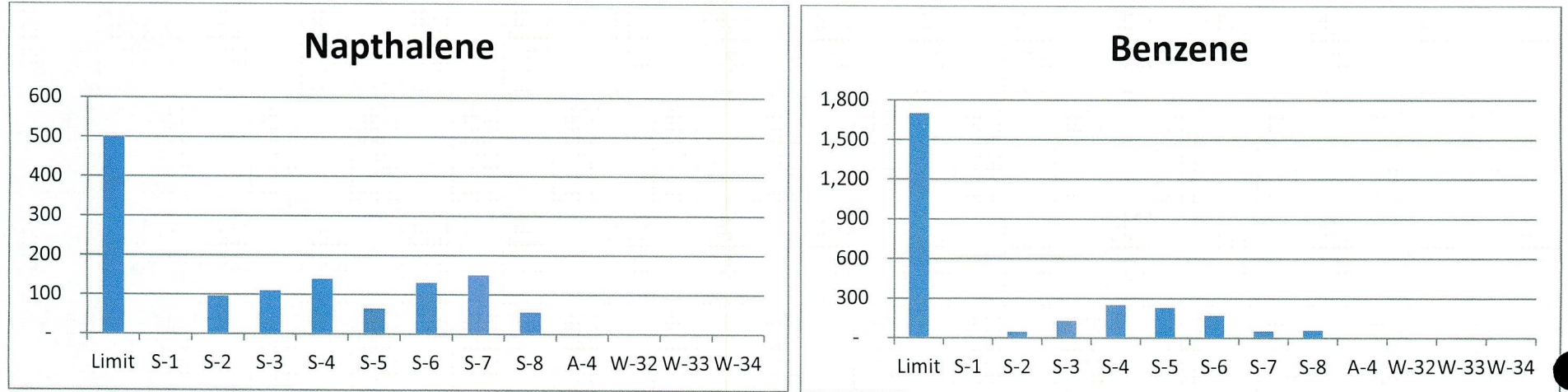


Table 2: Summary of Key Analytical Results

ug/L	Limit	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	A-4	W-32	W-33	W-34
Benzene	1,700	5	47	130	250	230	170	53	58	ND	ND	ND	ND
Ethylbenzene	4,400	9	400	520	590	190	460	560	150	10	ND	ND	ND
Napthalene	500	nd	96	110	140	65	130	150	56	ND	ND	ND	ND
toluene	210,000	6	110	210	570	180	420	540	140	ND	ND	ND	ND
1,2,4-Trimethylbenzene	1,700	24	240	240	330	140	360	420	140	120	ND	ND	ND
1,3,5-Trimethylbenzene	23,000	11	63	71	78	52	90	100	31	37	ND	ND	ND
xylenes	23,000	57	900	1,000	1,480	700	1,510	1,630	620	63	ND	ND	ND

*"limit" is the RBC_{we} from ODEQ's Risk-Based Concentrations for Individual Chemicals Table

Figure 2 and 3: Naphthalene and Benzene Concentrations





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Portland, OR 97210

1281
Spill Com

Paramount
Naphtha Spill

June 1, 2013

Michael Greenburg
Oregon DEQ State On-Scene Coordinator
2020 SW 4th Ave., Suite 400
Portland, OR 97201-4987

RE: Paramount Petroleum Naphtha Leak

Dear Mr. Greenburg:

Paramount Petroleum has been operating a dual phase pump system since October 27, 2011 as part of the emergency cleanup of the naphtha leak discovered on July 18, 2011. Paramount believes that the usefulness of the system has ended and would like to discontinue its operation as part of the cleanup. This letter will provide an update on the status of the cleanup and provide Paramount's proposed path forward.

To determine if there is significant volume remaining on the groundwater, Paramount, on April 17, 2013, shut down the dual phase pump system for a month to determine the free product rebound. Based on the May 20, 2013 measurements, it appears that Paramount has recovered most of the free phase product and there would be little if any environmental benefits from continued operation of the dual phase pump system. A summary of the rebound is shown in Table 1 and Figure 1.

Additionally, on May 20, 2013, analytical samples were collected from the eight recovery sumps (S-1 through S-8) and the four closest down gradient groundwater monitoring wells to measure the concentration of dissolved contaminants in the groundwater. The analytical results are summarized in Table 2 as well as Figures 2 and 3 (complete laboratory results are attached). The "limits" referenced in Table 2 are the concentrations for Groundwater in Excavation from the Oregon DEQ's Risk-Based Concentrations Table, revision 11/15/11. Based on this initial sampling round, concentrations of dissolved contaminants in the groundwater are below the DEQ's Risk-Based Concentrations for cleanup.

Paramount feels that the environmental benefits of continued operation of the pump are insignificant and propose to move into a monitoring phase. There is little if any risk of the product moving as demonstrated by the groundwater monitoring results for the down gradient wells A-4, W-32, WS-3 and W-34.



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Therefore, Paramount proposes to discontinue use of the dual phase pump system. Instead, Paramount proposes to monitor free product thickness monthly and remove any free phase product by vacuum truck or pump quarterly, until there has been no statistical change in the free phase product level for four consecutive quarters. Once this is achieved, Paramount will cease free phase product monitoring. As for the dissolved contaminants, Paramount proposes to monitor them for four more quarters. If the concentrations stay below the DEQ's Risk-Based Concentrations, Paramount will cease monitoring for them, also. Paramount feels that this approach does not present any threat of product leaving the facility while still meeting the objectives of the cleanup.

We would be happy to provide any additional information you may require. Please feel free to contact me to discuss our proposal.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Broderick', written over the printed name.

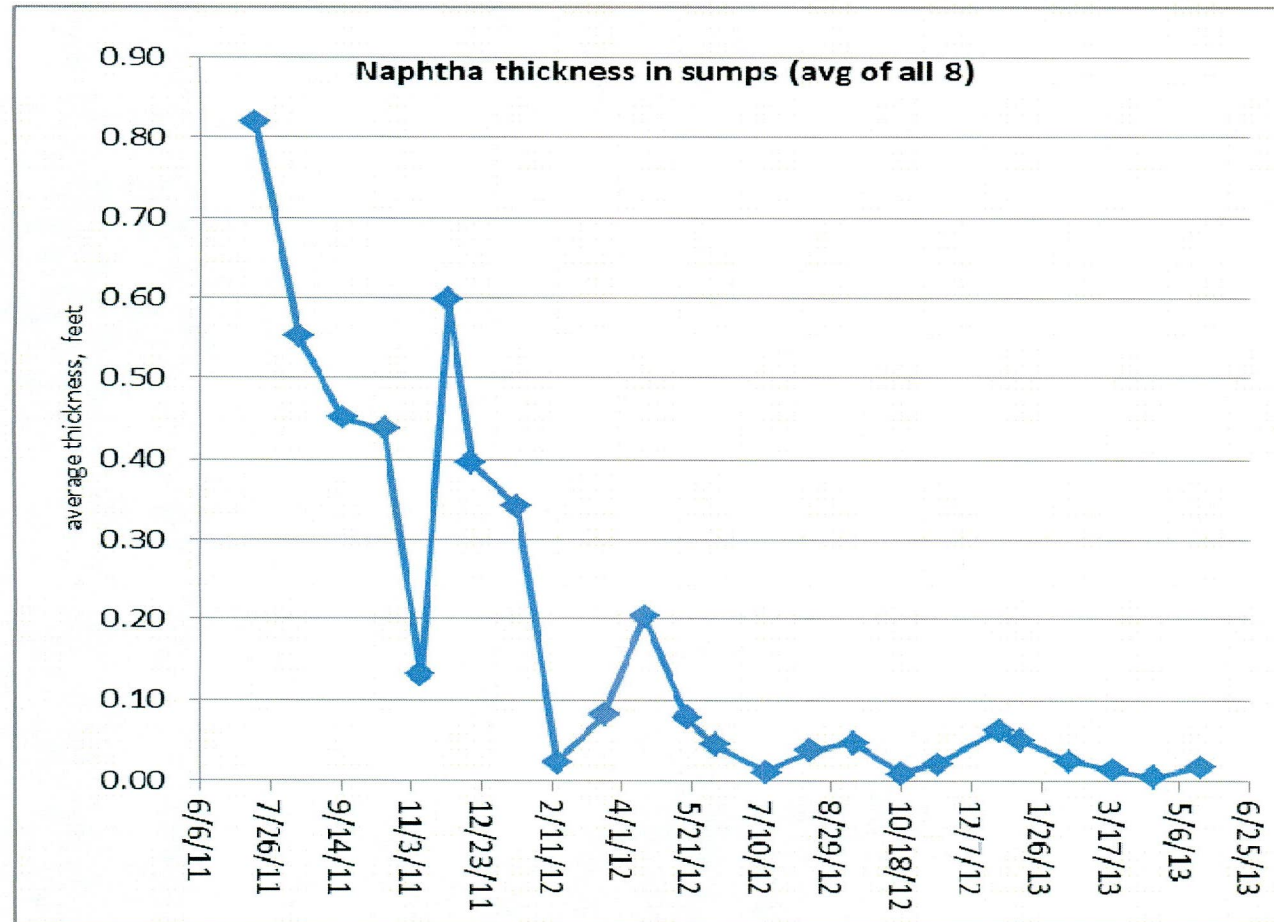
David Broderick

Attachments

Table 1: Rebound

	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	A-4	W-32	W-33	W-34	average of sumps
	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft	free product, ft
4/17/2013	0.010	0.005	0.005	0.000	0.005	0.005	0.005	0.010	0.000	0.000	0.000	0.000	0.006
5/20/2013	0.040	0.005	0.005	0.005	0.005	0.010	0.050	0.030	0.000	0.000	0.000	0.000	0.019

Figure 1: Graph of Average Sump Free Product Thickness



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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Tel: (503)906-9200

TestAmerica Job ID: 250-14847-1

Client Project/Site: Paramount Petroleum

For:

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, Oregon 97008

Attn: Chris Martin

Vanessa Berry

Authorized for release by:
10/20/2013 8:41:01 PM

Vanessa Berry, Project Manager I
(503)906-9233
vanessa.frahs@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
250-14847-1	A-4	Water	10/14/13 09:56	10/14/13 15:40
250-14847-2	S-1	Water	10/14/13 13:18	10/14/13 15:40
250-14847-3	S-2	Water	10/14/13 10:22	10/14/13 15:40
250-14847-4	S-3	Water	10/14/13 11:34	10/14/13 15:40
250-14847-5	S-4	Water	10/14/13 10:47	10/14/13 15:40
250-14847-6	S-5	Water	10/14/13 11:58	10/14/13 15:40
250-14847-7	S-6	Water	10/14/13 12:29	10/14/13 15:40
250-14847-8	S-7	Water	10/14/13 12:54	10/14/13 15:40
250-14847-9	S-8	Water	10/14/13 13:47	10/14/13 15:40
250-14847-10	W-32	Water	10/14/13 09:06	10/14/13 15:40
250-14847-11	W-33	Water	10/14/13 09:29	10/14/13 15:40
250-14847-12	W-34	Water	10/14/13 08:40	10/14/13 15:40

Definitions/Glossary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: A-4

Date Collected: 10/14/13 09:56

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			10/16/13 16:35	10
Benzene	ND		2.0		ug/L			10/16/13 16:35	10
Bromobenzene	ND		5.0		ug/L			10/16/13 16:35	10
Bromochloromethane	ND		5.0		ug/L			10/16/13 16:35	10
Bromodichloromethane	ND		5.0		ug/L			10/16/13 16:35	10
Bromoform	ND		10		ug/L			10/16/13 16:35	10
Bromomethane	ND		50		ug/L			10/16/13 16:35	10
2-Butanone (MEK)	ND		100		ug/L			10/16/13 16:35	10
n-Butylbenzene	ND		50		ug/L			10/16/13 16:35	10
sec-Butylbenzene	5.0		5.0		ug/L			10/16/13 16:35	10
tert-Butylbenzene	ND		10		ug/L			10/16/13 16:35	10
Carbon disulfide	ND		100		ug/L			10/16/13 16:35	10
Carbon tetrachloride	ND		5.0		ug/L			10/16/13 16:35	10
Chlorobenzene	ND		5.0		ug/L			10/16/13 16:35	10
Chloroethane	ND		5.0		ug/L			10/16/13 16:35	10
Chloroform	ND		5.0		ug/L			10/16/13 16:35	10
Chloromethane	ND		50		ug/L			10/16/13 16:35	10
2-Chlorotoluene	ND		5.0		ug/L			10/16/13 16:35	10
4-Chlorotoluene	ND		5.0		ug/L			10/16/13 16:35	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			10/16/13 16:35	10
Dibromochloromethane	ND		10		ug/L			10/16/13 16:35	10
1,2-Dibromoethane	ND		5.0		ug/L			10/16/13 16:35	10
Dibromomethane	ND		5.0		ug/L			10/16/13 16:35	10
1,2-Dichloroethane	ND		5.0		ug/L			10/16/13 16:35	10
1,3-Dichlorobenzene	ND		5.0		ug/L			10/16/13 16:35	10
1,4-Dichlorobenzene	ND		5.0		ug/L			10/16/13 16:35	10
Dichlorodifluoromethane	ND		50		ug/L			10/16/13 16:35	10
1,1-Dichloroethane	ND		5.0		ug/L			10/16/13 16:35	10
1,1-Dichloroethene	ND		5.0		ug/L			10/16/13 16:35	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 16:35	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 16:35	10
1,2-Dichloropropane	ND		5.0		ug/L			10/16/13 16:35	10
1,3-Dichloropropane	ND		5.0		ug/L			10/16/13 16:35	10
2,2-Dichloropropane	ND		5.0		ug/L			10/16/13 16:35	10
1,1-Dichloropropene	ND		10		ug/L			10/16/13 16:35	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 16:35	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 16:35	10
Ethylbenzene	9.8		5.0		ug/L			10/16/13 16:35	10
Hexachlorobutadiene	ND		40		ug/L			10/16/13 16:35	10
2-Hexanone	ND		100		ug/L			10/16/13 16:35	10
Isopropylbenzene	ND		20		ug/L			10/16/13 16:35	10
p-Isopropyltoluene	ND		20		ug/L			10/16/13 16:35	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			10/16/13 16:35	10
Methyl tert-butyl ether	ND		10		ug/L			10/16/13 16:35	10
Methylene Chloride	ND		50		ug/L			10/16/13 16:35	10
Naphthalene	ND		20		ug/L			10/16/13 16:35	10
N-Propylbenzene	8.4		5.0		ug/L			10/16/13 16:35	10
Styrene	ND		5.0		ug/L			10/16/13 16:35	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 16:35	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: A-4

Date Collected: 10/14/13 09:56

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 16:35	10
Tetrachloroethene	ND		5.0		ug/L			10/16/13 16:35	10
Toluene	ND		5.0		ug/L			10/16/13 16:35	10
1,2,3-Trichlorobenzene	ND		10		ug/L			10/16/13 16:35	10
1,2,4-Trichlorobenzene	ND		10		ug/L			10/16/13 16:35	10
1,1,1-Trichloroethane	ND		5.0		ug/L			10/16/13 16:35	10
1,1,2-Trichloroethane	ND		5.0		ug/L			10/16/13 16:35	10
Trichloroethene	ND		5.0		ug/L			10/16/13 16:35	10
Trichlorofluoromethane	ND		5.0		ug/L			10/16/13 16:35	10
1,2,3-Trichloropropane	ND		5.0		ug/L			10/16/13 16:35	10
1,2,4-Trimethylbenzene	120		10		ug/L			10/16/13 16:35	10
1,3,5-Trimethylbenzene	37		5.0		ug/L			10/16/13 16:35	10
Vinyl chloride	ND		5.0		ug/L			10/16/13 16:35	10
m,p-Xylene	32		10		ug/L			10/16/13 16:35	10
o-Xylene	31		5.0		ug/L			10/16/13 16:35	10
1,2-Dichlorobenzene	ND		5.0		ug/L			10/16/13 16:35	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		10/16/13 16:35	10
4-Bromofluorobenzene (Surr)	95		80 - 120		10/16/13 16:35	10
Dibromofluoromethane (Surr)	98		80 - 120		10/16/13 16:35	10
Toluene-d8 (Surr)	97		80 - 120		10/16/13 16:35	10

Client Sample ID: S-1

Date Collected: 10/14/13 13:18

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			10/16/13 16:58	10
Benzene	4.7		2.0		ug/L			10/16/13 16:58	10
Bromobenzene	ND		5.0		ug/L			10/16/13 16:58	10
Bromochloromethane	ND		5.0		ug/L			10/16/13 16:58	10
Bromodichloromethane	ND		5.0		ug/L			10/16/13 16:58	10
Bromoform	ND		10		ug/L			10/16/13 16:58	10
Bromomethane	ND		50		ug/L			10/16/13 16:58	10
2-Butanone (MEK)	ND		100		ug/L			10/16/13 16:58	10
n-Butylbenzene	ND		50		ug/L			10/16/13 16:58	10
sec-Butylbenzene	ND		5.0		ug/L			10/16/13 16:58	10
tert-Butylbenzene	ND		10		ug/L			10/16/13 16:58	10
Carbon disulfide	ND		100		ug/L			10/16/13 16:58	10
Carbon tetrachloride	ND		5.0		ug/L			10/16/13 16:58	10
Chlorobenzene	ND		5.0		ug/L			10/16/13 16:58	10
Chloroethane	ND		5.0		ug/L			10/16/13 16:58	10
Chloroform	ND		5.0		ug/L			10/16/13 16:58	10
Chloromethane	ND		50		ug/L			10/16/13 16:58	10
2-Chlorotoluene	ND		5.0		ug/L			10/16/13 16:58	10
4-Chlorotoluene	ND		5.0		ug/L			10/16/13 16:58	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			10/16/13 16:58	10
Dibromochloromethane	ND		10		ug/L			10/16/13 16:58	10
1,2-Dibromoethane	ND		5.0		ug/L			10/16/13 16:58	10
Dibromomethane	ND		5.0		ug/L			10/16/13 16:58	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-1

Date Collected: 10/14/13 13:18

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0		ug/L			10/16/13 16:58	10
1,3-Dichlorobenzene	ND		5.0		ug/L			10/16/13 16:58	10
1,4-Dichlorobenzene	ND		5.0		ug/L			10/16/13 16:58	10
Dichlorodifluoromethane	ND		50		ug/L			10/16/13 16:58	10
1,1-Dichloroethane	ND		5.0		ug/L			10/16/13 16:58	10
1,1-Dichloroethene	ND		5.0		ug/L			10/16/13 16:58	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 16:58	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 16:58	10
1,2-Dichloropropane	ND		5.0		ug/L			10/16/13 16:58	10
1,3-Dichloropropane	ND		5.0		ug/L			10/16/13 16:58	10
2,2-Dichloropropane	ND		5.0		ug/L			10/16/13 16:58	10
1,1-Dichloropropene	ND		10		ug/L			10/16/13 16:58	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 16:58	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 16:58	10
Ethylbenzene	9.2		5.0		ug/L			10/16/13 16:58	10
Hexachlorobutadiene	ND		40		ug/L			10/16/13 16:58	10
2-Hexanone	ND		100		ug/L			10/16/13 16:58	10
Isopropylbenzene	ND		20		ug/L			10/16/13 16:58	10
p-Isopropyltoluene	ND		20		ug/L			10/16/13 16:58	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			10/16/13 16:58	10
Methyl tert-butyl ether	ND		10		ug/L			10/16/13 16:58	10
Methylene Chloride	ND		50		ug/L			10/16/13 16:58	10
Naphthalene	ND		20		ug/L			10/16/13 16:58	10
N-Propylbenzene	ND		5.0		ug/L			10/16/13 16:58	10
Styrene	ND		5.0		ug/L			10/16/13 16:58	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 16:58	10
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 16:58	10
Tetrachloroethene	ND		5.0		ug/L			10/16/13 16:58	10
Toluene	6.4		5.0		ug/L			10/16/13 16:58	10
1,2,3-Trichlorobenzene	ND		10		ug/L			10/16/13 16:58	10
1,2,4-Trichlorobenzene	ND		10		ug/L			10/16/13 16:58	10
1,1,1-Trichloroethane	ND		5.0		ug/L			10/16/13 16:58	10
1,1,2-Trichloroethane	ND		5.0		ug/L			10/16/13 16:58	10
Trichloroethene	ND		5.0		ug/L			10/16/13 16:58	10
Trichlorofluoromethane	ND		5.0		ug/L			10/16/13 16:58	10
1,2,3-Trichloropropane	ND		5.0		ug/L			10/16/13 16:58	10
1,2,4-Trimethylbenzene	24		10		ug/L			10/16/13 16:58	10
1,3,5-Trimethylbenzene	11		5.0		ug/L			10/16/13 16:58	10
Vinyl chloride	ND		5.0		ug/L			10/16/13 16:58	10
m,p-Xylene	28		10		ug/L			10/16/13 16:58	10
o-Xylene	29		5.0		ug/L			10/16/13 16:58	10
1,2-Dichlorobenzene	ND		5.0		ug/L			10/16/13 16:58	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		10/16/13 16:58	10
4-Bromofluorobenzene (Surr)	97		80 - 120		10/16/13 16:58	10
Dibromofluoromethane (Surr)	97		80 - 120		10/16/13 16:58	10
Toluene-d8 (Surr)	97		80 - 120		10/16/13 16:58	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-2

Date Collected: 10/14/13 10:22

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			10/16/13 17:22	10
Benzene	47		2.0		ug/L			10/16/13 17:22	10
Bromobenzene	ND		5.0		ug/L			10/16/13 17:22	10
Bromochloromethane	ND		5.0		ug/L			10/16/13 17:22	10
Bromodichloromethane	ND		5.0		ug/L			10/16/13 17:22	10
Bromoform	ND		10		ug/L			10/16/13 17:22	10
Bromomethane	ND		50		ug/L			10/16/13 17:22	10
2-Butanone (MEK)	ND		100		ug/L			10/16/13 17:22	10
n-Butylbenzene	ND		50		ug/L			10/16/13 17:22	10
sec-Butylbenzene	7.9		5.0		ug/L			10/16/13 17:22	10
tert-Butylbenzene	ND		10		ug/L			10/16/13 17:22	10
Carbon disulfide	ND		100		ug/L			10/16/13 17:22	10
Carbon tetrachloride	ND		5.0		ug/L			10/16/13 17:22	10
Chlorobenzene	ND		5.0		ug/L			10/16/13 17:22	10
Chloroethane	ND		5.0		ug/L			10/16/13 17:22	10
Chloroform	ND		5.0		ug/L			10/16/13 17:22	10
Chloromethane	ND		50		ug/L			10/16/13 17:22	10
2-Chlorotoluene	ND		5.0		ug/L			10/16/13 17:22	10
4-Chlorotoluene	ND		5.0		ug/L			10/16/13 17:22	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			10/16/13 17:22	10
Dibromochloromethane	ND		10		ug/L			10/16/13 17:22	10
1,2-Dibromoethane	ND		5.0		ug/L			10/16/13 17:22	10
Dibromomethane	ND		5.0		ug/L			10/16/13 17:22	10
1,2-Dichloroethane	ND		5.0		ug/L			10/16/13 17:22	10
1,3-Dichlorobenzene	ND		5.0		ug/L			10/16/13 17:22	10
1,4-Dichlorobenzene	ND		5.0		ug/L			10/16/13 17:22	10
Dichlorodifluoromethane	ND		50		ug/L			10/16/13 17:22	10
1,1-Dichloroethane	ND		5.0		ug/L			10/16/13 17:22	10
1,1-Dichloroethene	ND		5.0		ug/L			10/16/13 17:22	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 17:22	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 17:22	10
1,2-Dichloropropane	ND		5.0		ug/L			10/16/13 17:22	10
1,3-Dichloropropane	ND		5.0		ug/L			10/16/13 17:22	10
2,2-Dichloropropane	ND		5.0		ug/L			10/16/13 17:22	10
1,1-Dichloropropene	ND		10		ug/L			10/16/13 17:22	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 17:22	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 17:22	10
Ethylbenzene	400		5.0		ug/L			10/16/13 17:22	10
Hexachlorobutadiene	ND		40		ug/L			10/16/13 17:22	10
2-Hexanone	ND		100		ug/L			10/16/13 17:22	10
Isopropylbenzene	28		20		ug/L			10/16/13 17:22	10
p-Isopropyltoluene	ND		20		ug/L			10/16/13 17:22	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			10/16/13 17:22	10
Methyl tert-butyl ether	ND		10		ug/L			10/16/13 17:22	10
Methylene Chloride	ND		50		ug/L			10/16/13 17:22	10
Naphthalene	96		20		ug/L			10/16/13 17:22	10
N-Propylbenzene	37		5.0		ug/L			10/16/13 17:22	10
Styrene	ND		5.0		ug/L			10/16/13 17:22	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 17:22	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-2

Date Collected: 10/14/13 10:22

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 17:22	10
Tetrachloroethene	ND		5.0		ug/L			10/16/13 17:22	10
Toluene	110		5.0		ug/L			10/16/13 17:22	10
1,2,3-Trichlorobenzene	ND		10		ug/L			10/16/13 17:22	10
1,2,4-Trichlorobenzene	ND		10		ug/L			10/16/13 17:22	10
1,1,1-Trichloroethane	ND		5.0		ug/L			10/16/13 17:22	10
1,1,2-Trichloroethane	ND		5.0		ug/L			10/16/13 17:22	10
Trichloroethene	ND		5.0		ug/L			10/16/13 17:22	10
Trichlorofluoromethane	ND		5.0		ug/L			10/16/13 17:22	10
1,2,3-Trichloropropane	ND		5.0		ug/L			10/16/13 17:22	10
1,2,4-Trimethylbenzene	240		10		ug/L			10/16/13 17:22	10
1,3,5-Trimethylbenzene	63		5.0		ug/L			10/16/13 17:22	10
Vinyl chloride	ND		5.0		ug/L			10/16/13 17:22	10
m,p-Xylene	380		10		ug/L			10/16/13 17:22	10
o-Xylene	520		5.0		ug/L			10/16/13 17:22	10
1,2-Dichlorobenzene	ND		5.0		ug/L			10/16/13 17:22	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		10/16/13 17:22	10
4-Bromofluorobenzene (Surr)	99		80 - 120		10/16/13 17:22	10
Dibromofluoromethane (Surr)	92		80 - 120		10/16/13 17:22	10
Toluene-d8 (Surr)	97		80 - 120		10/16/13 17:22	10

Client Sample ID: S-3

Date Collected: 10/14/13 11:34

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			10/16/13 17:47	10
Benzene	130		2.0		ug/L			10/16/13 17:47	10
Bromobenzene	ND		5.0		ug/L			10/16/13 17:47	10
Bromochloromethane	ND		5.0		ug/L			10/16/13 17:47	10
Bromodichloromethane	ND		5.0		ug/L			10/16/13 17:47	10
Bromoform	ND		10		ug/L			10/16/13 17:47	10
Bromomethane	ND		50		ug/L			10/16/13 17:47	10
2-Butanone (MEK)	ND		100		ug/L			10/16/13 17:47	10
n-Butylbenzene	ND		50		ug/L			10/16/13 17:47	10
sec-Butylbenzene	9.2		5.0		ug/L			10/16/13 17:47	10
tert-Butylbenzene	ND		10		ug/L			10/16/13 17:47	10
Carbon disulfide	ND		100		ug/L			10/16/13 17:47	10
Carbon tetrachloride	ND		5.0		ug/L			10/16/13 17:47	10
Chlorobenzene	ND		5.0		ug/L			10/16/13 17:47	10
Chloroethane	ND		5.0		ug/L			10/16/13 17:47	10
Chloroform	ND		5.0		ug/L			10/16/13 17:47	10
Chloromethane	ND		50		ug/L			10/16/13 17:47	10
2-Chlorotoluene	ND		5.0		ug/L			10/16/13 17:47	10
4-Chlorotoluene	ND		5.0		ug/L			10/16/13 17:47	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			10/16/13 17:47	10
Dibromochloromethane	ND		10		ug/L			10/16/13 17:47	10
1,2-Dibromoethane	ND		5.0		ug/L			10/16/13 17:47	10
Dibromomethane	ND		5.0		ug/L			10/16/13 17:47	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-3

Date Collected: 10/14/13 11:34

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0		ug/L			10/16/13 17:47	10
1,3-Dichlorobenzene	ND		5.0		ug/L			10/16/13 17:47	10
1,4-Dichlorobenzene	ND		5.0		ug/L			10/16/13 17:47	10
Dichlorodifluoromethane	ND		50		ug/L			10/16/13 17:47	10
1,1-Dichloroethane	ND		5.0		ug/L			10/16/13 17:47	10
1,1-Dichloroethene	ND		5.0		ug/L			10/16/13 17:47	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 17:47	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 17:47	10
1,2-Dichloropropane	ND		5.0		ug/L			10/16/13 17:47	10
1,3-Dichloropropane	ND		5.0		ug/L			10/16/13 17:47	10
2,2-Dichloropropane	ND		5.0		ug/L			10/16/13 17:47	10
1,1-Dichloropropene	ND		10		ug/L			10/16/13 17:47	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 17:47	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 17:47	10
Ethylbenzene	520		5.0		ug/L			10/16/13 17:47	10
Hexachlorobutadiene	ND		40		ug/L			10/16/13 17:47	10
2-Hexanone	ND		100		ug/L			10/16/13 17:47	10
Isopropylbenzene	40		20		ug/L			10/16/13 17:47	10
p-Isopropyltoluene	ND		20		ug/L			10/16/13 17:47	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			10/16/13 17:47	10
Methyl tert-butyl ether	ND		10		ug/L			10/16/13 17:47	10
Methylene Chloride	ND		50		ug/L			10/16/13 17:47	10
Naphthalene	110		20		ug/L			10/16/13 17:47	10
N-Propylbenzene	52		5.0		ug/L			10/16/13 17:47	10
Styrene	ND		5.0		ug/L			10/16/13 17:47	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 17:47	10
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 17:47	10
Tetrachloroethene	ND		5.0		ug/L			10/16/13 17:47	10
Toluene	210		5.0		ug/L			10/16/13 17:47	10
1,2,3-Trichlorobenzene	ND		10		ug/L			10/16/13 17:47	10
1,2,4-Trichlorobenzene	ND		10		ug/L			10/16/13 17:47	10
1,1,1-Trichloroethane	ND		5.0		ug/L			10/16/13 17:47	10
1,1,2-Trichloroethane	ND		5.0		ug/L			10/16/13 17:47	10
Trichloroethene	ND		5.0		ug/L			10/16/13 17:47	10
Trichlorofluoromethane	ND		5.0		ug/L			10/16/13 17:47	10
1,2,3-Trichloropropane	ND		5.0		ug/L			10/16/13 17:47	10
1,2,4-Trimethylbenzene	240		10		ug/L			10/16/13 17:47	10
1,3,5-Trimethylbenzene	71		5.0		ug/L			10/16/13 17:47	10
Vinyl chloride	ND		5.0		ug/L			10/16/13 17:47	10
m,p-Xylene	480		10		ug/L			10/16/13 17:47	10
o-Xylene	520		5.0		ug/L			10/16/13 17:47	10
1,2-Dichlorobenzene	ND		5.0		ug/L			10/16/13 17:47	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					10/16/13 17:47	10
4-Bromofluorobenzene (Surr)	100		80 - 120					10/16/13 17:47	10
Dibromofluoromethane (Surr)	95		80 - 120					10/16/13 17:47	10
Toluene-d8 (Surr)	98		80 - 120					10/16/13 17:47	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-4

Date Collected: 10/14/13 10:47

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		500		ug/L			10/16/13 19:23	20
Benzene	250		4.0		ug/L			10/16/13 19:23	20
Bromobenzene	ND		10		ug/L			10/16/13 19:23	20
Bromochloromethane	ND		10		ug/L			10/16/13 19:23	20
Bromodichloromethane	ND		10		ug/L			10/16/13 19:23	20
Bromoform	ND		20		ug/L			10/16/13 19:23	20
Bromomethane	ND		100		ug/L			10/16/13 19:23	20
2-Butanone (MEK)	ND		200		ug/L			10/16/13 19:23	20
n-Butylbenzene	ND		100		ug/L			10/16/13 19:23	20
sec-Butylbenzene	ND		10		ug/L			10/16/13 19:23	20
tert-Butylbenzene	ND		20		ug/L			10/16/13 19:23	20
Carbon disulfide	ND		200		ug/L			10/16/13 19:23	20
Carbon tetrachloride	ND		10		ug/L			10/16/13 19:23	20
Chlorobenzene	ND		10		ug/L			10/16/13 19:23	20
Chloroethane	ND		10		ug/L			10/16/13 19:23	20
Chloroform	ND		10		ug/L			10/16/13 19:23	20
Chloromethane	ND		100		ug/L			10/16/13 19:23	20
2-Chlorotoluene	ND		10		ug/L			10/16/13 19:23	20
4-Chlorotoluene	ND		10		ug/L			10/16/13 19:23	20
1,2-Dibromo-3-Chloropropane	ND		100		ug/L			10/16/13 19:23	20
Dibromochloromethane	ND		20		ug/L			10/16/13 19:23	20
1,2-Dibromoethane	ND		10		ug/L			10/16/13 19:23	20
Dibromomethane	ND		10		ug/L			10/16/13 19:23	20
1,2-Dichloroethane	ND		10		ug/L			10/16/13 19:23	20
1,3-Dichlorobenzene	ND		10		ug/L			10/16/13 19:23	20
1,4-Dichlorobenzene	ND		10		ug/L			10/16/13 19:23	20
Dichlorodifluoromethane	ND		100		ug/L			10/16/13 19:23	20
1,1-Dichloroethane	ND		10		ug/L			10/16/13 19:23	20
1,1-Dichloroethene	ND		10		ug/L			10/16/13 19:23	20
cis-1,2-Dichloroethene	ND		10		ug/L			10/16/13 19:23	20
trans-1,2-Dichloroethene	ND		10		ug/L			10/16/13 19:23	20
1,2-Dichloropropane	ND		10		ug/L			10/16/13 19:23	20
1,3-Dichloropropane	ND		10		ug/L			10/16/13 19:23	20
2,2-Dichloropropane	ND		10		ug/L			10/16/13 19:23	20
1,1-Dichloropropene	ND		20		ug/L			10/16/13 19:23	20
cis-1,3-Dichloropropene	ND		10		ug/L			10/16/13 19:23	20
trans-1,3-Dichloropropene	ND		10		ug/L			10/16/13 19:23	20
Ethylbenzene	590		10		ug/L			10/16/13 19:23	20
Hexachlorobutadiene	ND		80		ug/L			10/16/13 19:23	20
2-Hexanone	ND		200		ug/L			10/16/13 19:23	20
Isopropylbenzene	42		40		ug/L			10/16/13 19:23	20
p-Isopropyltoluene	ND		40		ug/L			10/16/13 19:23	20
4-Methyl-2-pentanone (MIBK)	ND		100		ug/L			10/16/13 19:23	20
Methyl tert-butyl ether	ND		20		ug/L			10/16/13 19:23	20
Methylene Chloride	ND		100		ug/L			10/16/13 19:23	20
Naphthalene	140		40		ug/L			10/16/13 19:23	20
N-Propylbenzene	58		10		ug/L			10/16/13 19:23	20
Styrene	ND		10		ug/L			10/16/13 19:23	20
1,1,1,2-Tetrachloroethane	ND		10		ug/L			10/16/13 19:23	20

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-4

Date Collected: 10/14/13 10:47

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		10		ug/L			10/16/13 19:23	20
Tetrachloroethene	ND		10		ug/L			10/16/13 19:23	20
Toluene	570		10		ug/L			10/16/13 19:23	20
1,2,3-Trichlorobenzene	ND		20		ug/L			10/16/13 19:23	20
1,2,4-Trichlorobenzene	ND		20		ug/L			10/16/13 19:23	20
1,1,1-Trichloroethane	ND		10		ug/L			10/16/13 19:23	20
1,1,2-Trichloroethane	ND		10		ug/L			10/16/13 19:23	20
Trichloroethene	ND		10		ug/L			10/16/13 19:23	20
Trichlorofluoromethane	ND		10		ug/L			10/16/13 19:23	20
1,2,3-Trichloropropane	ND		10		ug/L			10/16/13 19:23	20
1,2,4-Trimethylbenzene	330		20		ug/L			10/16/13 19:23	20
1,3,5-Trimethylbenzene	78		10		ug/L			10/16/13 19:23	20
Vinyl chloride	ND		10		ug/L			10/16/13 19:23	20
m,p-Xylene	680		20		ug/L			10/16/13 19:23	20
o-Xylene	800		10		ug/L			10/16/13 19:23	20
1,2-Dichlorobenzene	ND		10		ug/L			10/16/13 19:23	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		10/16/13 19:23	20
4-Bromofluorobenzene (Surr)	97		80 - 120		10/16/13 19:23	20
Dibromofluoromethane (Surr)	94		80 - 120		10/16/13 19:23	20
Toluene-d8 (Surr)	97		80 - 120		10/16/13 19:23	20

Client Sample ID: S-5

Date Collected: 10/14/13 11:58

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			10/16/13 18:11	10
Benzene	230		2.0		ug/L			10/16/13 18:11	10
Bromobenzene	ND		5.0		ug/L			10/16/13 18:11	10
Bromochloromethane	ND		5.0		ug/L			10/16/13 18:11	10
Bromodichloromethane	ND		5.0		ug/L			10/16/13 18:11	10
Bromoform	ND		10		ug/L			10/16/13 18:11	10
Bromomethane	ND		50		ug/L			10/16/13 18:11	10
2-Butanone (MEK)	ND		100		ug/L			10/16/13 18:11	10
n-Butylbenzene	ND		50		ug/L			10/16/13 18:11	10
sec-Butylbenzene	ND		5.0		ug/L			10/16/13 18:11	10
tert-Butylbenzene	ND		10		ug/L			10/16/13 18:11	10
Carbon disulfide	ND		100		ug/L			10/16/13 18:11	10
Carbon tetrachloride	ND		5.0		ug/L			10/16/13 18:11	10
Chlorobenzene	ND		5.0		ug/L			10/16/13 18:11	10
Chloroethane	ND		5.0		ug/L			10/16/13 18:11	10
Chloroform	ND		5.0		ug/L			10/16/13 18:11	10
Chloromethane	ND		50		ug/L			10/16/13 18:11	10
2-Chlorotoluene	ND		5.0		ug/L			10/16/13 18:11	10
4-Chlorotoluene	ND		5.0		ug/L			10/16/13 18:11	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			10/16/13 18:11	10
Dibromochloromethane	ND		10		ug/L			10/16/13 18:11	10
1,2-Dibromoethane	ND		5.0		ug/L			10/16/13 18:11	10
Dibromomethane	ND		5.0		ug/L			10/16/13 18:11	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-5

Date Collected: 10/14/13 11:58

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0		ug/L			10/16/13 18:11	10
1,3-Dichlorobenzene	ND		5.0		ug/L			10/16/13 18:11	10
1,4-Dichlorobenzene	ND		5.0		ug/L			10/16/13 18:11	10
Dichlorodifluoromethane	ND		50		ug/L			10/16/13 18:11	10
1,1-Dichloroethane	ND		5.0		ug/L			10/16/13 18:11	10
1,1-Dichloroethene	ND		5.0		ug/L			10/16/13 18:11	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 18:11	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 18:11	10
1,2-Dichloropropane	ND		5.0		ug/L			10/16/13 18:11	10
1,3-Dichloropropane	ND		5.0		ug/L			10/16/13 18:11	10
2,2-Dichloropropane	ND		5.0		ug/L			10/16/13 18:11	10
1,1-Dichloropropene	ND		10		ug/L			10/16/13 18:11	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 18:11	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 18:11	10
Ethylbenzene	190		5.0		ug/L			10/16/13 18:11	10
Hexachlorobutadiene	ND		40		ug/L			10/16/13 18:11	10
2-Hexanone	ND		100		ug/L			10/16/13 18:11	10
Isopropylbenzene	ND		20		ug/L			10/16/13 18:11	10
p-Isopropyltoluene	ND		20		ug/L			10/16/13 18:11	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			10/16/13 18:11	10
Methyl tert-butyl ether	ND		10		ug/L			10/16/13 18:11	10
Methylene Chloride	ND		50		ug/L			10/16/13 18:11	10
Naphthalene	65		20		ug/L			10/16/13 18:11	10
N-Propylbenzene	17		5.0		ug/L			10/16/13 18:11	10
Styrene	ND		5.0		ug/L			10/16/13 18:11	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 18:11	10
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 18:11	10
Tetrachloroethene	ND		5.0		ug/L			10/16/13 18:11	10
Toluene	180		5.0		ug/L			10/16/13 18:11	10
1,2,3-Trichlorobenzene	ND		10		ug/L			10/16/13 18:11	10
1,2,4-Trichlorobenzene	ND		10		ug/L			10/16/13 18:11	10
1,1,1-Trichloroethane	ND		5.0		ug/L			10/16/13 18:11	10
1,1,2-Trichloroethane	ND		5.0		ug/L			10/16/13 18:11	10
Trichloroethene	ND		5.0		ug/L			10/16/13 18:11	10
Trichlorofluoromethane	ND		5.0		ug/L			10/16/13 18:11	10
1,2,3-Trichloropropane	ND		5.0		ug/L			10/16/13 18:11	10
1,2,4-Trimethylbenzene	140		10		ug/L			10/16/13 18:11	10
1,3,5-Trimethylbenzene	52		5.0		ug/L			10/16/13 18:11	10
Vinyl chloride	ND		5.0		ug/L			10/16/13 18:11	10
m,p-Xylene	330		10		ug/L			10/16/13 18:11	10
o-Xylene	370		5.0		ug/L			10/16/13 18:11	10
1,2-Dichlorobenzene	ND		5.0		ug/L			10/16/13 18:11	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		10/16/13 18:11	10
4-Bromofluorobenzene (Surr)	99		80 - 120		10/16/13 18:11	10
Dibromofluoromethane (Surr)	94		80 - 120		10/16/13 18:11	10
Toluene-d8 (Surr)	97		80 - 120		10/16/13 18:11	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-6

Date Collected: 10/14/13 12:29

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			10/16/13 18:35	10
Benzene	170		2.0		ug/L			10/16/13 18:35	10
Bromobenzene	ND		5.0		ug/L			10/16/13 18:35	10
Bromochloromethane	ND		5.0		ug/L			10/16/13 18:35	10
Bromodichloromethane	ND		5.0		ug/L			10/16/13 18:35	10
Bromoform	ND		10		ug/L			10/16/13 18:35	10
Bromomethane	ND		50		ug/L			10/16/13 18:35	10
2-Butanone (MEK)	110		100		ug/L			10/16/13 18:35	10
n-Butylbenzene	ND		50		ug/L			10/16/13 18:35	10
sec-Butylbenzene	11		5.0		ug/L			10/16/13 18:35	10
tert-Butylbenzene	ND		10		ug/L			10/16/13 18:35	10
Carbon disulfide	ND		100		ug/L			10/16/13 18:35	10
Carbon tetrachloride	ND		5.0		ug/L			10/16/13 18:35	10
Chlorobenzene	ND		5.0		ug/L			10/16/13 18:35	10
Chloroethane	ND		5.0		ug/L			10/16/13 18:35	10
Chloroform	ND		5.0		ug/L			10/16/13 18:35	10
Chloromethane	ND		50		ug/L			10/16/13 18:35	10
2-Chlorotoluene	ND		5.0		ug/L			10/16/13 18:35	10
4-Chlorotoluene	ND		5.0		ug/L			10/16/13 18:35	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			10/16/13 18:35	10
Dibromochloromethane	ND		10		ug/L			10/16/13 18:35	10
1,2-Dibromoethane	ND		5.0		ug/L			10/16/13 18:35	10
Dibromomethane	ND		5.0		ug/L			10/16/13 18:35	10
1,2-Dichloroethane	ND		5.0		ug/L			10/16/13 18:35	10
1,3-Dichlorobenzene	ND		5.0		ug/L			10/16/13 18:35	10
1,4-Dichlorobenzene	ND		5.0		ug/L			10/16/13 18:35	10
Dichlorodifluoromethane	ND		50		ug/L			10/16/13 18:35	10
1,1-Dichloroethane	ND		5.0		ug/L			10/16/13 18:35	10
1,1-Dichloroethene	ND		5.0		ug/L			10/16/13 18:35	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 18:35	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 18:35	10
1,2-Dichloropropane	ND		5.0		ug/L			10/16/13 18:35	10
1,3-Dichloropropane	ND		5.0		ug/L			10/16/13 18:35	10
2,2-Dichloropropane	ND		5.0		ug/L			10/16/13 18:35	10
1,1-Dichloropropene	ND		10		ug/L			10/16/13 18:35	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 18:35	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 18:35	10
Ethylbenzene	460		5.0		ug/L			10/16/13 18:35	10
Hexachlorobutadiene	ND		40		ug/L			10/16/13 18:35	10
2-Hexanone	ND		100		ug/L			10/16/13 18:35	10
Isopropylbenzene	40		20		ug/L			10/16/13 18:35	10
p-Isopropyltoluene	21		20		ug/L			10/16/13 18:35	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			10/16/13 18:35	10
Methyl tert-butyl ether	ND		10		ug/L			10/16/13 18:35	10
Methylene Chloride	ND		50		ug/L			10/16/13 18:35	10
Naphthalene	130		20		ug/L			10/16/13 18:35	10
N-Propylbenzene	53		5.0		ug/L			10/16/13 18:35	10
Styrene	ND		5.0		ug/L			10/16/13 18:35	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 18:35	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-6

Date Collected: 10/14/13 12:29

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 18:35	10
Tetrachloroethene	ND		5.0		ug/L			10/16/13 18:35	10
Toluene	420		5.0		ug/L			10/16/13 18:35	10
1,2,3-Trichlorobenzene	ND		10		ug/L			10/16/13 18:35	10
1,2,4-Trichlorobenzene	ND		10		ug/L			10/16/13 18:35	10
1,1,1-Trichloroethane	ND		5.0		ug/L			10/16/13 18:35	10
1,1,2-Trichloroethane	ND		5.0		ug/L			10/16/13 18:35	10
Trichloroethene	ND		5.0		ug/L			10/16/13 18:35	10
Trichlorofluoromethane	ND		5.0		ug/L			10/16/13 18:35	10
1,2,3-Trichloropropane	ND		5.0		ug/L			10/16/13 18:35	10
1,2,4-Trimethylbenzene	360		10		ug/L			10/16/13 18:35	10
1,3,5-Trimethylbenzene	90		5.0		ug/L			10/16/13 18:35	10
Vinyl chloride	ND		5.0		ug/L			10/16/13 18:35	10
m,p-Xylene	760		10		ug/L			10/16/13 18:35	10
o-Xylene	750		5.0		ug/L			10/16/13 18:35	10
1,2-Dichlorobenzene	ND		5.0		ug/L			10/16/13 18:35	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		10/16/13 18:35	10
4-Bromofluorobenzene (Surr)	100		80 - 120		10/16/13 18:35	10
Dibromofluoromethane (Surr)	95		80 - 120		10/16/13 18:35	10
Toluene-d8 (Surr)	100		80 - 120		10/16/13 18:35	10

Client Sample ID: S-7

Date Collected: 10/14/13 12:54

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		500		ug/L			10/16/13 19:48	20
Benzene	53		4.0		ug/L			10/16/13 19:48	20
Bromobenzene	ND		10		ug/L			10/16/13 19:48	20
Bromochloromethane	ND		10		ug/L			10/16/13 19:48	20
Bromodichloromethane	ND		10		ug/L			10/16/13 19:48	20
Bromoform	ND		20		ug/L			10/16/13 19:48	20
Bromomethane	ND		100		ug/L			10/16/13 19:48	20
2-Butanone (MEK)	ND		200		ug/L			10/16/13 19:48	20
n-Butylbenzene	ND		100		ug/L			10/16/13 19:48	20
sec-Butylbenzene	13		10		ug/L			10/16/13 19:48	20
tert-Butylbenzene	ND		20		ug/L			10/16/13 19:48	20
Carbon disulfide	ND		200		ug/L			10/16/13 19:48	20
Carbon tetrachloride	ND		10		ug/L			10/16/13 19:48	20
Chlorobenzene	ND		10		ug/L			10/16/13 19:48	20
Chloroethane	ND		10		ug/L			10/16/13 19:48	20
Chloroform	ND		10		ug/L			10/16/13 19:48	20
Chloromethane	ND		100		ug/L			10/16/13 19:48	20
2-Chlorotoluene	ND		10		ug/L			10/16/13 19:48	20
4-Chlorotoluene	ND		10		ug/L			10/16/13 19:48	20
1,2-Dibromo-3-Chloropropane	ND		100		ug/L			10/16/13 19:48	20
Dibromochloromethane	ND		20		ug/L			10/16/13 19:48	20
1,2-Dibromoethane	ND		10		ug/L			10/16/13 19:48	20
Dibromomethane	ND		10		ug/L			10/16/13 19:48	20

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-7

Date Collected: 10/14/13 12:54

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		10		ug/L			10/16/13 19:48	20
1,3-Dichlorobenzene	ND		10		ug/L			10/16/13 19:48	20
1,4-Dichlorobenzene	ND		10		ug/L			10/16/13 19:48	20
Dichlorodifluoromethane	ND		100		ug/L			10/16/13 19:48	20
1,1-Dichloroethane	ND		10		ug/L			10/16/13 19:48	20
1,1-Dichloroethene	ND		10		ug/L			10/16/13 19:48	20
cis-1,2-Dichloroethene	ND		10		ug/L			10/16/13 19:48	20
trans-1,2-Dichloroethene	ND		10		ug/L			10/16/13 19:48	20
1,2-Dichloropropane	ND		10		ug/L			10/16/13 19:48	20
1,3-Dichloropropane	ND		10		ug/L			10/16/13 19:48	20
2,2-Dichloropropane	ND		10		ug/L			10/16/13 19:48	20
1,1-Dichloropropene	ND		20		ug/L			10/16/13 19:48	20
cis-1,3-Dichloropropene	ND		10		ug/L			10/16/13 19:48	20
trans-1,3-Dichloropropene	ND		10		ug/L			10/16/13 19:48	20
Ethylbenzene	560		10		ug/L			10/16/13 19:48	20
Hexachlorobutadiene	ND		80		ug/L			10/16/13 19:48	20
2-Hexanone	ND		200		ug/L			10/16/13 19:48	20
Isopropylbenzene	52		40		ug/L			10/16/13 19:48	20
p-Isopropyltoluene	ND		40		ug/L			10/16/13 19:48	20
4-Methyl-2-pentanone (MIBK)	ND		100		ug/L			10/16/13 19:48	20
Methyl tert-butyl ether	ND		20		ug/L			10/16/13 19:48	20
Methylene Chloride	ND		100		ug/L			10/16/13 19:48	20
Naphthalene	150		40		ug/L			10/16/13 19:48	20
N-Propylbenzene	71		10		ug/L			10/16/13 19:48	20
Styrene	ND		10		ug/L			10/16/13 19:48	20
1,1,1,2-Tetrachloroethane	ND		10		ug/L			10/16/13 19:48	20
1,1,2,2-Tetrachloroethane	ND		10		ug/L			10/16/13 19:48	20
Tetrachloroethene	ND		10		ug/L			10/16/13 19:48	20
Toluene	540		10		ug/L			10/16/13 19:48	20
1,2,3-Trichlorobenzene	ND		20		ug/L			10/16/13 19:48	20
1,2,4-Trichlorobenzene	ND		20		ug/L			10/16/13 19:48	20
1,1,1-Trichloroethane	ND		10		ug/L			10/16/13 19:48	20
1,1,2-Trichloroethane	ND		10		ug/L			10/16/13 19:48	20
Trichloroethene	ND		10		ug/L			10/16/13 19:48	20
Trichlorofluoromethane	ND		10		ug/L			10/16/13 19:48	20
1,2,3-Trichloropropane	ND		10		ug/L			10/16/13 19:48	20
1,2,4-Trimethylbenzene	420		20		ug/L			10/16/13 19:48	20
1,3,5-Trimethylbenzene	100		10		ug/L			10/16/13 19:48	20
Vinyl chloride	ND		10		ug/L			10/16/13 19:48	20
m,p-Xylene	850		20		ug/L			10/16/13 19:48	20
o-Xylene	780		10		ug/L			10/16/13 19:48	20
1,2-Dichlorobenzene	ND		10		ug/L			10/16/13 19:48	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					10/16/13 19:48	20
4-Bromofluorobenzene (Surr)	98		80 - 120					10/16/13 19:48	20
Dibromofluoromethane (Surr)	93		80 - 120					10/16/13 19:48	20
Toluene-d8 (Surr)	97		80 - 120					10/16/13 19:48	20

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-8

Date Collected: 10/14/13 13:47

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			10/16/13 18:59	10
Benzene	58		2.0		ug/L			10/16/13 18:59	10
Bromobenzene	ND		5.0		ug/L			10/16/13 18:59	10
Bromochloromethane	ND		5.0		ug/L			10/16/13 18:59	10
Bromodichloromethane	ND		5.0		ug/L			10/16/13 18:59	10
Bromoform	ND		10		ug/L			10/16/13 18:59	10
Bromomethane	ND		50		ug/L			10/16/13 18:59	10
2-Butanone (MEK)	ND		100		ug/L			10/16/13 18:59	10
n-Butylbenzene	ND		50		ug/L			10/16/13 18:59	10
sec-Butylbenzene	ND		5.0		ug/L			10/16/13 18:59	10
tert-Butylbenzene	ND		10		ug/L			10/16/13 18:59	10
Carbon disulfide	ND		100		ug/L			10/16/13 18:59	10
Carbon tetrachloride	ND		5.0		ug/L			10/16/13 18:59	10
Chlorobenzene	ND		5.0		ug/L			10/16/13 18:59	10
Chloroethane	ND		5.0		ug/L			10/16/13 18:59	10
Chloroform	ND		5.0		ug/L			10/16/13 18:59	10
Chloromethane	ND		50		ug/L			10/16/13 18:59	10
2-Chlorotoluene	ND		5.0		ug/L			10/16/13 18:59	10
4-Chlorotoluene	ND		5.0		ug/L			10/16/13 18:59	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			10/16/13 18:59	10
Dibromochloromethane	ND		10		ug/L			10/16/13 18:59	10
1,2-Dibromoethane	ND		5.0		ug/L			10/16/13 18:59	10
Dibromomethane	ND		5.0		ug/L			10/16/13 18:59	10
1,2-Dichloroethane	ND		5.0		ug/L			10/16/13 18:59	10
1,3-Dichlorobenzene	ND		5.0		ug/L			10/16/13 18:59	10
1,4-Dichlorobenzene	ND		5.0		ug/L			10/16/13 18:59	10
Dichlorodifluoromethane	ND		50		ug/L			10/16/13 18:59	10
1,1-Dichloroethane	ND		5.0		ug/L			10/16/13 18:59	10
1,1-Dichloroethene	ND		5.0		ug/L			10/16/13 18:59	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 18:59	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			10/16/13 18:59	10
1,2-Dichloropropane	ND		5.0		ug/L			10/16/13 18:59	10
1,3-Dichloropropane	ND		5.0		ug/L			10/16/13 18:59	10
2,2-Dichloropropane	ND		5.0		ug/L			10/16/13 18:59	10
1,1-Dichloropropene	ND		10		ug/L			10/16/13 18:59	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 18:59	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			10/16/13 18:59	10
Ethylbenzene	150		5.0		ug/L			10/16/13 18:59	10
Hexachlorobutadiene	ND		40		ug/L			10/16/13 18:59	10
2-Hexanone	ND		100		ug/L			10/16/13 18:59	10
Isopropylbenzene	ND		20		ug/L			10/16/13 18:59	10
p-Isopropyltoluene	ND		20		ug/L			10/16/13 18:59	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			10/16/13 18:59	10
Methyl tert-butyl ether	ND		10		ug/L			10/16/13 18:59	10
Methylene Chloride	ND		50		ug/L			10/16/13 18:59	10
Naphthalene	56		20		ug/L			10/16/13 18:59	10
N-Propylbenzene	21		5.0		ug/L			10/16/13 18:59	10
Styrene	ND		5.0		ug/L			10/16/13 18:59	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 18:59	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-8

Date Collected: 10/14/13 13:47

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			10/16/13 18:59	10
Tetrachloroethene	ND		5.0		ug/L			10/16/13 18:59	10
Toluene	140		5.0		ug/L			10/16/13 18:59	10
1,2,3-Trichlorobenzene	ND		10		ug/L			10/16/13 18:59	10
1,2,4-Trichlorobenzene	ND		10		ug/L			10/16/13 18:59	10
1,1,1-Trichloroethane	ND		5.0		ug/L			10/16/13 18:59	10
1,1,2-Trichloroethane	ND		5.0		ug/L			10/16/13 18:59	10
Trichloroethene	ND		5.0		ug/L			10/16/13 18:59	10
Trichlorofluoromethane	ND		5.0		ug/L			10/16/13 18:59	10
1,2,3-Trichloropropane	ND		5.0		ug/L			10/16/13 18:59	10
1,2,4-Trimethylbenzene	140		10		ug/L			10/16/13 18:59	10
1,3,5-Trimethylbenzene	31		5.0		ug/L			10/16/13 18:59	10
Vinyl chloride	ND		5.0		ug/L			10/16/13 18:59	10
m,p-Xylene	320		10		ug/L			10/16/13 18:59	10
o-Xylene	300		5.0		ug/L			10/16/13 18:59	10
1,2-Dichlorobenzene	ND		5.0		ug/L			10/16/13 18:59	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		10/16/13 18:59	10
4-Bromofluorobenzene (Surr)	96		80 - 120		10/16/13 18:59	10
Dibromofluoromethane (Surr)	91		80 - 120		10/16/13 18:59	10
Toluene-d8 (Surr)	96		80 - 120		10/16/13 18:59	10

Client Sample ID: W-32

Date Collected: 10/14/13 09:06

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25		ug/L			10/16/13 14:58	1
Benzene	ND		0.20		ug/L			10/16/13 14:58	1
Bromobenzene	ND		0.50		ug/L			10/16/13 14:58	1
Bromochloromethane	ND		0.50		ug/L			10/16/13 14:58	1
Bromodichloromethane	ND		0.50		ug/L			10/16/13 14:58	1
Bromoform	ND		1.0		ug/L			10/16/13 14:58	1
Bromomethane	ND		5.0		ug/L			10/16/13 14:58	1
2-Butanone (MEK)	ND		10		ug/L			10/16/13 14:58	1
n-Butylbenzene	ND		5.0		ug/L			10/16/13 14:58	1
sec-Butylbenzene	ND		0.50		ug/L			10/16/13 14:58	1
tert-Butylbenzene	ND		1.0		ug/L			10/16/13 14:58	1
Carbon disulfide	ND		10		ug/L			10/16/13 14:58	1
Carbon tetrachloride	ND		0.50		ug/L			10/16/13 14:58	1
Chlorobenzene	ND		0.50		ug/L			10/16/13 14:58	1
Chloroethane	ND		0.50		ug/L			10/16/13 14:58	1
Chloroform	ND		0.50		ug/L			10/16/13 14:58	1
Chloromethane	ND		5.0		ug/L			10/16/13 14:58	1
2-Chlorotoluene	ND		0.50		ug/L			10/16/13 14:58	1
4-Chlorotoluene	ND		0.50		ug/L			10/16/13 14:58	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			10/16/13 14:58	1
Dibromochloromethane	ND		1.0		ug/L			10/16/13 14:58	1
1,2-Dibromoethane	ND		0.50		ug/L			10/16/13 14:58	1
Dibromomethane	ND		0.50		ug/L			10/16/13 14:58	1

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: W-32

Date Collected: 10/14/13 09:06

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50		ug/L			10/16/13 14:58	1
1,3-Dichlorobenzene	ND		0.50		ug/L			10/16/13 14:58	1
1,4-Dichlorobenzene	ND		0.50		ug/L			10/16/13 14:58	1
Dichlorodifluoromethane	ND		5.0		ug/L			10/16/13 14:58	1
1,1-Dichloroethane	ND		0.50		ug/L			10/16/13 14:58	1
1,1-Dichloroethene	ND		0.50		ug/L			10/16/13 14:58	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			10/16/13 14:58	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			10/16/13 14:58	1
1,2-Dichloropropane	ND		0.50		ug/L			10/16/13 14:58	1
1,3-Dichloropropane	ND		0.50		ug/L			10/16/13 14:58	1
2,2-Dichloropropane	ND		0.50		ug/L			10/16/13 14:58	1
1,1-Dichloropropene	ND		1.0		ug/L			10/16/13 14:58	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			10/16/13 14:58	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			10/16/13 14:58	1
Ethylbenzene	ND		0.50		ug/L			10/16/13 14:58	1
Hexachlorobutadiene	ND		4.0		ug/L			10/16/13 14:58	1
2-Hexanone	ND		10		ug/L			10/16/13 14:58	1
Isopropylbenzene	ND		2.0		ug/L			10/16/13 14:58	1
p-Isopropyltoluene	ND		2.0		ug/L			10/16/13 14:58	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			10/16/13 14:58	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/16/13 14:58	1
Methylene Chloride	ND		5.0		ug/L			10/16/13 14:58	1
Naphthalene	ND		2.0		ug/L			10/16/13 14:58	1
N-Propylbenzene	ND		0.50		ug/L			10/16/13 14:58	1
Styrene	ND		0.50		ug/L			10/16/13 14:58	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			10/16/13 14:58	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			10/16/13 14:58	1
Tetrachloroethene	ND		0.50		ug/L			10/16/13 14:58	1
Toluene	ND		0.50		ug/L			10/16/13 14:58	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			10/16/13 14:58	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/16/13 14:58	1
1,1,1-Trichloroethane	ND		0.50		ug/L			10/16/13 14:58	1
1,1,2-Trichloroethane	ND		0.50		ug/L			10/16/13 14:58	1
Trichloroethene	ND		0.50		ug/L			10/16/13 14:58	1
Trichlorofluoromethane	ND		0.50		ug/L			10/16/13 14:58	1
1,2,3-Trichloropropane	ND		0.50		ug/L			10/16/13 14:58	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			10/16/13 14:58	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			10/16/13 14:58	1
Vinyl chloride	ND		0.50		ug/L			10/16/13 14:58	1
m,p-Xylene	ND		1.0		ug/L			10/16/13 14:58	1
o-Xylene	ND		0.50		ug/L			10/16/13 14:58	1
1,2-Dichlorobenzene	ND		0.50		ug/L			10/16/13 14:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					10/16/13 14:58	1
4-Bromofluorobenzene (Surr)	95		80 - 120					10/16/13 14:58	1
Dibromofluoromethane (Surr)	95		80 - 120					10/16/13 14:58	1
Toluene-d8 (Surr)	94		80 - 120					10/16/13 14:58	1

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: W-33

Date Collected: 10/14/13 09:29

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25		ug/L			10/16/13 15:22	1
Benzene	ND		0.20		ug/L			10/16/13 15:22	1
Bromobenzene	ND		0.50		ug/L			10/16/13 15:22	1
Bromochloromethane	ND		0.50		ug/L			10/16/13 15:22	1
Bromodichloromethane	ND		0.50		ug/L			10/16/13 15:22	1
Bromoform	ND		1.0		ug/L			10/16/13 15:22	1
Bromomethane	ND		5.0		ug/L			10/16/13 15:22	1
2-Butanone (MEK)	ND		10		ug/L			10/16/13 15:22	1
n-Butylbenzene	ND		5.0		ug/L			10/16/13 15:22	1
sec-Butylbenzene	ND		0.50		ug/L			10/16/13 15:22	1
tert-Butylbenzene	ND		1.0		ug/L			10/16/13 15:22	1
Carbon disulfide	ND		10		ug/L			10/16/13 15:22	1
Carbon tetrachloride	ND		0.50		ug/L			10/16/13 15:22	1
Chlorobenzene	ND		0.50		ug/L			10/16/13 15:22	1
Chloroethane	ND		0.50		ug/L			10/16/13 15:22	1
Chloroform	ND		0.50		ug/L			10/16/13 15:22	1
Chloromethane	ND		5.0		ug/L			10/16/13 15:22	1
2-Chlorotoluene	ND		0.50		ug/L			10/16/13 15:22	1
4-Chlorotoluene	ND		0.50		ug/L			10/16/13 15:22	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			10/16/13 15:22	1
Dibromochloromethane	ND		1.0		ug/L			10/16/13 15:22	1
1,2-Dibromoethane	ND		0.50		ug/L			10/16/13 15:22	1
Dibromomethane	ND		0.50		ug/L			10/16/13 15:22	1
1,2-Dichloroethane	ND		0.50		ug/L			10/16/13 15:22	1
1,3-Dichlorobenzene	ND		0.50		ug/L			10/16/13 15:22	1
1,4-Dichlorobenzene	ND		0.50		ug/L			10/16/13 15:22	1
Dichlorodifluoromethane	ND		5.0		ug/L			10/16/13 15:22	1
1,1-Dichloroethane	ND		0.50		ug/L			10/16/13 15:22	1
1,1-Dichloroethene	ND		0.50		ug/L			10/16/13 15:22	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			10/16/13 15:22	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			10/16/13 15:22	1
1,2-Dichloropropane	ND		0.50		ug/L			10/16/13 15:22	1
1,3-Dichloropropane	ND		0.50		ug/L			10/16/13 15:22	1
2,2-Dichloropropane	ND		0.50		ug/L			10/16/13 15:22	1
1,1-Dichloropropene	ND		1.0		ug/L			10/16/13 15:22	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			10/16/13 15:22	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			10/16/13 15:22	1
Ethylbenzene	ND		0.50		ug/L			10/16/13 15:22	1
Hexachlorobutadiene	ND		4.0		ug/L			10/16/13 15:22	1
2-Hexanone	ND		10		ug/L			10/16/13 15:22	1
Isopropylbenzene	ND		2.0		ug/L			10/16/13 15:22	1
p-Isopropyltoluene	ND		2.0		ug/L			10/16/13 15:22	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			10/16/13 15:22	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/16/13 15:22	1
Methylene Chloride	ND		5.0		ug/L			10/16/13 15:22	1
Naphthalene	ND		2.0		ug/L			10/16/13 15:22	1
N-Propylbenzene	ND		0.50		ug/L			10/16/13 15:22	1
Styrene	ND		0.50		ug/L			10/16/13 15:22	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			10/16/13 15:22	1

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: W-33

Date Collected: 10/14/13 09:29

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			10/16/13 15:22	1
Tetrachloroethene	ND		0.50		ug/L			10/16/13 15:22	1
Toluene	ND		0.50		ug/L			10/16/13 15:22	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			10/16/13 15:22	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/16/13 15:22	1
1,1,1-Trichloroethane	ND		0.50		ug/L			10/16/13 15:22	1
1,1,2-Trichloroethane	ND		0.50		ug/L			10/16/13 15:22	1
Trichloroethene	ND		0.50		ug/L			10/16/13 15:22	1
Trichlorofluoromethane	ND		0.50		ug/L			10/16/13 15:22	1
1,2,3-Trichloropropane	ND		0.50		ug/L			10/16/13 15:22	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			10/16/13 15:22	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			10/16/13 15:22	1
Vinyl chloride	ND		0.50		ug/L			10/16/13 15:22	1
m,p-Xylene	ND		1.0		ug/L			10/16/13 15:22	1
o-Xylene	ND		0.50		ug/L			10/16/13 15:22	1
1,2-Dichlorobenzene	ND		0.50		ug/L			10/16/13 15:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		10/16/13 15:22	1
4-Bromofluorobenzene (Surr)	89		80 - 120		10/16/13 15:22	1
Dibromofluoromethane (Surr)	95		80 - 120		10/16/13 15:22	1
Toluene-d8 (Surr)	94		80 - 120		10/16/13 15:22	1

Client Sample ID: W-34

Date Collected: 10/14/13 08:40

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25		ug/L			10/16/13 15:46	1
Benzene	ND		0.20		ug/L			10/16/13 15:46	1
Bromobenzene	ND		0.50		ug/L			10/16/13 15:46	1
Bromochloromethane	ND		0.50		ug/L			10/16/13 15:46	1
Bromodichloromethane	ND		0.50		ug/L			10/16/13 15:46	1
Bromoform	ND		1.0		ug/L			10/16/13 15:46	1
Bromomethane	ND		5.0		ug/L			10/16/13 15:46	1
2-Butanone (MEK)	ND		10		ug/L			10/16/13 15:46	1
n-Butylbenzene	ND		5.0		ug/L			10/16/13 15:46	1
sec-Butylbenzene	ND		0.50		ug/L			10/16/13 15:46	1
tert-Butylbenzene	ND		1.0		ug/L			10/16/13 15:46	1
Carbon disulfide	ND		10		ug/L			10/16/13 15:46	1
Carbon tetrachloride	ND		0.50		ug/L			10/16/13 15:46	1
Chlorobenzene	ND		0.50		ug/L			10/16/13 15:46	1
Chloroethane	ND		0.50		ug/L			10/16/13 15:46	1
Chloroform	ND		0.50		ug/L			10/16/13 15:46	1
Chloromethane	ND		5.0		ug/L			10/16/13 15:46	1
2-Chlorotoluene	ND		0.50		ug/L			10/16/13 15:46	1
4-Chlorotoluene	ND		0.50		ug/L			10/16/13 15:46	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			10/16/13 15:46	1
Dibromochloromethane	ND		1.0		ug/L			10/16/13 15:46	1
1,2-Dibromoethane	ND		0.50		ug/L			10/16/13 15:46	1
Dibromomethane	ND		0.50		ug/L			10/16/13 15:46	1

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: W-34

Date Collected: 10/14/13 08:40

Date Received: 10/14/13 15:40

Lab Sample ID: 250-14847-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50		ug/L			10/16/13 15:46	1
1,3-Dichlorobenzene	ND		0.50		ug/L			10/16/13 15:46	1
1,4-Dichlorobenzene	ND		0.50		ug/L			10/16/13 15:46	1
Dichlorodifluoromethane	ND		5.0		ug/L			10/16/13 15:46	1
1,1-Dichloroethane	ND		0.50		ug/L			10/16/13 15:46	1
1,1-Dichloroethene	ND		0.50		ug/L			10/16/13 15:46	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			10/16/13 15:46	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			10/16/13 15:46	1
1,2-Dichloropropane	ND		0.50		ug/L			10/16/13 15:46	1
1,3-Dichloropropane	ND		0.50		ug/L			10/16/13 15:46	1
2,2-Dichloropropane	ND		0.50		ug/L			10/16/13 15:46	1
1,1-Dichloropropene	ND		1.0		ug/L			10/16/13 15:46	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			10/16/13 15:46	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			10/16/13 15:46	1
Ethylbenzene	ND		0.50		ug/L			10/16/13 15:46	1
Hexachlorobutadiene	ND		4.0		ug/L			10/16/13 15:46	1
2-Hexanone	ND		10		ug/L			10/16/13 15:46	1
Isopropylbenzene	ND		2.0		ug/L			10/16/13 15:46	1
p-Isopropyltoluene	ND		2.0		ug/L			10/16/13 15:46	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			10/16/13 15:46	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/16/13 15:46	1
Methylene Chloride	ND		5.0		ug/L			10/16/13 15:46	1
Naphthalene	ND		2.0		ug/L			10/16/13 15:46	1
N-Propylbenzene	ND		0.50		ug/L			10/16/13 15:46	1
Styrene	ND		0.50		ug/L			10/16/13 15:46	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			10/16/13 15:46	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			10/16/13 15:46	1
Tetrachloroethene	ND		0.50		ug/L			10/16/13 15:46	1
Toluene	ND		0.50		ug/L			10/16/13 15:46	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			10/16/13 15:46	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/16/13 15:46	1
1,1,1-Trichloroethane	ND		0.50		ug/L			10/16/13 15:46	1
1,1,2-Trichloroethane	ND		0.50		ug/L			10/16/13 15:46	1
Trichloroethene	ND		0.50		ug/L			10/16/13 15:46	1
Trichlorofluoromethane	ND		0.50		ug/L			10/16/13 15:46	1
1,2,3-Trichloropropane	ND		0.50		ug/L			10/16/13 15:46	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			10/16/13 15:46	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			10/16/13 15:46	1
Vinyl chloride	ND		0.50		ug/L			10/16/13 15:46	1
m,p-Xylene	ND		1.0		ug/L			10/16/13 15:46	1
o-Xylene	ND		0.50		ug/L			10/16/13 15:46	1
1,2-Dichlorobenzene	ND		0.50		ug/L			10/16/13 15:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					10/16/13 15:46	1
4-Bromofluorobenzene (Surr)	91		80 - 120					10/16/13 15:46	1
Dibromofluoromethane (Surr)	97		80 - 120					10/16/13 15:46	1
Toluene-d8 (Surr)	97		80 - 120					10/16/13 15:46	1

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 250-21226/8

Matrix: Water

Analysis Batch: 21226

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		25		ug/L			10/16/13 12:02	1
Benzene	ND		0.20		ug/L			10/16/13 12:02	1
Bromobenzene	ND		0.50		ug/L			10/16/13 12:02	1
Bromochloromethane	ND		0.50		ug/L			10/16/13 12:02	1
Bromodichloromethane	ND		0.50		ug/L			10/16/13 12:02	1
Bromoform	ND		1.0		ug/L			10/16/13 12:02	1
Bromomethane	ND		5.0		ug/L			10/16/13 12:02	1
2-Butanone (MEK)	ND		10		ug/L			10/16/13 12:02	1
n-Butylbenzene	ND		5.0		ug/L			10/16/13 12:02	1
sec-Butylbenzene	ND		0.50		ug/L			10/16/13 12:02	1
tert-Butylbenzene	ND		1.0		ug/L			10/16/13 12:02	1
Carbon disulfide	ND		10		ug/L			10/16/13 12:02	1
Carbon tetrachloride	ND		0.50		ug/L			10/16/13 12:02	1
Chlorobenzene	ND		0.50		ug/L			10/16/13 12:02	1
Chloroethane	ND		0.50		ug/L			10/16/13 12:02	1
Chloroform	ND		0.50		ug/L			10/16/13 12:02	1
Chloromethane	ND		5.0		ug/L			10/16/13 12:02	1
2-Chlorotoluene	ND		0.50		ug/L			10/16/13 12:02	1
4-Chlorotoluene	ND		0.50		ug/L			10/16/13 12:02	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			10/16/13 12:02	1
Dibromochloromethane	ND		1.0		ug/L			10/16/13 12:02	1
1,2-Dibromoethane	ND		0.50		ug/L			10/16/13 12:02	1
Dibromomethane	ND		0.50		ug/L			10/16/13 12:02	1
1,2-Dichloroethane	ND		0.50		ug/L			10/16/13 12:02	1
1,3-Dichlorobenzene	ND		0.50		ug/L			10/16/13 12:02	1
1,4-Dichlorobenzene	ND		0.50		ug/L			10/16/13 12:02	1
Dichlorodifluoromethane	ND		5.0		ug/L			10/16/13 12:02	1
1,1-Dichloroethane	ND		0.50		ug/L			10/16/13 12:02	1
1,1-Dichloroethene	ND		0.50		ug/L			10/16/13 12:02	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			10/16/13 12:02	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			10/16/13 12:02	1
1,2-Dichloropropane	ND		0.50		ug/L			10/16/13 12:02	1
1,3-Dichloropropane	ND		0.50		ug/L			10/16/13 12:02	1
2,2-Dichloropropane	ND		0.50		ug/L			10/16/13 12:02	1
1,1-Dichloropropene	ND		1.0		ug/L			10/16/13 12:02	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			10/16/13 12:02	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			10/16/13 12:02	1
Ethylbenzene	ND		0.50		ug/L			10/16/13 12:02	1
Hexachlorobutadiene	ND		4.0		ug/L			10/16/13 12:02	1
2-Hexanone	ND		10		ug/L			10/16/13 12:02	1
Isopropylbenzene	ND		2.0		ug/L			10/16/13 12:02	1
p-Isopropyltoluene	ND		2.0		ug/L			10/16/13 12:02	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			10/16/13 12:02	1
Methyl tert-butyl ether	ND		1.0		ug/L			10/16/13 12:02	1
Methylene Chloride	ND		5.0		ug/L			10/16/13 12:02	1
Naphthalene	ND		2.0		ug/L			10/16/13 12:02	1
N-Propylbenzene	ND		0.50		ug/L			10/16/13 12:02	1
Styrene	ND		0.50		ug/L			10/16/13 12:02	1

TestAmerica Portland



QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 250-21226/8

Matrix: Water

Analysis Batch: 21226

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			10/16/13 12:02	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			10/16/13 12:02	1
Tetrachloroethene	ND		0.50		ug/L			10/16/13 12:02	1
Toluene	ND		0.50		ug/L			10/16/13 12:02	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			10/16/13 12:02	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			10/16/13 12:02	1
1,1,1-Trichloroethane	ND		0.50		ug/L			10/16/13 12:02	1
1,1,2-Trichloroethane	ND		0.50		ug/L			10/16/13 12:02	1
Trichloroethene	ND		0.50		ug/L			10/16/13 12:02	1
Trichlorofluoromethane	ND		0.50		ug/L			10/16/13 12:02	1
1,2,3-Trichloropropane	ND		0.50		ug/L			10/16/13 12:02	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			10/16/13 12:02	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			10/16/13 12:02	1
Vinyl chloride	ND		0.50		ug/L			10/16/13 12:02	1
m,p-Xylene	ND		1.0		ug/L			10/16/13 12:02	1
o-Xylene	ND		0.50		ug/L			10/16/13 12:02	1
1,2-Dichlorobenzene	ND		0.50		ug/L			10/16/13 12:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		10/16/13 12:02	1
4-Bromofluorobenzene (Surr)	89		80 - 120		10/16/13 12:02	1
Dibromofluoromethane (Surr)	98		80 - 120		10/16/13 12:02	1
Toluene-d8 (Surr)	95		80 - 120		10/16/13 12:02	1

Lab Sample ID: LCS 250-21226/4

Matrix: Water

Analysis Batch: 21226

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	100	127		ug/L		127	55 - 145
Benzene	20.0	20.2		ug/L		101	80 - 120
Bromobenzene	20.0	18.6		ug/L		93	75 - 120
Bromochloromethane	20.0	20.0		ug/L		100	75 - 125
Bromodichloromethane	20.0	21.1		ug/L		106	80 - 130
Bromoform	20.0	19.3		ug/L		96	55 - 135
Bromomethane	20.0	21.2		ug/L		106	35 - 150
2-Butanone (MEK)	100	107		ug/L		107	70 - 140
n-Butylbenzene	20.0	19.6		ug/L		98	75 - 130
sec-Butylbenzene	20.0	20.3		ug/L		102	60 - 130
tert-Butylbenzene	20.0	19.6		ug/L		98	70 - 130
Carbon disulfide	40.0	44.3		ug/L		111	60 - 120
Carbon tetrachloride	20.0	21.6		ug/L		108	70 - 135
Chlorobenzene	20.0	20.2		ug/L		101	80 - 125
Chloroethane	20.0	19.3		ug/L		96	75 - 125
Chloroform	20.0	20.3		ug/L		102	80 - 120
Chloromethane	20.0	22.3		ug/L		112	45 - 150
2-Chlorotoluene	20.0	19.0		ug/L		95	70 - 125
4-Chlorotoluene	20.0	19.6		ug/L		98	75 - 125

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 250-21226/4

Matrix: Water

Analysis Batch: 21226

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	20.0	19.0		ug/L		95	70 - 135
Dibromochloromethane	20.0	22.2		ug/L		111	65 - 140
1,2-Dibromoethane	20.0	20.2		ug/L		101	80 - 125
Dibromomethane	20.0	20.4		ug/L		102	80 - 120
1,2-Dichloroethane	20.0	20.0		ug/L		100	75 - 125
1,3-Dichlorobenzene	20.0	18.9		ug/L		94	75 - 125
1,4-Dichlorobenzene	20.0	18.1		ug/L		91	70 - 120
Dichlorodifluoromethane	20.0	21.5		ug/L		108	45 - 140
1,1-Dichloroethane	20.0	20.3		ug/L		102	80 - 120
1,1-Dichloroethene	20.0	20.5		ug/L		103	75 - 120
cis-1,2-Dichloroethene	20.0	20.3		ug/L		102	80 - 120
trans-1,2-Dichloroethene	20.0	20.4		ug/L		102	80 - 120
1,2-Dichloropropane	20.0	20.2		ug/L		101	80 - 130
1,3-Dichloropropane	20.0	20.2		ug/L		101	80 - 120
2,2-Dichloropropane	20.0	22.6		ug/L		113	60 - 145
1,1-Dichloropropene	20.0	21.0		ug/L		105	80 - 120
cis-1,3-Dichloropropene	20.0	21.3		ug/L		106	80 - 125
trans-1,3-Dichloropropene	20.0	22.2		ug/L		111	80 - 130
Ethylbenzene	20.0	19.7		ug/L		98	80 - 120
Hexachlorobutadiene	20.0	20.3		ug/L		101	60 - 150
2-Hexanone	100	105		ug/L		105	70 - 140
Isopropylbenzene	20.0	19.2		ug/L		96	75 - 125
p-Isopropyltoluene	20.0	19.1		ug/L		95	65 - 130
4-Methyl-2-pentanone (MIBK)	100	102		ug/L		102	70 - 135
Methyl tert-butyl ether	20.0	19.7		ug/L		99	80 - 130
Methylene Chloride	20.0	20.8		ug/L		104	80 - 120
Naphthalene	20.0	19.3		ug/L		97	70 - 150
N-Propylbenzene	20.0	19.9		ug/L		99	75 - 130
Styrene	20.0	20.3		ug/L		102	70 - 130
1,1,1,2-Tetrachloroethane	20.0	20.9		ug/L		105	65 - 140
1,1,2,2-Tetrachloroethane	20.0	19.6		ug/L		98	75 - 130
Tetrachloroethene	20.0	20.6		ug/L		103	80 - 125
Toluene	20.0	19.7		ug/L		99	80 - 125
1,2,3-Trichlorobenzene	20.0	18.3		ug/L		91	65 - 140
1,2,4-Trichlorobenzene	20.0	18.0		ug/L		90	75 - 130
1,1,1-Trichloroethane	20.0	20.8		ug/L		104	75 - 135
1,1,2-Trichloroethane	20.0	20.5		ug/L		102	80 - 125
Trichloroethene	20.0	19.6		ug/L		98	80 - 135
Trichlorofluoromethane	20.0	21.7		ug/L		108	75 - 140
1,2,3-Trichloropropane	20.0	18.6		ug/L		93	75 - 125
1,2,4-Trimethylbenzene	20.0	19.7		ug/L		99	70 - 130
1,3,5-Trimethylbenzene	20.0	20.3		ug/L		102	75 - 135
Vinyl chloride	20.0	20.8		ug/L		104	75 - 135
m,p-Xylene	40.0	39.6		ug/L		99	70 - 130
o-Xylene	20.0	19.8		ug/L		99	75 - 125
1,2-Dichlorobenzene	20.0	19.1		ug/L		95	80 - 120

TestAmerica Portland



QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 250-21226/4

Matrix: Water

Analysis Batch: 21226

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		80 - 120
4-Bromofluorobenzene (Surr)	99		80 - 120
Dibromofluoromethane (Surr)	100		80 - 120
Toluene-d8 (Surr)	100		80 - 120

Lab Sample ID: LCSD 250-21226/5

Matrix: Water

Analysis Batch: 21226

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	100	135		ug/L		135	55 - 145	6	25
Benzene	20.0	19.9		ug/L		99	80 - 120	1	25
Bromobenzene	20.0	18.5		ug/L		92	75 - 120	0	25
Bromochloromethane	20.0	20.6		ug/L		103	75 - 125	3	25
Bromodichloromethane	20.0	20.8		ug/L		104	80 - 130	2	25
Bromoform	20.0	19.7		ug/L		99	55 - 135	2	25
Bromomethane	20.0	20.0		ug/L		100	35 - 150	6	25
2-Butanone (MEK)	100	117		ug/L		117	70 - 140	9	25
n-Butylbenzene	20.0	19.7		ug/L		98	75 - 130	0	25
sec-Butylbenzene	20.0	19.7		ug/L		98	60 - 130	3	25
tert-Butylbenzene	20.0	19.5		ug/L		97	70 - 130	1	25
Carbon disulfide	40.0	44.8		ug/L		112	60 - 120	1	25
Carbon tetrachloride	20.0	21.3		ug/L		107	70 - 135	1	25
Chlorobenzene	20.0	20.2		ug/L		101	80 - 125	0	25
Chloroethane	20.0	19.1		ug/L		96	75 - 125	1	25
Chloroform	20.0	20.0		ug/L		100	80 - 120	2	25
Chloromethane	20.0	21.1		ug/L		105	45 - 150	6	25
2-Chlorotoluene	20.0	19.2		ug/L		96	70 - 125	1	25
4-Chlorotoluene	20.0	19.5		ug/L		97	75 - 125	0	25
1,2-Dibromo-3-Chloropropane	20.0	20.8		ug/L		104	70 - 135	9	25
Dibromochloromethane	20.0	22.1		ug/L		111	65 - 140	0	25
1,2-Dibromoethane	20.0	20.7		ug/L		103	80 - 125	2	25
Dibromomethane	20.0	20.2		ug/L		101	80 - 120	1	25
1,2-Dichloroethane	20.0	20.4		ug/L		102	75 - 125	2	25
1,3-Dichlorobenzene	20.0	18.4		ug/L		92	75 - 125	2	25
1,4-Dichlorobenzene	20.0	18.4		ug/L		92	70 - 120	2	25
Dichlorodifluoromethane	20.0	20.5		ug/L		102	45 - 140	5	25
1,1-Dichloroethane	20.0	19.8		ug/L		99	80 - 120	2	25
1,1-Dichloroethene	20.0	20.4		ug/L		102	75 - 120	1	25
cis-1,2-Dichloroethene	20.0	20.2		ug/L		101	80 - 120	1	25
trans-1,2-Dichloroethene	20.0	20.1		ug/L		100	80 - 120	2	25
1,2-Dichloropropane	20.0	20.3		ug/L		102	80 - 130	1	25
1,3-Dichloropropane	20.0	20.2		ug/L		101	80 - 120	0	25
2,2-Dichloropropane	20.0	22.2		ug/L		111	60 - 145	2	25
1,1-Dichloropropene	20.0	20.7		ug/L		103	80 - 120	2	25
cis-1,3-Dichloropropene	20.0	21.8		ug/L		109	80 - 125	3	25
trans-1,3-Dichloropropene	20.0	22.7		ug/L		114	80 - 130	2	25
Ethylbenzene	20.0	19.6		ug/L		98	80 - 120	1	25

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 250-21226/5

Matrix: Water

Analysis Batch: 21226

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexachlorobutadiene	20.0	20.1		ug/L		100	60 - 150	1	25
2-Hexanone	100	113		ug/L		113	70 - 140	7	25
Isopropylbenzene	20.0	19.2		ug/L		96	75 - 125	0	25
p-Isopropyltoluene	20.0	19.1		ug/L		96	65 - 130	0	25
4-Methyl-2-pentanone (MIBK)	100	111		ug/L		111	70 - 135	9	25
Methyl tert-butyl ether	20.0	20.8		ug/L		104	80 - 130	5	25
Methylene Chloride	20.0	20.8		ug/L		104	80 - 120	0	25
Naphthalene	20.0	20.9		ug/L		104	70 - 150	8	25
N-Propylbenzene	20.0	19.6		ug/L		98	75 - 130	2	25
Styrene	20.0	20.5		ug/L		103	70 - 130	1	25
1,1,1,2-Tetrachloroethane	20.0	21.3		ug/L		106	65 - 140	2	25
1,1,2,2-Tetrachloroethane	20.0	20.1		ug/L		100	75 - 130	2	25
Tetrachloroethene	20.0	20.2		ug/L		101	80 - 125	2	25
Toluene	20.0	19.8		ug/L		99	80 - 125	0	25
1,2,3-Trichlorobenzene	20.0	19.3		ug/L		96	65 - 140	5	25
1,2,4-Trichlorobenzene	20.0	18.5		ug/L		93	75 - 130	3	25
1,1,1-Trichloroethane	20.0	20.7		ug/L		103	75 - 135	1	25
1,1,2-Trichloroethane	20.0	20.6		ug/L		103	80 - 125	1	25
Trichloroethene	20.0	20.0		ug/L		100	80 - 135	2	25
Trichlorofluoromethane	20.0	21.1		ug/L		105	75 - 140	3	25
1,2,3-Trichloropropane	20.0	19.8		ug/L		99	75 - 125	6	25
1,2,4-Trimethylbenzene	20.0	19.9		ug/L		100	70 - 130	1	25
1,3,5-Trimethylbenzene	20.0	20.4		ug/L		102	75 - 135	0	25
Vinyl chloride	20.0	20.0		ug/L		100	75 - 135	4	25
m,p-Xylene	40.0	39.2		ug/L		98	70 - 130	1	25
o-Xylene	20.0	19.8		ug/L		99	75 - 125	0	25
1,2-Dichlorobenzene	20.0	19.1		ug/L		96	80 - 120	0	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		80 - 120
4-Bromofluorobenzene (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
Toluene-d8 (Surr)	98		80 - 120

Lab Sample ID: 250-14847-1 MS

Matrix: Water

Analysis Batch: 21226

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	ND		1000	676		ug/L		68	55 - 125
Benzene	ND		200	167		ug/L		83	80 - 125
Bromobenzene	ND		200	151	F	ug/L		75	80 - 125
Bromochloromethane	ND		200	174		ug/L		87	80 - 130
Bromodichloromethane	ND		200	171		ug/L		86	80 - 135
Bromoform	ND		200	144		ug/L		72	65 - 150
Bromomethane	ND		200	184		ug/L		92	30 - 150
2-Butanone (MEK)	ND		1000	1010		ug/L		101	70 - 145
n-Butylbenzene	ND		200	178		ug/L		89	70 - 140

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-14847-1 MS

Matrix: Water

Analysis Batch: 21226

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
sec-Butylbenzene	5.0		200	171		ug/L		83	70 - 135
tert-Butylbenzene	ND		200	165		ug/L		83	70 - 135
Carbon disulfide	ND		400	407		ug/L		102	40 - 150
Carbon tetrachloride	ND		200	164		ug/L		82	75 - 130
Chlorobenzene	ND		200	168		ug/L		84	70 - 135
Chloroethane	ND		200	174		ug/L		87	75 - 130
Chloroform	ND		200	164		ug/L		82	80 - 125
Chloromethane	ND		200	206		ug/L		103	40 - 150
2-Chlorotoluene	ND		200	157	F	ug/L		79	80 - 120
4-Chlorotoluene	ND		200	170		ug/L		85	80 - 125
1,2-Dibromo-3-Chloropropane	ND		200	185		ug/L		93	55 - 145
Dibromochloromethane	ND		200	168		ug/L		84	80 - 130
1,2-Dibromoethane	ND		200	176		ug/L		88	80 - 130
Dibromomethane	ND		200	172		ug/L		86	75 - 135
1,2-Dichloroethane	ND		200	175		ug/L		87	80 - 125
1,3-Dichlorobenzene	ND		200	147	F	ug/L		73	80 - 125
1,4-Dichlorobenzene	ND		200	143	F	ug/L		72	80 - 120
Dichlorodifluoromethane	ND		200	174		ug/L		87	60 - 135
1,1-Dichloroethane	ND		200	170		ug/L		85	80 - 125
1,1-Dichloroethene	ND		200	166		ug/L		83	75 - 130
cis-1,2-Dichloroethene	ND		200	171		ug/L		85	75 - 140
trans-1,2-Dichloroethene	ND		200	167		ug/L		83	80 - 120
1,2-Dichloropropane	ND		200	175		ug/L		88	80 - 120
1,3-Dichloropropane	ND		200	175		ug/L		87	80 - 135
2,2-Dichloropropane	ND		200	178		ug/L		89	70 - 145
1,1-Dichloropropene	ND		200	172		ug/L		86	80 - 125
cis-1,3-Dichloropropene	ND		200	179		ug/L		90	80 - 130
trans-1,3-Dichloropropene	ND		200	185		ug/L		92	80 - 135
Ethylbenzene	9.8		200	176		ug/L		83	80 - 125
Hexachlorobutadiene	ND		200	147		ug/L		74	45 - 150
2-Hexanone	ND		1000	1000		ug/L		100	60 - 150
Isopropylbenzene	ND		200	164	F	ug/L		79	80 - 130
p-Isopropyltoluene	ND		200	167		ug/L		79	70 - 140
4-Methyl-2-pentanone (MIBK)	ND		1000	977		ug/L		98	55 - 150
Methyl tert-butyl ether	ND		200	200		ug/L		100	80 - 130
Methylene Chloride	ND		200	175		ug/L		88	80 - 120
Naphthalene	ND		200	181		ug/L		86	65 - 150
N-Propylbenzene	8.4		200	174		ug/L		83	70 - 135
Styrene	ND		200	171		ug/L		85	45 - 150
1,1,1,2-Tetrachloroethane	ND		200	164		ug/L		82	80 - 130
1,1,2,2-Tetrachloroethane	ND		200	157		ug/L		79	75 - 150
Tetrachloroethene	ND		200	159	F	ug/L		79	80 - 125
Toluene	ND		200	165		ug/L		82	75 - 135
1,2,3-Trichlorobenzene	ND		200	140		ug/L		70	70 - 150
1,2,4-Trichlorobenzene	ND		200	153		ug/L		76	70 - 150
1,1,1-Trichloroethane	ND		200	167		ug/L		83	80 - 130
1,1,2-Trichloroethane	ND		200	177		ug/L		88	80 - 130
Trichloroethene	ND		200	165		ug/L		82	65 - 130

TestAmerica Portland



QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-14847-1 MS

Matrix: Water

Analysis Batch: 21226

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier			Limits	
Trichlorofluoromethane	ND		200	185		ug/L		93	75 - 130
1,2,3-Trichloropropane	ND		200	154	F	ug/L		77	80 - 135
1,2,4-Trimethylbenzene	120		200	289		ug/L		86	80 - 140
1,3,5-Trimethylbenzene	37		200	208		ug/L		85	70 - 145
Vinyl chloride	ND		200	183		ug/L		91	70 - 135
m,p-Xylene	32		400	364		ug/L		83	75 - 135
o-Xylene	31		200	204		ug/L		86	80 - 125
1,2-Dichlorobenzene	ND		200	161		ug/L		81	80 - 120
Surrogate									
	MS	MS							
	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	94		80 - 120						
4-Bromofluorobenzene (Surr)	96		80 - 120						
Dibromofluoromethane (Surr)	95		80 - 120						
Toluene-d8 (Surr)	99		80 - 120						

Lab Sample ID: 250-14847-1 MSD

Matrix: Water

Analysis Batch: 21226

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	ND		1000	838		ug/L		84	55 - 125	21	25
Benzene	ND		200	181		ug/L		90	80 - 125	8	25
Bromobenzene	ND		200	161		ug/L		81	80 - 125	7	25
Bromochloromethane	ND		200	182		ug/L		91	80 - 130	5	25
Bromodichloromethane	ND		200	181		ug/L		90	80 - 135	5	25
Bromoform	ND		200	160		ug/L		80	65 - 150	11	25
Bromomethane	ND		200	194		ug/L		97	30 - 150	5	25
2-Butanone (MEK)	ND		1000	1070		ug/L		107	70 - 145	6	25
n-Butylbenzene	ND		200	193		ug/L		96	70 - 140	8	25
sec-Butylbenzene	5.0		200	184		ug/L		89	70 - 135	7	25
tert-Butylbenzene	ND		200	178		ug/L		89	70 - 135	8	25
Carbon disulfide	ND		400	434		ug/L		109	40 - 150	7	25
Carbon tetrachloride	ND		200	179		ug/L		90	75 - 130	9	25
Chlorobenzene	ND		200	175		ug/L		88	70 - 135	4	25
Chloroethane	ND		200	185		ug/L		92	75 - 130	6	25
Chloroform	ND		200	176		ug/L		88	80 - 125	7	25
Chloromethane	ND		200	212		ug/L		106	40 - 150	3	25
2-Chlorotoluene	ND		200	170		ug/L		85	80 - 120	7	25
4-Chlorotoluene	ND		200	185		ug/L		93	80 - 125	8	25
1,2-Dibromo-3-Chloropropane	ND		200	213		ug/L		107	55 - 145	14	25
Dibromochloromethane	ND		200	184		ug/L		92	80 - 130	9	25
1,2-Dibromoethane	ND		200	182		ug/L		91	80 - 130	3	25
Dibromomethane	ND		200	187		ug/L		93	75 - 135	8	25
1,2-Dichloroethane	ND		200	180		ug/L		90	80 - 125	3	25
1,3-Dichlorobenzene	ND		200	159	F	ug/L		79	80 - 125	8	25
1,4-Dichlorobenzene	ND		200	157	F	ug/L		78	80 - 120	9	25
Dichlorodifluoromethane	ND		200	181		ug/L		91	60 - 135	4	25
1,1-Dichloroethane	ND		200	180		ug/L		90	80 - 125	6	25

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-14847-1 MSD

Matrix: Water

Analysis Batch: 21226

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
1,1-Dichloroethene	ND		200	180		ug/L		90	75 - 130	8	25
cis-1,2-Dichloroethene	ND		200	180		ug/L		90	75 - 140	5	25
trans-1,2-Dichloroethene	ND		200	180		ug/L		90	80 - 120	8	25
1,2-Dichloropropane	ND		200	188		ug/L		94	80 - 120	7	25
1,3-Dichloropropane	ND		200	183		ug/L		91	80 - 135	5	25
2,2-Dichloropropane	ND		200	193		ug/L		96	70 - 145	8	25
1,1-Dichloropropene	ND		200	183		ug/L		92	80 - 125	7	25
cis-1,3-Dichloropropene	ND		200	192		ug/L		96	80 - 130	7	25
trans-1,3-Dichloropropene	ND		200	200		ug/L		100	80 - 135	8	25
Ethylbenzene	9.8		200	186		ug/L		88	80 - 125	5	25
Hexachlorobutadiene	ND		200	174		ug/L		87	45 - 150	17	25
2-Hexanone	ND		1000	1070		ug/L		107	60 - 150	6	25
Isopropylbenzene	ND		200	176		ug/L		85	80 - 130	7	25
p-Isopropyltoluene	ND		200	181		ug/L		86	70 - 140	8	25
4-Methyl-2-pentanone (MIBK)	ND		1000	1040		ug/L		104	55 - 150	6	25
Methyl tert-butyl ether	ND		200	209		ug/L		105	80 - 130	5	25
Methylene Chloride	ND		200	183		ug/L		92	80 - 120	4	25
Naphthalene	ND		200	202		ug/L		96	65 - 150	11	25
N-Propylbenzene	8.4		200	187		ug/L		90	70 - 135	7	25
Styrene	ND		200	184		ug/L		92	45 - 150	8	25
1,1,1,2-Tetrachloroethane	ND		200	179		ug/L		89	80 - 130	8	25
1,1,2,2-Tetrachloroethane	ND		200	173		ug/L		86	75 - 150	9	25
Tetrachloroethene	ND		200	173		ug/L		87	80 - 125	9	25
Toluene	ND		200	175		ug/L		88	75 - 135	6	25
1,2,3-Trichlorobenzene	ND		200	167		ug/L		84	70 - 150	18	25
1,2,4-Trichlorobenzene	ND		200	172		ug/L		86	70 - 150	12	25
1,1,1-Trichloroethane	ND		200	177		ug/L		88	80 - 130	6	25
1,1,2-Trichloroethane	ND		200	180		ug/L		90	80 - 130	2	25
Trichloroethene	ND		200	177		ug/L		89	65 - 130	8	25
Trichlorofluoromethane	ND		200	190		ug/L		95	75 - 130	3	25
1,2,3-Trichloropropane	ND		200	166		ug/L		83	80 - 135	8	25
1,2,4-Trimethylbenzene	120		200	305		ug/L		94	80 - 140	6	25
1,3,5-Trimethylbenzene	37		200	223		ug/L		93	70 - 145	7	25
Vinyl chloride	ND		200	192		ug/L		96	70 - 135	5	25
m,p-Xylene	32		400	388		ug/L		89	75 - 135	6	25
o-Xylene	31		200	211		ug/L		90	80 - 125	3	25
1,2-Dichlorobenzene	ND		200	174		ug/L		87	80 - 120	8	25
Surrogate	MSD		Limits								
	%Recovery	Qualifier									
1,2-Dichloroethane-d4 (Surr)	95		80 - 120								
4-Bromofluorobenzene (Surr)	96		80 - 120								
Dibromofluoromethane (Surr)	93		80 - 120								
Toluene-d8 (Surr)	97		80 - 120								

TestAmerica Portland

Certification Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-13
California	State Program	9	2597	09-30-13 *
Oregon	NELAP	10	OR100021	01-09-14
USDA	Federal		P330-11-00092	02-17-14
Washington	State Program	10	C586	06-23-14

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Portland

Method Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-14847-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PRT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PRT = TestAmerica Portland, 9405 SW Nimbus Ave., Beaverton, OR 97008, TEL (503)906-9200



TestAmerica Portland

9405 SW Nimbus Avenue

Beaverton, OR 97008

phone 503.906.9200 fax 503.906.9210

Chain of Custody Record



250-14847 Chain of Custody

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact Your Company Name here: <u>Hart Crowder</u> Address: <u>8910 SW Gemini Drive</u> City/State/Zip: <u>Beaverton/OR 97008</u> (xxx) xxx-xxxx Phone: <u>(503) 620-7284</u> (xxx) xxx-xxxx FAX: <u>(503) 620-6918</u> Project Name: <u>Paramount Petroleum</u> Site: <u>Portland, OR Willbridge Facility</u> PO#: <u>17203-53</u>		Project Manager: <u>Chris Martin</u> Tel/Fax: <u>503-432-5979</u>		Site Contact: <u>Jason Miles</u> Lab Contact: <u>Vanessa</u> Date: <u>10/14/13</u> Carrier:		COC No: <u>1</u> of <u>1</u> COCs			
Analysis Turnaround Time ☐ CALENDAR DAYS ☐ WORKING DAYS TAT if different from Below: <u>Standard</u> ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Filtered Sample (Y/N) <u>Full List 10/15/13</u> Perform MS/MSD (Y/N)		For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: Sampler: <u>Jason R. Miles</u> Sample Specific Notes:					
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)		
A-4	10-14-13	0956	G	W	3	X	X		
S-1		1318			3	X	X		
S-2		1022			3	X	X		
S-3		1134			3	X	X		
S-4		1047			3	X	X		
S-5		1158			3	X	X		
S-6		1229			3	X	X		
S-7		1254			3	X	X		
S-8		1347			3	X	X		
W-32		0906			3	X	X		
W-33		0929			3	X	X		
W-34		0840			3	X	X		
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other <u>1, 2</u>									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months			
Special Instructions/QC Requirements & Comments:									
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <u>[Signature]</u>		Company: <u>Hart Crowder</u>		Date/Time: <u>10-14-13/1540</u>		Relinquished by: <u>[Signature]</u>		Company: <u>TA</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

Login Sample Receipt Checklist

Client: Hart Crowser, Inc.

Job Number: 250-14847-1

Login Number: 14847

List Source: TestAmerica Portland

List Number: 1

Creator: Krause, Thomas A

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Received Trip Blank(s) not listed on COC.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

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1281
Spill Com

Paramount
Naphtha Spill

July 28, 2014

Jim Orr
Oregon DEQ State On-Scene Coordinator
2020 SW 4th Ave., Suite 400
Portland, OR 97201-4987

RE: Former Paramount Petroleum's Naphtha Soil Pile
OERS No. 11-1718

Dear Mr. Orr;

Arc Terminals purchased the former Paramount Asphalt plant in January of 2014. Arc would like authorization to spread out the stock pile of soil generated during the cleanup of the Naphtha spill that occurred in 2011. There is an estimated 100 yards of material that was generated during trenching activities as well as installation of monitoring walls to enhance recovery of the product.

This material was remediated on site using SVE and natural attenuation. The soil pile is properly remediated and Arc would like to spread the soil on site and cover with an inch of stone. The material will be spread in the area on the attached map. If you have any questions please contact me at 281-292-3008 ext 107

Regards,



Shaun Kizewski
GM HSE&T

Paramount Petroleum
Soil Treatment Cell
Portland, Oregon

Sample	Date	Total Petroleum Hydrocarbons			Volatile Organic Compounds														Lead
		Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	m,p- Xylenes	o-Xylenes	Xylenes (Total)	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Isopropylbenzene	Naphthalene	n-Butylbenzene	n-Propylbenzene	sec-Butylbenzene	
Soil		Concentrations in mg/kg (ppm)																	
S-1-1	12-Jul-12	150	530	190	<0.13	<0.13	<0.13	<0.26	<0.13	<0.39	<0.13	<0.13	<0.26	<0.26	<0.26	<0.65	<0.13	<0.13	15
S-2-2	12-Jul-12	350	540	190	<0.27	<0.27	<0.27	<0.55	<0.27	<0.82	0.45	<0.27	<0.55	<0.55	<0.55	<1.4	<0.27	<0.27	17
S-3-3	12-Jul-12	53	170	280	<0.14	0.33	0.34	0.29	0.30	0.59	<0.14	<0.14	<0.28	<0.28	<0.28	<0.71	<0.14	<0.14	40
S-4-4	12-Jul-12	1,300	2,200	1,400	<0.14	0.25	1.6	3.9	3.6	7.5	5.7	2.0	1.4	0.63	0.67	1.8	1.4	0.75	18
RBCs																			
Direct Contact - Occupational		20,000	14,000	36,000	34	77,000	140	--	--	25,000	2,000	10,000	--	53,000	23	--	--	--	800
Direct Contact - Construction Worker		9,700	4,600	11,000	340	24,000	1,600	--	--	19,000	2,000	3,100	--	24,000	580	--	--	--	800
Volatization to Outdoor Air - Occupational		69,000	>Max	>Max	50	>Csat	160	--	--	>Csat	1,000	--	--	>Csat	99	--	--	--	--

Notes:
ppm = parts per million
RBC = Risk Based Concentration, Oregon Department of Environmental Quality (Revision: June 7, 2012)
Bold denotes detection
< = analyte not detected above the given reporting limit
>Max = Constituant RBC for this pathway is calculated as greater than 1,000,000 ppm, therefore this substance does not pose a risk
>Csat = This soil RBC exceeds the saturation limit
Volatile organic compounds with laboratory detections and BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes) are shown

Soil Pile Spread Area



0 200 400

Scale in Feet

Soil Spread Area



Paramount Petroleum
Soil Treatment Cell
Portland, Oregon

Sample	Date	Total Petroleum Hydrocarbons			Volatile Organic Compounds														Lead
		Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	m,p- Xylenes	o-Xylenes	Xylenes (Total)	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p-Isopropyltoluene	Isopropylbenzene	Naphthalene	n-Butylbenzene	n-Propylbenzene	sec-Butylbenzene	
Soil		Concentrations in mg/kg (ppm)																	
S-1-1	12-Jul-12	150	530	190	<0.13	<0.13	<0.13	<0.26	<0.13	<0.39	<0.13	<0.13	<0.26	<0.26	<0.26	<0.65	<0.13	<0.13	15
S-2-2	12-Jul-12	350	540	190	<0.27	<0.27	<0.27	<0.55	<0.27	<0.82	0.45	<0.27	<0.55	<0.55	<0.55	<1.4	<0.27	<0.27	17
S-3-3	12-Jul-12	53	170	280	<0.14	0.33	0.34	0.29	0.30	0.59	<0.14	<0.14	<0.28	<0.28	<0.28	<0.71	<0.14	<0.14	40
S-4-4	12-Jul-12	1,300	2,200	1,400	<0.14	0.25	1.6	3.9	3.6	7.5	5.7	2.0	1.4	0.63	0.67	1.8	1.4	0.75	18
RBCs																			
Direct Contact - Occupational		20,000	14,000	36,000	34	77,000	140	--	--	25,000	2,000	10,000	--	53,000	23	--	--	--	800
Direct Contact - Construction Worker		9,700	4,600	11,000	340	24,000	1,600	--	--	19,000	2,000	3,100	--	24,000	580	--	--	--	800
Volatization to Outdoor Air - Occupational		69,000	>Max	>Max	50	>Csat	160	--	--	>Csat	1,000	--	--	>Csat	99	--	--	--	--

Notes: Clean Fill SLV 0.0093 200 0.16 25 1 25 1.938 18 NA NA 0.087 NA NA NA 28

ppm = parts per million
RBC = Risk Based Concentration, Oregon Department of Environmental Quality (Revision: June 7, 2012)
Bold denotes detection
< = analyte not detected above the given reporting limit
>Max = Constituant RBC for this pathway is calculated as greater than 1,000,000 ppm, therefore this substance does not pose a risk
>Csat = This soil RBC exceeds the saturation limit
Volatile organic compounds with laboratory detections and BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes) are shown

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Portland

9405 SW Nimbus Ave.

Beaverton, OR 97008

Tel: (503)906-9200

TestAmerica Job ID: 250-4791-1

TestAmerica Sample Delivery Group: 17203-48

Client Project/Site: Paramount Petroleum

For:

Hart Crowser, Inc.

8910 SW Gemini Drive

Beaverton, Oregon 97008

Attn: Chris Martin

Vanessa Frahs

Authorized for release by:

7/19/2012 4:19:53 PM

Vanessa Frahs

Project Manager I

vanessa.frahs@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
250-4791-1	S-1-1	Solid	07/12/12 08:05	07/12/12 15:15
250-4791-2	S-2-2	Solid	07/12/12 08:17	07/12/12 15:15
250-4791-3	S-3-3	Solid	07/12/12 08:24	07/12/12 15:15
250-4791-4	S-4-4	Solid	07/12/12 08:32	07/12/12 15:15

Case Narrative

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Job ID: 250-4791-1

Laboratory: TestAmerica Portland

Narrative

Receipt

The samples were received on 7/12/2012 3:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.5° C.

GC/MS VOA

Method(s) 8260B: The following sample(s) was diluted due to the abundance of non-target analytes: (250-4669-1 MS), (250-4669-1 MSD). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The following sample(s) was diluted due to the abundance of non-target analytes: S-2-2 (250-4791-2). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The following sample(s) was diluted due to the abundance of non-target analytes: EPB@8.5'bgs (250-4669-1). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with batch 7511 were outside control limits: (250-4669-1 MS). The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with batch 7511 were outside control limits: (250-4669-1 MSD). The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 8260B: The matrix duplicate %RPD for vinyl chloride associated with batch 7511 was outside the control limits due to. LCS was within acceptable limits.

No other analytical or quality issues were noted.

GC VOA

Method(s) NWTPH-Gx: S-1-1 (250-4791-1), S-2-2 (250-4791-2), S-3-3 (250-4791-3), S-4-4 (250-4791-4) Hydrocarbon result due to mostly diesel.

Method(s) NWTPH-Gx: Bella Vista Composition #1 (250-4655-1) Hydrocarbon result due to mostly diesel.

Method(s) NWTPH-Gx: (250-4655-2 DU), Bella Vista Composition #2 (250-4655-2) Hydrocarbon result due to mostly diesel.

Method(s) NWTPH-Gx: The matrix duplicate %RPD for gasoline range hydrocarbons associated with batch 7558 was outside the control limits due to matrix interference of the sample.

No other analytical or quality issues were noted.

GC Semi VOA

Method(s) NWTPH-Dx: Due to the level of dilution required for the following sample(s), surrogate recoveries are not useful: S-4-4 (250-4791-4).

Method(s) NWTPH-Dx: Detected hydrocarbons in the diesel range appear to be due to heavily weathered diesel. Detected hydrocarbons in the oil range appear to be due to diesel overlap. (250-4791-1 DU), S-1-1 (250-4791-1)

Method(s) NWTPH-Dx: Detected hydrocarbons in the diesel range appear to be due to a heavy gas/light weight diesel component as well as heavily weathered diesel. Detected hydrocarbons in the oil range appear to be due to diesel overlap. S-2-2 (250-4791-2), S-4-4 (250-4791-4)

Method(s) NWTPH-Dx: Detected hydrocarbons appear to be due to heavily weathered diesel as well as oil. S-3-3 (250-4791-3)

No other analytical or quality issues were noted.

Metals

Case Narrative

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Job ID: 250-4791-1 (Continued)

Laboratory: TestAmerica Portland (Continued)

No analytical or quality issues were noted.

Organic Prep

No analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.

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Definitions/Glossary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits

GC VOA

Qualifier	Qualifier Description
F	Duplicate RPD exceeds the control limit

GC Semi VOA

Qualifier	Qualifier Description
F	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1

Matrix: Solid

Percent Solids: 85.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,1,1-Trichloroethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,1,2,2-Tetrachloroethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,1,2-Trichloroethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,1-Dichloroethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,1-Dichloroethene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,1-Dichloropropene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,2,3-Trichlorobenzene	ND		650		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,2,3-Trichloropropane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,2,4-Trichlorobenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,2,4-Trimethylbenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,2-Dibromo-3-Chloropropane	ND		650		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,2-Dichlorobenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,2-Dichloroethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,2-Dichloropropane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,3,5-Trimethylbenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,3-Dichlorobenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,3-Dichloropropane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,4-Dichlorobenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
2,2-Dichloropropane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
2-Chlorotoluene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
4-Chlorotoluene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
p-Isopropyltoluene	ND		260		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Acetone	ND		3300		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Benzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Bromobenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Bromoform	ND		650		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Bromomethane	ND		650		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Carbon tetrachloride	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Chlorobenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Bromochloromethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Dibromochloromethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Chloroethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Chloroform	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Chloromethane	ND		650		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
cis-1,2-Dichloroethene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
cis-1,3-Dichloropropene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Dibromomethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Bromodichloromethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Dichlorodifluoromethane	ND		650		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Ethylbenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
1,2-Dibromoethane	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Hexachlorobutadiene	ND		520		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Isopropylbenzene	ND		260		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Methyl tert-butyl ether	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Methylene Chloride	ND		650		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
m,p-Xylene	ND		260		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
Naphthalene	ND		260		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
n-Butylbenzene	ND		650		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
N-Propylbenzene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1
o-Xylene	ND		130		ug/Kg	✱	07/12/12 18:48	07/13/12 12:10	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1

Matrix: Solid

Percent Solids: 85.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Styrene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
tert-Butylbenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Tetrachloroethene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Toluene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
trans-1,2-Dichloroethene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
trans-1,3-Dichloropropene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Trichloroethene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Trichlorofluoromethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Vinyl chloride	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
2-Butanone (MEK)	ND		1300		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
2-Hexanone	ND		1300		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
4-Methyl-2-pentanone (MIBK)	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Carbon disulfide	ND		1300		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		75 - 125	07/12/12 18:48	07/13/12 12:10	1
4-Bromofluorobenzene (Surr)	104		75 - 125	07/12/12 18:48	07/13/12 12:10	1
Dibromofluoromethane (Surr)	98		75 - 125	07/12/12 18:48	07/13/12 12:10	1
Toluene-d8 (Surr)	97		75 - 125	07/12/12 18:48	07/13/12 12:10	1

Client Sample ID: S-2-2

Date Collected: 07/12/12 08:17

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-2

Matrix: Solid

Percent Solids: 83.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1,1-Trichloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1,2,2-Tetrachloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1,2-Trichloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1-Dichloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1-Dichloroethene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1-Dichloropropene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2,3-Trichlorobenzene	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2,3-Trichloropropane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2,4-Trichlorobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2,4-Trimethylbenzene	450		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2-Dibromo-3-Chloropropane	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2-Dichlorobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2-Dichloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2-Dichloropropane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,3,5-Trimethylbenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,3-Dichlorobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,3-Dichloropropane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,4-Dichlorobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
2,2-Dichloropropane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
2-Chlorotoluene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
4-Chlorotoluene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
p-Isopropyltoluene	ND		550		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Acetone	ND		6800		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Benzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Bromobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-2-2

Lab Sample ID: 250-4791-2

Date Collected: 07/12/12 08:17

Matrix: Solid

Date Received: 07/12/12 15:15

Percent Solids: 83.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Bromomethane	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Carbon tetrachloride	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Chlorobenzene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Bromochloromethane	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Dibromochloromethane	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Chloroethane	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Chloroform	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Chloromethane	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
cis-1,2-Dichloroethene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
cis-1,3-Dichloropropene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Dibromomethane	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Bromodichloromethane	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Dichlorodifluoromethane	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Ethylbenzene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
1,2-Dibromoethane	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Hexachlorobutadiene	ND		1100		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Isopropylbenzene	ND		550		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Methyl tert-butyl ether	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Methylene Chloride	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
m,p-Xylene	ND		550		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Naphthalene	ND		550		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
n-Butylbenzene	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
N-Propylbenzene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
o-Xylene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
sec-Butylbenzene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Styrene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
tert-Butylbenzene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Tetrachloroethene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Toluene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
trans-1,2-Dichloroethene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
trans-1,3-Dichloropropene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Trichloroethene	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Trichlorofluoromethane	ND		270		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Vinyl chloride	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
2-Butanone (MEK)	ND		2700		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
2-Hexanone	ND		2700		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
4-Methyl-2-pentanone (MIBK)	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2
Carbon disulfide	ND		2700		ug/Kg	*	07/12/12 18:48	07/13/12 15:52	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		75 - 125	07/12/12 18:48	07/13/12 15:52	2
4-Bromofluorobenzene (Surr)	105		75 - 125	07/12/12 18:48	07/13/12 15:52	2
Dibromofluoromethane (Surr)	100		75 - 125	07/12/12 18:48	07/13/12 15:52	2
Toluene-d8 (Surr)	100		75 - 125	07/12/12 18:48	07/13/12 15:52	2

Client Sample ID: S-3-3

Lab Sample ID: 250-4791-3

Date Collected: 07/12/12 08:24

Matrix: Solid

Date Received: 07/12/12 15:15

Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,1,2,2-Tetrachloroethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,1,2-Trichloroethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,1-Dichloroethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,1-Dichloroethene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,1-Dichloropropene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,2,3-Trichlorobenzene	ND		710		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,2,3-Trichloropropane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,2,4-Trichlorobenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,2,4-Trimethylbenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,2-Dibromo-3-Chloropropane	ND		710		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,2-Dichlorobenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,2-Dichloroethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,2-Dichloropropane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,3,5-Trimethylbenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,3-Dichlorobenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,3-Dichloropropane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,4-Dichlorobenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
2,2-Dichloropropane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
2-Chlorotoluene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
4-Chlorotoluene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
p-Isopropyltoluene	ND		280		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Acetone	ND		3600		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Benzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Bromobenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Bromoform	ND		710		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Bromomethane	ND		710		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Carbon tetrachloride	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Chlorobenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Bromochloromethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Dibromochloromethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Chloroethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Chloroform	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Chloromethane	ND		710		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
cis-1,2-Dichloroethene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
cis-1,3-Dichloropropene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Dibromomethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Bromodichloromethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Dichlorodifluoromethane	ND		710		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Ethylbenzene	340		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
1,2-Dibromoethane	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Hexachlorobutadiene	ND		570		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Isopropylbenzene	ND		280		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Methyl tert-butyl ether	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Methylene Chloride	ND		710		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
m,p-Xylene	290		280		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
Naphthalene	ND		280		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
n-Butylbenzene	ND		710		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
N-Propylbenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
o-Xylene	300		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1
sec-Butylbenzene	ND		140		ug/Kg	✱	07/12/12 18:48	07/13/12 12:32	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
tert-Butylbenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Tetrachloroethene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Toluene	330		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
trans-1,2-Dichloroethene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
trans-1,3-Dichloropropene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Trichloroethene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Trichlorofluoromethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Vinyl chloride	ND		710		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
2-Butanone (MEK)	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
2-Hexanone	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
4-Methyl-2-pentanone (MIBK)	ND		710		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Carbon disulfide	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 125	07/12/12 18:48	07/13/12 12:32	1
4-Bromofluorobenzene (Surr)	107		75 - 125	07/12/12 18:48	07/13/12 12:32	1
Dibromofluoromethane (Surr)	100		75 - 125	07/12/12 18:48	07/13/12 12:32	1
Toluene-d8 (Surr)	103		75 - 125	07/12/12 18:48	07/13/12 12:32	1

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:32

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4

Matrix: Solid

Percent Solids: 82.9

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1,1-Trichloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1,2,2-Tetrachloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1,2-Trichloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1-Dichloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1-Dichloroethene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1-Dichloropropene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2,3-Trichlorobenzene	ND		680		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2,3-Trichloropropane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2,4-Trichlorobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2,4-Trimethylbenzene	5700		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2-Dibromo-3-Chloropropane	ND		680		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2-Dichlorobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2-Dichloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2-Dichloropropane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,3,5-Trimethylbenzene	2000		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,3-Dichlorobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,3-Dichloropropane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,4-Dichlorobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
2,2-Dichloropropane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
2-Chlorotoluene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
4-Chlorotoluene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
p-Isopropyltoluene	1400		270		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
Acetone	ND		3400		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
Benzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
Bromobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
Bromoform	ND		680		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:32

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4

Matrix: Solid

Percent Solids: 82.9

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Carbon tetrachloride	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Chlorobenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Bromochloromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Dibromochloromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Chloroethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Chloroform	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Chloromethane	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
cis-1,2-Dichloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
cis-1,3-Dichloropropene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Dibromomethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Bromodichloromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Dichlorodifluoromethane	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Ethylbenzene	1600		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
1,2-Dibromoethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Hexachlorobutadiene	ND		550		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Isopropylbenzene	630		270		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Methyl tert-butyl ether	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Methylene Chloride	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
m,p-Xylene	3900		270		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Naphthalene	670		270		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
n-Butylbenzene	1800		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
N-Propylbenzene	1400		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
o-Xylene	3600		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
sec-Butylbenzene	750		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Styrene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
tert-Butylbenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Tetrachloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Toluene	250		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
trans-1,2-Dichloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
trans-1,3-Dichloropropene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Trichloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Trichlorofluoromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Vinyl chloride	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
2-Butanone (MEK)	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
2-Hexanone	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
4-Methyl-2-pentanone (MIBK)	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Carbon disulfide	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 125	07/12/12 18:48	07/13/12 12:54	1
4-Bromofluorobenzene (Surr)	87		75 - 125	07/12/12 18:48	07/13/12 12:54	1
Dibromofluoromethane (Surr)	103		75 - 125	07/12/12 18:48	07/13/12 12:54	1
Toluene-d8 (Surr)	100		75 - 125	07/12/12 18:48	07/13/12 12:54	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	150000		5200		ug/Kg	☼	07/12/12 20:01	07/13/12 14:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	96		50 - 150				07/12/12 20:01	07/13/12 14:03	1

Lab Sample ID: 250-4791-1

Matrix: Solid

Percent Solids: 85.4

Client Sample ID: S-2-2

Date Collected: 07/12/12 08:17

Date Received: 07/12/12 15:15

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	350000		22000		ug/Kg	☼	07/12/12 20:01	07/13/12 14:59	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	92		50 - 150				07/12/12 20:01	07/13/12 14:59	4

Lab Sample ID: 250-4791-2

Matrix: Solid

Percent Solids: 83.4

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	53000		5700		ug/Kg	☼	07/12/12 20:01	07/13/12 14:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	93		50 - 150				07/12/12 20:01	07/13/12 14:31	1

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:32

Date Received: 07/12/12 15:15

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	1300000		110000		ug/Kg	☼	07/12/12 20:01	07/13/12 15:27	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	87		50 - 150				07/12/12 20:01	07/13/12 15:27	20

Lab Sample ID: 250-4791-4

Matrix: Solid

Percent Solids: 82.9

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1

Matrix: Solid

Percent Solids: 85.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	530		15		mg/Kg	☼	07/16/12 10:06	07/16/12 20:08	1
RRO (nC25-nC36)	190		29		mg/Kg	☼	07/16/12 10:06	07/16/12 20:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	68		50 - 150				07/16/12 10:06	07/16/12 20:08	1

Client Sample ID: S-2-2

Date Collected: 07/12/12 08:17

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-2

Matrix: Solid

Percent Solids: 83.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	540		15		mg/Kg	☼	07/16/12 10:06	07/16/12 20:26	1
RRO (nC25-nC36)	190		30		mg/Kg	☼	07/16/12 10:06	07/16/12 20:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	84		50 - 150				07/16/12 10:06	07/16/12 20:26	1

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	170		15		mg/Kg	☼	07/16/12 10:06	07/16/12 20:44	1
RRO (nC25-nC36)	280		30		mg/Kg	☼	07/16/12 10:06	07/16/12 20:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	63		50 - 150				07/16/12 10:06	07/16/12 20:44	1

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:32

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4

Matrix: Solid

Percent Solids: 82.9

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	2200		300		mg/Kg	☼	07/16/12 10:06	07/16/12 21:02	20
RRO (nC25-nC36)	1400		600		mg/Kg	☼	07/16/12 10:06	07/16/12 21:02	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	96		50 - 150				07/16/12 10:06	07/16/12 21:02	20

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 6020 - Metals (ICP/MS)

Client Sample ID: S-1-1
Date Collected: 07/12/12 08:05
Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1
Matrix: Solid
Percent Solids: 85.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	15		0.57		mg/Kg	☆	07/13/12 13:04	07/13/12 21:44	10

Client Sample ID: S-2-2
Date Collected: 07/12/12 08:17
Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-2
Matrix: Solid
Percent Solids: 83.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	17		0.59		mg/Kg	☆	07/13/12 13:04	07/13/12 22:01	10

Client Sample ID: S-3-3
Date Collected: 07/12/12 08:24
Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3
Matrix: Solid
Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	40		0.61		mg/Kg	☆	07/13/12 13:04	07/13/12 22:05	10

Client Sample ID: S-4-4
Date Collected: 07/12/12 08:32
Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4
Matrix: Solid
Percent Solids: 82.9

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	18		0.60		mg/Kg	☆	07/13/12 13:04	07/13/12 22:08	10

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

General Chemistry

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1

Matrix: Solid

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15		0.010		%			07/13/12 17:38	1
Percent Solids	85		0.010		%			07/13/12 17:38	1

Client Sample ID: S-2-2

Date Collected: 07/12/12 08:17

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-2

Matrix: Solid

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17		0.010		%			07/13/12 17:38	1
Percent Solids	83		0.010		%			07/13/12 17:38	1

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3

Matrix: Solid

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19		0.010		%			07/13/12 17:38	1
Percent Solids	81		0.010		%			07/13/12 17:38	1

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:32

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4

Matrix: Solid

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17		0.010		%			07/13/12 17:38	1
Percent Solids	83		0.010		%			07/13/12 17:38	1

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 250-7476/1-A
Matrix: Solid
Analysis Batch: 7511

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7476

Analyte	Result	MB MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1,1-Trichloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1,2,2-Tetrachloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1,2-Trichloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1-Dichloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1-Dichloroethene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1-Dichloropropene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2,3-Trichlorobenzene	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2,3-Trichloropropane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2,4-Trichlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2,4-Trimethylbenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dibromo-3-Chloropropane	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dichlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dichloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dichloropropane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,3,5-Trimethylbenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,3-Dichlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,3-Dichloropropane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,4-Dichlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
2,2-Dichloropropane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
2-Chlorotoluene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
4-Chlorotoluene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
p-Isopropyltoluene	ND		200		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Acetone	ND		2500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Benzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromoform	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromomethane	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Carbon tetrachloride	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Chlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromochloromethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Dibromochloromethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Chloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Chloroform	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Chloromethane	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
cis-1,2-Dichloroethene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
cis-1,3-Dichloropropene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Dibromomethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromodichloromethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Dichlorodifluoromethane	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Ethylbenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dibromoethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Hexachlorobutadiene	ND		400		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Isopropylbenzene	ND		200		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Methyl tert-butyl ether	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Methylene Chloride	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
m,p-Xylene	ND		200		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Naphthalene	ND		200		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
n-Butylbenzene	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 250-7476/1-A
Matrix: Solid
Analysis Batch: 7511

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7476

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-Propylbenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
o-Xylene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
sec-Butylbenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Styrene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
tert-Butylbenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Tetrachloroethene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Toluene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
trans-1,2-Dichloroethene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
trans-1,3-Dichloropropene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Trichloroethene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Trichlorofluoromethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Vinyl chloride	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
2-Butanone (MEK)	ND		990		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
2-Hexanone	ND		990		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
4-Methyl-2-pentanone (MIBK)	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Carbon disulfide	ND		990		ug/Kg		07/12/12 07:55	07/12/12 10:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		75 - 125	07/12/12 07:55	07/12/12 10:42	1
4-Bromofluorobenzene (Surr)	103		75 - 125	07/12/12 07:55	07/12/12 10:42	1
Dibromofluoromethane (Surr)	100		75 - 125	07/12/12 07:55	07/12/12 10:42	1
Toluene-d8 (Surr)	101		75 - 125	07/12/12 07:55	07/12/12 10:42	1

Lab Sample ID: LCS 250-7476/2-A
Matrix: Solid
Analysis Batch: 7511

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	1980	1940		ug/Kg		98	80 - 130
1,1,1-Trichloroethane	1980	1890		ug/Kg		95	80 - 125
1,1,2,2-Tetrachloroethane	1980	2030		ug/Kg		102	70 - 135
1,1,2-Trichloroethane	1980	1920		ug/Kg		97	80 - 125
1,1-Dichloroethane	1980	1840		ug/Kg		93	80 - 120
1,1-Dichloroethene	1980	1870		ug/Kg		94	75 - 125
1,1-Dichloropropene	1980	1790		ug/Kg		90	80 - 125
1,2,3-Trichlorobenzene	1980	2090		ug/Kg		105	80 - 145
1,2,3-Trichloropropane	1980	2010		ug/Kg		102	65 - 125
1,2,4-Trichlorobenzene	1980	2100		ug/Kg		106	85 - 150
1,2,4-Trimethylbenzene	1980	2010		ug/Kg		101	80 - 135
1,2-Dibromo-3-Chloropropane	1980	1990		ug/Kg		100	60 - 130
1,2-Dichlorobenzene	1980	2020		ug/Kg		102	80 - 120
1,2-Dichloroethane	1980	1900		ug/Kg		96	80 - 120
1,2-Dichloropropane	1980	1940		ug/Kg		98	80 - 125
1,3,5-Trimethylbenzene	1980	2070		ug/Kg		105	80 - 135
1,3-Dichlorobenzene	1980	1930		ug/Kg		97	80 - 125
1,3-Dichloropropane	1980	1920		ug/Kg		97	75 - 130
1,4-Dichlorobenzene	1980	1960		ug/Kg		99	75 - 120
2,2-Dichloropropane	1980	2000		ug/Kg		101	70 - 130
2-Chlorotoluene	1980	1900		ug/Kg		96	80 - 120

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 250-7476/2-A

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chlorotoluene	1980	1910		ug/Kg		96	80 - 125
p-Isopropyltoluene	1980	2110		ug/Kg		106	80 - 120
Acetone	9920	9030		ug/Kg		91	65 - 150
Benzene	1980	1790		ug/Kg		90	80 - 120
Bromobenzene	1980	1960		ug/Kg		99	80 - 120
Bromoform	1980	1930		ug/Kg		97	75 - 150
Bromomethane	1980	1930		ug/Kg		97	65 - 130
Carbon tetrachloride	1980	1830		ug/Kg		92	70 - 130
Chlorobenzene	1980	1830		ug/Kg		92	80 - 125
Bromochloromethane	1980	1910		ug/Kg		96	80 - 120
Dibromochloromethane	1980	1970		ug/Kg		99	75 - 125
Chloroethane	1980	2020		ug/Kg		102	75 - 125
Chloroform	1980	1860		ug/Kg		94	80 - 120
Chloromethane	1980	2080		ug/Kg		105	40 - 150
cis-1,2-Dichloroethene	1980	1770		ug/Kg		89	75 - 125
cis-1,3-Dichloropropene	1980	1980		ug/Kg		100	80 - 125
Dibromomethane	1980	1830		ug/Kg		92	80 - 120
Bromodichloromethane	1980	1910		ug/Kg		96	80 - 140
Dichlorodifluoromethane	1980	2100		ug/Kg		106	75 - 120
Ethylbenzene	1980	1900		ug/Kg		96	80 - 125
1,2-Dibromoethane	1980	2030		ug/Kg		102	80 - 125
Hexachlorobutadiene	1980	2250		ug/Kg		113	80 - 150
Isopropylbenzene	1980	1950		ug/Kg		98	80 - 130
Methyl tert-butyl ether	1980	1900		ug/Kg		96	75 - 125
Methylene Chloride	1980	1820		ug/Kg		92	75 - 125
m,p-Xylene	3970	3840		ug/Kg		97	80 - 120
Naphthalene	1980	2200		ug/Kg		111	80 - 130
n-Butylbenzene	1980	2080		ug/Kg		105	80 - 150
N-Propylbenzene	1980	2030		ug/Kg		102	80 - 120
o-Xylene	1980	1940		ug/Kg		98	80 - 125
sec-Butylbenzene	1980	2060		ug/Kg		104	80 - 135
Styrene	1980	1980		ug/Kg		100	80 - 125
tert-Butylbenzene	1980	2060		ug/Kg		104	80 - 130
Tetrachloroethene	1980	1830		ug/Kg		92	80 - 125
Toluene	1980	1830		ug/Kg		92	80 - 120
trans-1,2-Dichloroethene	1980	1820		ug/Kg		92	75 - 125
trans-1,3-Dichloropropene	1980	1830		ug/Kg		92	65 - 145
Trichloroethene	1980	1800		ug/Kg		91	80 - 125
Trichlorofluoromethane	1980	2020		ug/Kg		102	55 - 150
Vinyl chloride	1980	1200		ug/Kg		61	10 - 140
2-Butanone (MEK)	9920	10000		ug/Kg		101	70 - 125
2-Hexanone	9920	10300		ug/Kg		104	55 - 120
4-Methyl-2-pentanone (MIBK)	9920	10000		ug/Kg		101	50 - 120
Carbon disulfide	3970	3520		ug/Kg		89	65 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		75 - 125
4-Bromofluorobenzene (Surr)	102		75 - 125
Dibromofluoromethane (Surr)	100		75 - 125

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 250-7476/2-A
Matrix: Solid
Analysis Batch: 7511

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7476

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	101		75 - 125

Lab Sample ID: 250-4669-B-1-A MS
Matrix: Solid
Analysis Batch: 7511

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7476

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		6020	5650		ug/Kg	☼	94	80 - 130
1,1,1-Trichloroethane	ND		6020	5810		ug/Kg	☼	97	80 - 125
1,1,2,2-Tetrachloroethane	ND		6020	6620		ug/Kg	☼	110	70 - 130
1,1,2-Trichloroethane	ND		6020	6360		ug/Kg	☼	106	80 - 130
1,1-Dichloroethane	ND		6020	6290		ug/Kg	☼	105	80 - 125
1,1-Dichloroethene	ND		6020	6070		ug/Kg	☼	101	70 - 130
1,1-Dichloropropene	ND		6020	6170		ug/Kg	☼	103	80 - 125
1,2,3-Trichlorobenzene	ND		6020	6180		ug/Kg	☼	103	70 - 130
1,2,3-Trichloropropane	ND		6020	6580		ug/Kg	☼	109	70 - 130
1,2,4-Trichlorobenzene	ND		6020	6120		ug/Kg	☼	102	70 - 150
1,2,4-Trimethylbenzene	5300		6020	13000		ug/Kg	☼	129	70 - 130
1,2-Dibromo-3-Chloropropane	ND		6020	6460		ug/Kg	☼	107	60 - 145
1,2-Dichlorobenzene	ND		6020	6370		ug/Kg	☼	106	80 - 120
1,2-Dichloroethane	ND		6020	6110		ug/Kg	☼	102	75 - 120
1,2-Dichloropropane	ND		6020	6270		ug/Kg	☼	104	80 - 130
1,3,5-Trimethylbenzene	1400		6020	8290		ug/Kg	☼	115	75 - 140
1,3-Dichlorobenzene	ND		6020	6200		ug/Kg	☼	103	80 - 130
1,3-Dichloropropane	ND		6020	5950		ug/Kg	☼	99	75 - 130
1,4-Dichlorobenzene	ND		6020	6270		ug/Kg	☼	104	80 - 120
2,2-Dichloropropane	ND		6020	5990		ug/Kg	☼	100	70 - 130
2-Chlorotoluene	ND		6020	6180		ug/Kg	☼	103	80 - 125
4-Chlorotoluene	ND		6020	6710		ug/Kg	☼	112	70 - 130
p-Isopropyltoluene	ND		6020	7160		ug/Kg	☼	119	70 - 140
Acetone	ND		30100	29600		ug/Kg	☼	98	60 - 145
Benzene	ND		6020	6020		ug/Kg	☼	100	80 - 125
Bromobenzene	ND		6020	6870		ug/Kg	☼	114	70 - 130
Bromoform	ND		6020	5210		ug/Kg	☼	87	70 - 130
Bromomethane	ND		6020	5550		ug/Kg	☼	92	70 - 130
Carbon tetrachloride	ND		6020	5290		ug/Kg	☼	88	70 - 125
Chlorobenzene	ND		6020	5940		ug/Kg	☼	99	70 - 130
Bromochloromethane	ND		6020	6220		ug/Kg	☼	103	80 - 130
Dibromochloromethane	ND		6020	5660		ug/Kg	☼	94	80 - 130
Chloroethane	ND		6020	6200		ug/Kg	☼	103	70 - 130
Chloroform	ND		6020	6150		ug/Kg	☼	102	80 - 125
Chloromethane	ND		6020	6030		ug/Kg	☼	100	40 - 150
cis-1,2-Dichloroethene	ND		6020	6080		ug/Kg	☼	101	75 - 120
cis-1,3-Dichloropropene	ND		6020	5960		ug/Kg	☼	99	80 - 130
Dibromomethane	ND		6020	6140		ug/Kg	☼	102	75 - 125
Bromodichloromethane	ND		6020	5880		ug/Kg	☼	98	80 - 135
Dichlorodifluoromethane	ND		6020	6080		ug/Kg	☼	101	65 - 135
Ethylbenzene	320		6020	6770		ug/Kg	☼	107	80 - 125
1,2-Dibromoethane	ND		6020	6400		ug/Kg	☼	106	80 - 130

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-4669-B-1-A MS

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachlorobutadiene	ND		6020	6690		ug/Kg	*	111	45 - 150
Isopropylbenzene	ND		6020	6720		ug/Kg	*	112	80 - 130
Methyl tert-butyl ether	ND		6020	5930		ug/Kg	*	99	70 - 130
Methylene Chloride	ND		6020	6030		ug/Kg	*	100	70 - 120
m,p-Xylene	2000		12000	15200		ug/Kg	*	109	75 - 135
Naphthalene	5300		6020	13200	F	ug/Kg	*	131	70 - 130
n-Butylbenzene	ND		6020	7920		ug/Kg	*	132	70 - 140
N-Propylbenzene	440		6020	7170		ug/Kg	*	112	70 - 130
o-Xylene	1100		6020	7860		ug/Kg	*	113	70 - 130
sec-Butylbenzene	390		6020	6980		ug/Kg	*	109	70 - 135
Styrene	ND		6020	6600		ug/Kg	*	110	85 - 120
tert-Butylbenzene	ND		6020	6450		ug/Kg	*	107	80 - 135
Tetrachloroethene	ND		6020	5860		ug/Kg	*	97	75 - 140
Toluene	ND		6020	5970		ug/Kg	*	99	70 - 130
trans-1,2-Dichloroethene	ND		6020	6290		ug/Kg	*	105	70 - 130
trans-1,3-Dichloropropene	ND		6020	5440		ug/Kg	*	90	70 - 145
Trichloroethene	ND		6020	6260		ug/Kg	*	104	80 - 125
Trichlorofluoromethane	ND		6020	5960		ug/Kg	*	99	70 - 130
Vinyl chloride	ND		6020	4180		ug/Kg	*	69	10 - 140
2-Butanone (MEK)	ND		30100	29900		ug/Kg	*	100	70 - 145
2-Hexanone	ND		30100	32100		ug/Kg	*	107	65 - 150
4-Methyl-2-pentanone (MIBK)	ND		30100	32400		ug/Kg	*	108	60 - 150
Carbon disulfide	ND		12000	11300		ug/Kg	*	94	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		75 - 125
4-Bromofluorobenzene (Surr)	106		75 - 125
Dibromofluoromethane (Surr)	103		75 - 125
Toluene-d8 (Surr)	102		75 - 125

Lab Sample ID: 250-4669-B-1-B MSD

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,1,1,2-Tetrachloroethane	ND		6180	6200		ug/Kg	*	100	80 - 130	9	25
1,1,1-Trichloroethane	ND		6180	6600		ug/Kg	*	107	80 - 125	13	25
1,1,2,2-Tetrachloroethane	ND		6180	7360		ug/Kg	*	119	70 - 130	11	25
1,1,2-Trichloroethane	ND		6180	6900		ug/Kg	*	112	80 - 130	8	25
1,1-Dichloroethane	ND		6180	6890		ug/Kg	*	112	80 - 125	9	25
1,1-Dichloroethene	ND		6180	6850		ug/Kg	*	111	70 - 130	12	25
1,1-Dichloropropene	ND		6180	6780		ug/Kg	*	110	80 - 125	9	25
1,2,3-Trichlorobenzene	ND		6180	6820		ug/Kg	*	110	70 - 130	10	25
1,2,3-Trichloropropane	ND		6180	7300		ug/Kg	*	118	70 - 130	10	25
1,2,4-Trichlorobenzene	ND		6180	6830		ug/Kg	*	111	70 - 150	11	25
1,2,4-Trimethylbenzene	5300		6180	13800	F	ug/Kg	*	139	70 - 130	6	25
1,2-Dibromo-3-Chloropropane	ND		6180	8050		ug/Kg	*	130	60 - 145	22	25
1,2-Dichlorobenzene	ND		6180	6880		ug/Kg	*	111	80 - 120	8	25
1,2-Dichloroethane	ND		6180	6660		ug/Kg	*	108	75 - 120	9	25

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-4669-B-1-B MSD

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloropropane	ND		6180	6900		ug/Kg	☼	112	80 - 130	10	25
1,3,5-Trimethylbenzene	1400		6180	8870		ug/Kg	☼	121	75 - 140	7	25
1,3-Dichlorobenzene	ND		6180	6920		ug/Kg	☼	112	80 - 130	11	25
1,3-Dichloropropane	ND		6180	6550		ug/Kg	☼	106	75 - 130	10	25
1,4-Dichlorobenzene	ND		6180	6900		ug/Kg	☼	112	80 - 120	9	25
2,2-Dichloropropane	ND		6180	6870		ug/Kg	☼	111	70 - 130	14	25
2-Chlorotoluene	ND		6180	6860		ug/Kg	☼	111	80 - 125	10	25
4-Chlorotoluene	ND		6180	7350		ug/Kg	☼	119	70 - 130	9	25
p-Isopropyltoluene	ND		6180	7870		ug/Kg	☼	127	70 - 140	10	25
Acetone	ND		30900	33500		ug/Kg	☼	108	60 - 145	12	25
Benzene	ND		6180	6620		ug/Kg	☼	107	80 - 125	10	25
Bromobenzene	ND		6180	7470		ug/Kg	☼	121	70 - 130	8	25
Bromoform	ND		6180	5470		ug/Kg	☼	89	70 - 130	5	25
Bromomethane	ND		6180	6670		ug/Kg	☼	108	70 - 130	18	25
Carbon tetrachloride	ND		6180	5810		ug/Kg	☼	94	70 - 125	9	25
Chlorobenzene	ND		6180	6650		ug/Kg	☼	108	70 - 130	11	25
Bromochloromethane	ND		6180	6850		ug/Kg	☼	111	80 - 130	10	25
Dibromochloromethane	ND		6180	5940		ug/Kg	☼	96	80 - 130	5	25
Chloroethane	ND		6180	6870		ug/Kg	☼	111	70 - 130	10	25
Chloroform	ND		6180	6780		ug/Kg	☼	110	80 - 125	10	25
Chloromethane	ND		6180	6570		ug/Kg	☼	106	40 - 150	9	25
cis-1,2-Dichloroethene	ND		6180	6640		ug/Kg	☼	108	75 - 120	9	25
cis-1,3-Dichloropropene	ND		6180	6780		ug/Kg	☼	110	80 - 130	13	25
Dibromomethane	ND		6180	6730		ug/Kg	☼	109	75 - 125	9	25
Bromodichloromethane	ND		6180	6350		ug/Kg	☼	103	80 - 135	8	25
Dichlorodifluoromethane	ND		6180	6550		ug/Kg	☼	106	65 - 135	7	25
Ethylbenzene	320		6180	7310		ug/Kg	☼	113	80 - 125	8	25
1,2-Dibromoethane	ND		6180	7060		ug/Kg	☼	114	80 - 130	10	25
Hexachlorobutadiene	ND		6180	7480		ug/Kg	☼	121	45 - 150	11	25
Isopropylbenzene	ND		6180	7370		ug/Kg	☼	119	80 - 130	9	25
Methyl tert-butyl ether	ND		6180	6820		ug/Kg	☼	111	70 - 130	14	25
Methylene Chloride	ND		6180	6670		ug/Kg	☼	108	70 - 120	10	25
m,p-Xylene	2000		12400	16300		ug/Kg	☼	116	75 - 135	7	25
Naphthalene	5300		6180	14400	F	ug/Kg	☼	146	70 - 130	8	25
n-Butylbenzene	ND		6180	8100		ug/Kg	☼	131	70 - 140	2	25
N-Propylbenzene	440		6180	7780		ug/Kg	☼	119	70 - 130	8	25
o-Xylene	1100		6180	8420		ug/Kg	☼	119	70 - 130	7	25
sec-Butylbenzene	390		6180	7550		ug/Kg	☼	116	70 - 135	8	25
Styrene	ND		6180	7310		ug/Kg	☼	118	85 - 120	10	25
tert-Butylbenzene	ND		6180	7160		ug/Kg	☼	116	80 - 135	10	25
Tetrachloroethene	ND		6180	6590		ug/Kg	☼	107	75 - 140	12	25
Toluene	ND		6180	6670		ug/Kg	☼	108	70 - 130	11	25
trans-1,2-Dichloroethene	ND		6180	6860		ug/Kg	☼	111	70 - 130	9	25
trans-1,3-Dichloropropene	ND		6180	6130		ug/Kg	☼	99	70 - 145	12	25
Trichloroethene	ND		6180	6730		ug/Kg	☼	109	80 - 125	7	25
Trichlorofluoromethane	ND		6180	6670		ug/Kg	☼	108	70 - 130	11	25
Vinyl chloride	ND		6180	2300	F	ug/Kg	☼	37	10 - 140	58	25
2-Butanone (MEK)	ND		30900	34300		ug/Kg	☼	111	70 - 145	14	25
2-Hexanone	ND		30900	37500		ug/Kg	☼	121	65 - 150	15	25
4-Methyl-2-pentanone (MIBK)	ND		30900	36900		ug/Kg	☼	119	60 - 150	13	25

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-4669-B-1-B MSD

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Carbon disulfide	ND		12400	13300		ug/Kg	*	108	70 - 130	17	25
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	105		75 - 125								
4-Bromofluorobenzene (Surr)	110		75 - 125								
Dibromofluoromethane (Surr)	109		75 - 125								
Toluene-d8 (Surr)	108		75 - 125								

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 250-7514/1-A

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7514

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		3700		ug/Kg		07/12/12 14:16	07/13/12 09:17	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	104		50 - 150				07/12/12 14:16	07/13/12 09:17	1

Lab Sample ID: LCS 250-7514/2-A

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7514

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Hydrocarbons	23800	28300		ug/Kg		119	70 - 130		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
a,a,a-Trifluorotoluene (fid)	113		50 - 150						

Lab Sample ID: LCSD 250-7514/3-A

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7514

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline Range Hydrocarbons	24300	27700		ug/Kg		114	70 - 130	2	40
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene (fid)	111		50 - 150						

Lab Sample ID: 250-4655-A-1-B MS

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Hydrocarbons	99000		36200	136000		ug/Kg	*	102	65 - 130		

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 250-4655-A-1-B MS
Matrix: Solid
Analysis Batch: 7558

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7514

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	99		50 - 150

Lab Sample ID: 250-4655-A-2-B DU
Matrix: Solid
Analysis Batch: 7558

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 7514

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Gasoline Range Hydrocarbons	73000		46100	F	ug/Kg	☼	45	40
Surrogate	DU	DU						
	%Recovery	Qualifier	Limits					
a,a,a-Trifluorotoluene (fid)	99		50 - 150					

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 250-7607/1-A
Matrix: Solid
Analysis Batch: 7669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7607

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	ND		12		mg/Kg		07/16/12 10:06	07/16/12 19:14	1
RRO (nC25-nC36)	ND		25		mg/Kg		07/16/12 10:06	07/16/12 19:14	1
Surrogate	MB	MB					Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier	Limits						
1-Chlorooctadecane	91		50 - 150				07/16/12 10:06	07/16/12 19:14	1

Lab Sample ID: LCS 250-7607/2-A
Matrix: Solid
Analysis Batch: 7669

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7607

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
DRO (C10-C25)	124	103		mg/Kg		83	50 - 150
RRO (nC25-nC36)	74.6	57.4		mg/Kg		77	50 - 150
Surrogate	LCS	LCS					
	%Recovery	Qualifier	Limits				
1-Chlorooctadecane	78		50 - 150				

Lab Sample ID: 250-4791-1 DU
Matrix: Solid
Analysis Batch: 7669

Client Sample ID: S-1-1
Prep Type: Total/NA
Prep Batch: 7607

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
DRO (C10-C25)	530		1030	F	mg/Kg	☼	64	40
RRO (nC25-nC36)	190		265		mg/Kg	☼	30	40
Surrogate	DU	DU						
	%Recovery	Qualifier	Limits					
1-Chlorooctadecane	74		50 - 150					

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 250-7564/1-A
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7564

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.49		mg/Kg		07/13/12 13:04	07/13/12 21:25	10

Lab Sample ID: LCS 250-7564/2-A
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	48.8	55.8		mg/Kg		114	80 - 120

Lab Sample ID: 250-4791-1 MS
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: S-1-1
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	14		58.1	82.8		mg/Kg	✱	119	75 - 125

Lab Sample ID: 250-4791-1 MS
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: S-1-1
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	14		58.1	81.4		mg/Kg	✱	117	75 - 125

Lab Sample ID: 250-4791-1 MSD
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: S-1-1
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Lead	14		57.8	76.4		mg/Kg	✱	109	75 - 125	8	40

Lab Sample ID: 250-4791-1 MSD
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: S-1-1
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Lead	14		57.8	81.9		mg/Kg	✱	118	75 - 125	1	40

Method: D2216-80 - Percent Dry Weight (Solids) per ASTM D2216-80

Lab Sample ID: 250-4791-4 DU
Matrix: Solid
Analysis Batch: 7578

Client Sample ID: S-4-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Percent Moisture	17		15		%		16	20
Percent Solids	83		85		%		3	20

QC Association Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

GC/MS VOA

Prep Batch: 7476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4669-B-1-A MS	Matrix Spike	Total/NA	Solid	5030B	
250-4669-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5030B	
250-4791-1	S-1-1	Total/NA	Solid	5030B	
250-4791-2	S-2-2	Total/NA	Solid	5030B	
250-4791-3	S-3-3	Total/NA	Solid	5030B	
250-4791-4	S-4-4	Total/NA	Solid	5030B	
LCS 250-7476/2-A	Lab Control Sample	Total/NA	Solid	5030B	
MB 250-7476/1-A	Method Blank	Total/NA	Solid	5030B	

Analysis Batch: 7511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4669-B-1-A MS	Matrix Spike	Total/NA	Solid	8260B	7476
250-4669-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	7476
LCS 250-7476/2-A	Lab Control Sample	Total/NA	Solid	8260B	7476
MB 250-7476/1-A	Method Blank	Total/NA	Solid	8260B	7476

Analysis Batch: 7557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	8260B	7476
250-4791-2	S-2-2	Total/NA	Solid	8260B	7476
250-4791-3	S-3-3	Total/NA	Solid	8260B	7476
250-4791-4	S-4-4	Total/NA	Solid	8260B	7476

GC VOA

Prep Batch: 7514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4655-A-1-B MS	Matrix Spike	Total/NA	Solid	5030B	
250-4655-A-2-B DU	Duplicate	Total/NA	Solid	5030B	
250-4791-1	S-1-1	Total/NA	Solid	5030B	
250-4791-2	S-2-2	Total/NA	Solid	5030B	
250-4791-3	S-3-3	Total/NA	Solid	5030B	
250-4791-4	S-4-4	Total/NA	Solid	5030B	
LCS 250-7514/2-A	Lab Control Sample	Total/NA	Solid	5030B	
LCSD 250-7514/3-A	Lab Control Sample Dup	Total/NA	Solid	5030B	
MB 250-7514/1-A	Method Blank	Total/NA	Solid	5030B	

Analysis Batch: 7558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4655-A-1-B MS	Matrix Spike	Total/NA	Solid	NWTPH-Gx	7514
250-4655-A-2-B DU	Duplicate	Total/NA	Solid	NWTPH-Gx	7514
250-4791-1	S-1-1	Total/NA	Solid	NWTPH-Gx	7514
250-4791-2	S-2-2	Total/NA	Solid	NWTPH-Gx	7514
250-4791-3	S-3-3	Total/NA	Solid	NWTPH-Gx	7514
250-4791-4	S-4-4	Total/NA	Solid	NWTPH-Gx	7514
LCS 250-7514/2-A	Lab Control Sample	Total/NA	Solid	NWTPH-Gx	7514
LCSD 250-7514/3-A	Lab Control Sample Dup	Total/NA	Solid	NWTPH-Gx	7514
MB 250-7514/1-A	Method Blank	Total/NA	Solid	NWTPH-Gx	7514

QC Association Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

GC Semi VOA

Prep Batch: 7607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	3550B	
250-4791-1 DU	S-1-1	Total/NA	Solid	3550B	
250-4791-2	S-2-2	Total/NA	Solid	3550B	
250-4791-3	S-3-3	Total/NA	Solid	3550B	
250-4791-4	S-4-4	Total/NA	Solid	3550B	
LCS 250-7607/2-A	Lab Control Sample	Total/NA	Solid	3550B	
MB 250-7607/1-A	Method Blank	Total/NA	Solid	3550B	

Analysis Batch: 7669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	NWTPH-Dx	7607
250-4791-1 DU	S-1-1	Total/NA	Solid	NWTPH-Dx	7607
250-4791-2	S-2-2	Total/NA	Solid	NWTPH-Dx	7607
250-4791-3	S-3-3	Total/NA	Solid	NWTPH-Dx	7607
250-4791-4	S-4-4	Total/NA	Solid	NWTPH-Dx	7607
LCS 250-7607/2-A	Lab Control Sample	Total/NA	Solid	NWTPH-Dx	7607
MB 250-7607/1-A	Method Blank	Total/NA	Solid	NWTPH-Dx	7607

Metals

Prep Batch: 7564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	3050B	
250-4791-1 MS	S-1-1	Total/NA	Solid	3050B	
250-4791-1 MSD	S-1-1	Total/NA	Solid	3050B	
250-4791-2	S-2-2	Total/NA	Solid	3050B	
250-4791-3	S-3-3	Total/NA	Solid	3050B	
250-4791-4	S-4-4	Total/NA	Solid	3050B	
LCS 250-7564/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 250-7564/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 7586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	6020	7564
250-4791-1 MS	S-1-1	Total/NA	Solid	6020	7564
250-4791-1 MS	S-1-1	Total/NA	Solid	6020	7564
250-4791-1 MSD	S-1-1	Total/NA	Solid	6020	7564
250-4791-1 MSD	S-1-1	Total/NA	Solid	6020	7564
250-4791-2	S-2-2	Total/NA	Solid	6020	7564
250-4791-3	S-3-3	Total/NA	Solid	6020	7564
250-4791-4	S-4-4	Total/NA	Solid	6020	7564
LCS 250-7564/2-A	Lab Control Sample	Total/NA	Solid	6020	7564
MB 250-7564/1-A	Method Blank	Total/NA	Solid	6020	7564

General Chemistry

Analysis Batch: 7578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	D2216-80	
250-4791-2	S-2-2	Total/NA	Solid	D2216-80	
250-4791-3	S-3-3	Total/NA	Solid	D2216-80	
250-4791-4	S-4-4	Total/NA	Solid	D2216-80	

QC Association Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

General Chemistry (Continued)

Analysis Batch: 7578 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-4 DU	S-4-4	Total/NA	Solid	D2216-80	

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Certification Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Portland	Alaska	State Program	10	OR00040
TestAmerica Portland	Alaska (UST)	State Program	10	UST-012
TestAmerica Portland	California	State Program	9	2597
TestAmerica Portland	Oregon	NELAC	10	OR100021
TestAmerica Portland	USDA	Federal		P330-11-00092
TestAmerica Portland	Washington	State Program	10	C586

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PRT
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL PRT
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL PRT
6020	Metals (ICP/MS)	SW846	TAL PRT
D2216-80	Percent Dry Weight (Solids) per ASTM D2216-80	ASTM	TAL PRT

Protocol References:

ASTM = ASTM International

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PRT = TestAmerica Portland, 9405 SW Nimbus Ave., Beaverton, OR 97008, TEL (503)906-9200

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244
11922 E. First Ave, Spokane, WA 99206-5302
9405 SW Nimbus Ave, Beaverton, OR 97008-7145
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

Loc: 250 4-9290
4791 6-9210
3-9210

CHAIN OF CUSTODY REPORT

Work Order

CLIENT: <u>Hart Crouse</u>		INVOICE TO: <u>Chris Martin</u> <u>Chris.martin@hartcrouse.com</u>		TURNAROUND REQUEST in Business Days *									
REPORT TO: <u>Chris Martin</u>				Organic & Inorganic Analyses									
ADDRESS: <u>8910 SW Gemini Drive</u> <u>Beaverton, OR, 97008</u>				<table border="1"> <tr> <td>10</td><td>7</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td><1</td> </tr> </table>		10	7	5	4	3	2	1	<1
10	7	5	4	3	2	1	<1						
PHONE: <u>503-620-7284</u> FAX: <u>503-620-6918</u>		P.O. NUMBER: <u>17203-48</u>		Petroleum Hydrocarbon Analyses									
PROJECT NAME: <u>Paramount Petroleum</u>		PRESERVATIVE		<table border="1"> <tr> <td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td><1</td> </tr> </table>		5	4	3	2	1	<1		
5	4	3	2	1	<1								
PROJECT NUMBER: <u>17203-48</u>		REQUESTED ANALYSES		OTHER Specify:									
SAMPLED BY: <u>Jason R. Miles</u>				* Turnaround Requests less than standard may incur Rush Charges.									
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	WTRADY	NORTH	VOL 5	TA								
1 S-1-1	7/12/12/0805	X	X	X	X								
2 S-2-2	↓ / 0817	X	X	X	X								
3 S-3-3	↓ / 0824	X	X	X	X								
4 S-4-4	↓ / 0832	X	X	X	X								
5													
6													
7													
8													
9													
10													
RELEASED BY: <u>Jason R. Miles</u>	FIRM: <u>Hart Crouse</u>	DATE: <u>7/12/12</u>	RECEIVED BY: <u>Phil Smith</u>	FIRM: <u>TAP</u>	DATE: <u>7/12/12</u>								
PRINT NAME:		TIME: <u>1515</u>	PRINT NAME:		TIME: <u>1515</u>								
RELEASED BY:		DATE:	RECEIVED BY:		DATE:								
PRINT NAME:		TIME:	PRINT NAME:		TIME:								
ADDITIONAL REMARKS:				TEMP: <u>4.5</u>									

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7/19/2012

TAL-1000(0408)

Login Sample Receipt Checklist

Client: Hart Crowser, Inc.

Job Number: 250-4791-1

SDG Number: 17203-48

Login Number: 4791

List Number: 1

Creator: Svabik-Seror, Philip

List Source: TestAmerica Portland

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

GW in
Excavations

Table 2: Summary of Key A

ug/L	Limit	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	A-4	W-32	W-33	W-34
Benzene	1,700	200	21	86	310	310	140	96	110	ND	ND	ND	ND
Ethylbenzene	4,400	260	85	230	420	1,100	590	480	250	120	ND	ND	ND
Napthalene	500	55	20	61	110	200	130	100	54	65	ND	ND	ND
toluene	210,000	420	12	40	410	510	570	120	440	nd	ND	ND	ND
1,2,4-Trimethylbenzene	1,700	210	91	260	290	580	470	340	200	520	ND	ND	ND
1,3,5-Trimethylbenzene	23,000	62	46	88	87	120	110	81	44	120	ND	ND	ND
xylenes	23,000	970	147	600	1,160	2,800	1,500	1,050	940	690	ND	ND	ND

*"limit" is the RBC_{we} from ODEQ's Risk-Based Concentrations for Individual Chemicals Table

Figure 2 and 3: Naphthalene and Benzene Concentrations

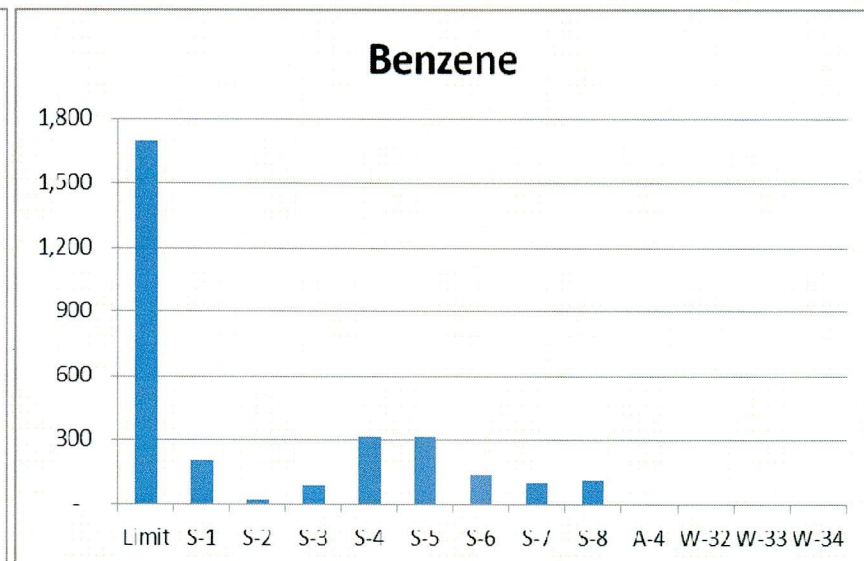
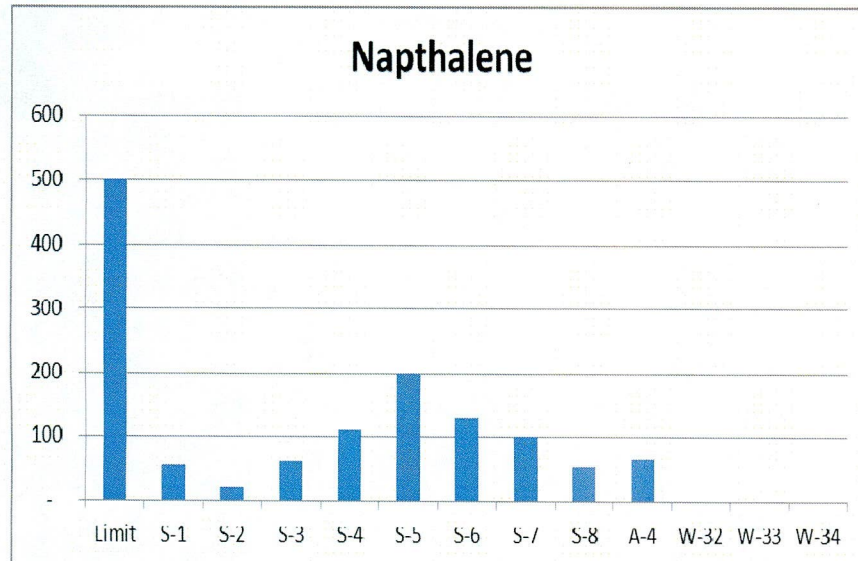
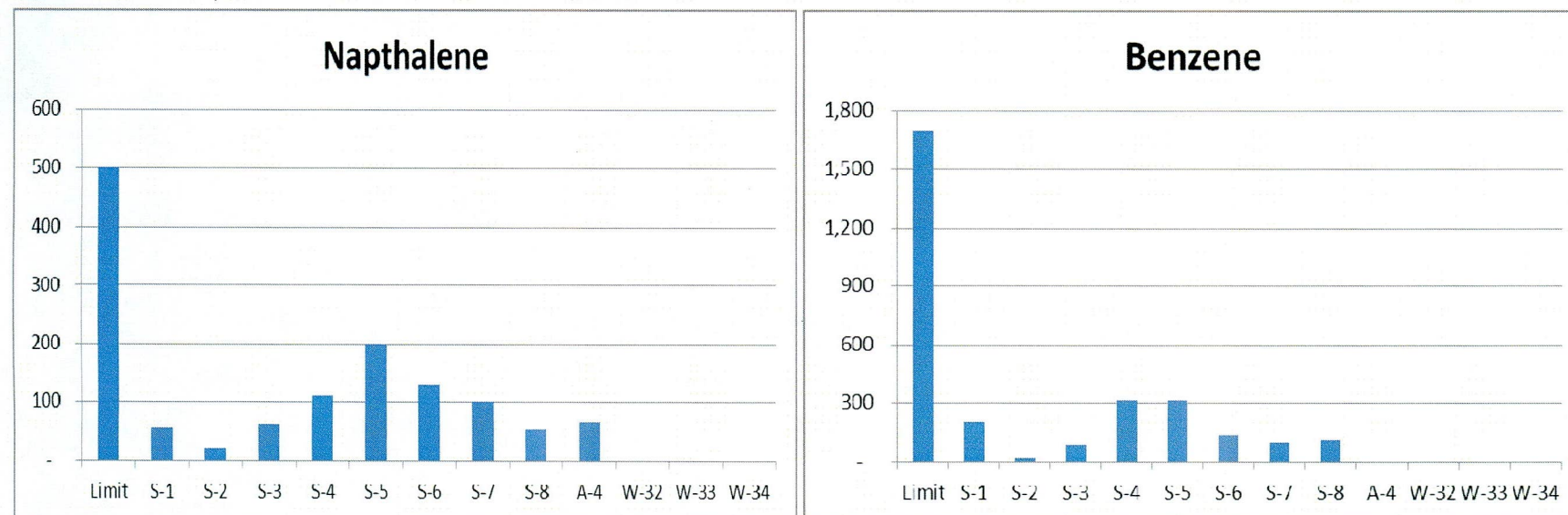


Table 2: Summary of Key Analytical Results

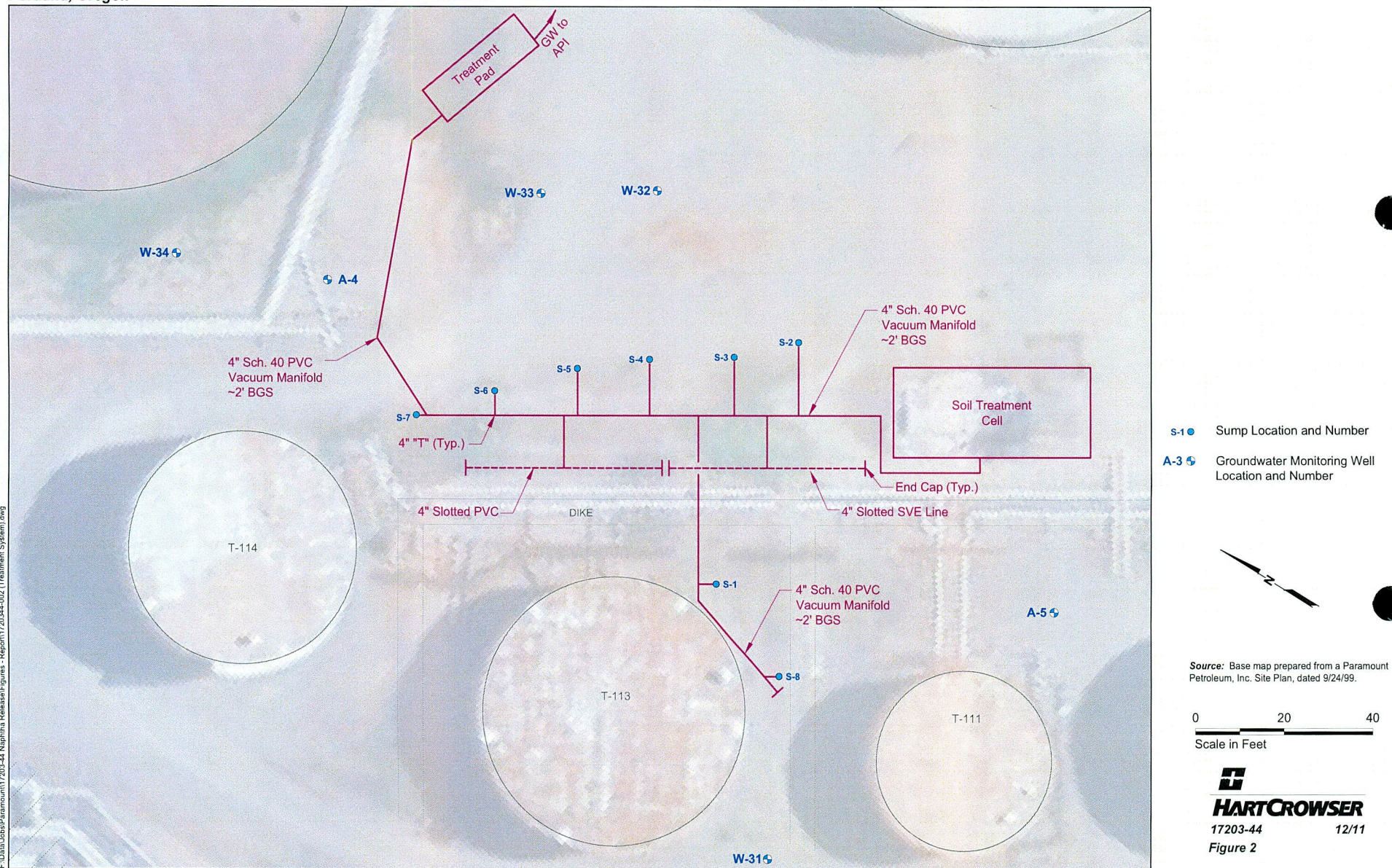
ug/L	Limit	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	A-4	W-32	W-33	W-34
Benzene	1,700	200	21	86	310	310	140	96	110	ND	ND	ND	ND
Ethylbenzene	4,400	260	85	230	420	1,100	590	480	250	120	ND	ND	ND
Napthalene	500	55	20	61	110	200	130	100	54	65	ND	ND	ND
toluene	210,000	420	12	40	410	510	570	120	440	nd	ND	ND	ND
1,2,4-Trimethylbenzene	1,700	210	91	260	290	580	470	340	200	520	ND	ND	ND
1,3,5-Trimethlybenzene	23,000	62	46	88	87	120	110	81	44	120	ND	ND	ND
xylenes	23,000	970	147	600	1,160	2,800	1,500	1,050	940	690	ND	ND	ND

*"limit" is the RBC_{we} from ODEQ's Risk-Based Concentrations for Individual Chemicals Table

Figure 2 and 3: Naphthalene and Benzene Concentrations



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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Tel: (503)906-9200

TestAmerica Job ID: 250-11923-1

Client Project/Site: Paramount Petroleum-Willbridge Facility

For:

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, Oregon 97008

Attn: Chris Martin

Vanessa Frahs

Authorized for release by:
5/24/2013 2:29:06 PM

Vanessa Frahs, Project Manager I
vanessa.frahs@testamericainc.com

LINKS

Review your project
results through

TotalAccess

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The
Expert**

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Hart Crowser, Inc.

Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
250-11923-1	A-4	Water	05/20/13 10:19	05/20/13 16:08
250-11923-2	S-1	Water	05/20/13 14:10	05/20/13 16:08
250-11923-3	S-2	Water	05/20/13 10:48	05/20/13 16:08
250-11923-4	S-3	Water	05/20/13 11:23	05/20/13 16:08
250-11923-5	S-4	Water	05/20/13 11:49	05/20/13 16:08
250-11923-6	S-5	Water	05/20/13 12:21	05/20/13 16:08
250-11923-7	S-6	Water	05/20/13 13:05	05/20/13 16:08
250-11923-8	S-7	Water	05/20/13 13:36	05/20/13 16:08
250-11923-9	S-8	Water	05/20/13 14:44	05/20/13 16:08
250-11923-10	W-32	Water	05/20/13 09:31	05/20/13 16:08
250-11923-11	W-33	Water	05/20/13 09:52	05/20/13 16:08
250-11923-12	W-34	Water	05/20/13 09:05	05/20/13 16:08

TestAmerica Portland

Case Narrative

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Job ID: 250-11923-1

Laboratory: TestAmerica Portland

Narrative

Job Narrative 250-11923-1

Comments

No additional comments.

Receipt

The samples were received on 5/20/2013 4:08 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 9.0° C.

Except:

The following sample(s) was received at the laboratory outside the required temperature criteria: A-4 (250-11923-1), S-1 (250-11923-2), S-2 (250-11923-3), S-3 (250-11923-4), S-4 (250-11923-5), S-5 (250-11923-6), S-6 (250-11923-7), S-7 (250-11923-8), S-8 (250-11923-9), TB #345 (250-11923-13), W-32 (250-11923-10), W-33 (250-11923-11), W-34 (250-11923-12). The sample(s) is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

GC/MS VOA

Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with batch 16966 were outside control limits for 4-chlorotoluene: (250-11923-1 MS), (250-11923-1 MSD). The associated laboratory control sample (LCS) and laboratory sample control duplicate (LCSD) recoveries met acceptance criteria.

No other analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.



Definitions/Glossary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: A-4

Date Collected: 05/20/13 10:19

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			05/21/13 15:13	10
Benzene	ND		2.0		ug/L			05/21/13 15:13	10
Bromobenzene	ND		5.0		ug/L			05/21/13 15:13	10
Bromochloromethane	ND		5.0		ug/L			05/21/13 15:13	10
Bromodichloromethane	ND		5.0		ug/L			05/21/13 15:13	10
Bromoform	ND		10		ug/L			05/21/13 15:13	10
Bromomethane	ND		50		ug/L			05/21/13 15:13	10
2-Butanone (MEK)	ND		100		ug/L			05/21/13 15:13	10
n-Butylbenzene	ND		50		ug/L			05/21/13 15:13	10
sec-Butylbenzene	16		5.0		ug/L			05/21/13 15:13	10
tert-Butylbenzene	ND		10		ug/L			05/21/13 15:13	10
Carbon disulfide	ND		100		ug/L			05/21/13 15:13	10
Carbon tetrachloride	ND		5.0		ug/L			05/21/13 15:13	10
Chlorobenzene	ND		5.0		ug/L			05/21/13 15:13	10
Chloroethane	ND		5.0		ug/L			05/21/13 15:13	10
Chloroform	ND		5.0		ug/L			05/21/13 15:13	10
Chloromethane	ND		50		ug/L			05/21/13 15:13	10
2-Chlorotoluene	ND		5.0		ug/L			05/21/13 15:13	10
4-Chlorotoluene	ND		5.0		ug/L			05/21/13 15:13	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			05/21/13 15:13	10
Dibromochloromethane	ND		10		ug/L			05/21/13 15:13	10
1,2-Dibromoethane	ND		5.0		ug/L			05/21/13 15:13	10
Dibromomethane	ND		5.0		ug/L			05/21/13 15:13	10
1,2-Dichloroethane	ND		5.0		ug/L			05/21/13 15:13	10
1,3-Dichlorobenzene	ND		5.0		ug/L			05/21/13 15:13	10
1,4-Dichlorobenzene	ND		5.0		ug/L			05/21/13 15:13	10
Dichlorodifluoromethane	ND		50		ug/L			05/21/13 15:13	10
1,1-Dichloroethane	ND		5.0		ug/L			05/21/13 15:13	10
1,1-Dichloroethene	ND		5.0		ug/L			05/21/13 15:13	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 15:13	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 15:13	10
1,2-Dichloropropane	ND		5.0		ug/L			05/21/13 15:13	10
1,3-Dichloropropane	ND		5.0		ug/L			05/21/13 15:13	10
2,2-Dichloropropane	ND		5.0		ug/L			05/21/13 15:13	10
1,1-Dichloropropene	ND		10		ug/L			05/21/13 15:13	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 15:13	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 15:13	10
Ethylbenzene	120		5.0		ug/L			05/21/13 15:13	10
Hexachlorobutadiene	ND		40		ug/L			05/21/13 15:13	10
2-Hexanone	ND		100		ug/L			05/21/13 15:13	10
Isopropylbenzene	57		20		ug/L			05/21/13 15:13	10
p-Isopropyltoluene	28		20		ug/L			05/21/13 15:13	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			05/21/13 15:13	10
Methyl tert-butyl ether	ND		10		ug/L			05/21/13 15:13	10
Methylene Chloride	ND		50		ug/L			05/21/13 15:13	10
Naphthalene	65		20		ug/L			05/21/13 15:13	10
N-Propylbenzene	82		5.0		ug/L			05/21/13 15:13	10
Styrene	ND		5.0		ug/L			05/21/13 15:13	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 15:13	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.

TestAmerica Job ID: 250-11923-1

Project/Site: Paramount Petroleum-Willbridge Facility

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: A-4

Lab Sample ID: 250-11923-1

Date Collected: 05/20/13 10:19

Matrix: Water

Date Received: 05/20/13 16:08

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 15:13	10
Tetrachloroethene	ND		5.0		ug/L			05/21/13 15:13	10
Toluene	ND		5.0		ug/L			05/21/13 15:13	10
1,2,3-Trichlorobenzene	ND		10		ug/L			05/21/13 15:13	10
1,2,4-Trichlorobenzene	ND		10		ug/L			05/21/13 15:13	10
1,1,1-Trichloroethane	ND		5.0		ug/L			05/21/13 15:13	10
1,1,2-Trichloroethane	ND		5.0		ug/L			05/21/13 15:13	10
Trichloroethene	ND		5.0		ug/L			05/21/13 15:13	10
Trichlorofluoromethane	ND		5.0		ug/L			05/21/13 15:13	10
1,2,3-Trichloropropane	ND		5.0		ug/L			05/21/13 15:13	10
1,2,4-Trimethylbenzene	520		10		ug/L			05/21/13 15:13	10
1,3,5-Trimethylbenzene	120		5.0		ug/L			05/21/13 15:13	10
Vinyl chloride	ND		5.0		ug/L			05/21/13 15:13	10
m,p-Xylene	390		10		ug/L			05/21/13 15:13	10
o-Xylene	300		5.0		ug/L			05/21/13 15:13	10
1,2-Dichlorobenzene	ND		5.0		ug/L			05/21/13 15:13	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		05/21/13 15:13	10
4-Bromofluorobenzene (Surr)	112		80 - 120		05/21/13 15:13	10
Dibromofluoromethane (Surr)	99		80 - 120		05/21/13 15:13	10
Toluene-d8 (Surr)	98		80 - 120		05/21/13 15:13	10

Client Sample ID: S-1

Lab Sample ID: 250-11923-2

Date Collected: 05/20/13 14:10

Matrix: Water

Date Received: 05/20/13 16:08

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			05/21/13 15:40	10
Benzene	200		2.0		ug/L			05/21/13 15:40	10
Bromobenzene	ND		5.0		ug/L			05/21/13 15:40	10
Bromochloromethane	ND		5.0		ug/L			05/21/13 15:40	10
Bromodichloromethane	ND		5.0		ug/L			05/21/13 15:40	10
Bromoform	ND		10		ug/L			05/21/13 15:40	10
Bromomethane	ND		50		ug/L			05/21/13 15:40	10
2-Butanone (MEK)	140		100		ug/L			05/21/13 15:40	10
n-Butylbenzene	ND		50		ug/L			05/21/13 15:40	10
sec-Butylbenzene	7.0		5.0		ug/L			05/21/13 15:40	10
tert-Butylbenzene	ND		10		ug/L			05/21/13 15:40	10
Carbon disulfide	ND		100		ug/L			05/21/13 15:40	10
Carbon tetrachloride	ND		5.0		ug/L			05/21/13 15:40	10
Chlorobenzene	ND		5.0		ug/L			05/21/13 15:40	10
Chloroethane	ND		5.0		ug/L			05/21/13 15:40	10
Chloroform	ND		5.0		ug/L			05/21/13 15:40	10
Chloromethane	ND		50		ug/L			05/21/13 15:40	10
2-Chlorotoluene	ND		5.0		ug/L			05/21/13 15:40	10
4-Chlorotoluene	ND		5.0		ug/L			05/21/13 15:40	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			05/21/13 15:40	10
Dibromochloromethane	ND		10		ug/L			05/21/13 15:40	10
1,2-Dibromoethane	ND		5.0		ug/L			05/21/13 15:40	10
Dibromomethane	ND		5.0		ug/L			05/21/13 15:40	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-1

Date Collected: 05/20/13 14:10

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0		ug/L			05/21/13 15:40	10
1,3-Dichlorobenzene	ND		5.0		ug/L			05/21/13 15:40	10
1,4-Dichlorobenzene	ND		5.0		ug/L			05/21/13 15:40	10
Dichlorodifluoromethane	ND		50		ug/L			05/21/13 15:40	10
1,1-Dichloroethane	ND		5.0		ug/L			05/21/13 15:40	10
1,1-Dichloroethene	ND		5.0		ug/L			05/21/13 15:40	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 15:40	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 15:40	10
1,2-Dichloropropane	ND		5.0		ug/L			05/21/13 15:40	10
1,3-Dichloropropane	ND		5.0		ug/L			05/21/13 15:40	10
2,2-Dichloropropane	ND		5.0		ug/L			05/21/13 15:40	10
1,1-Dichloropropene	ND		10		ug/L			05/21/13 15:40	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 15:40	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 15:40	10
Ethylbenzene	260		5.0		ug/L			05/21/13 15:40	10
Hexachlorobutadiene	ND		40		ug/L			05/21/13 15:40	10
2-Hexanone	ND		100		ug/L			05/21/13 15:40	10
Isopropylbenzene	23		20		ug/L			05/21/13 15:40	10
p-Isopropyltoluene	ND		20		ug/L			05/21/13 15:40	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			05/21/13 15:40	10
Methyl tert-butyl ether	ND		10		ug/L			05/21/13 15:40	10
Methylene Chloride	ND		50		ug/L			05/21/13 15:40	10
Naphthalene	55		20		ug/L			05/21/13 15:40	10
N-Propylbenzene	33		5.0		ug/L			05/21/13 15:40	10
Styrene	ND		5.0		ug/L			05/21/13 15:40	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 15:40	10
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 15:40	10
Tetrachloroethene	ND		5.0		ug/L			05/21/13 15:40	10
Toluene	420		5.0		ug/L			05/21/13 15:40	10
1,2,3-Trichlorobenzene	ND		10		ug/L			05/21/13 15:40	10
1,2,4-Trichlorobenzene	ND		10		ug/L			05/21/13 15:40	10
1,1,1-Trichloroethane	ND		5.0		ug/L			05/21/13 15:40	10
1,1,2-Trichloroethane	ND		5.0		ug/L			05/21/13 15:40	10
Trichloroethene	ND		5.0		ug/L			05/21/13 15:40	10
Trichlorofluoromethane	ND		5.0		ug/L			05/21/13 15:40	10
1,2,3-Trichloropropane	ND		5.0		ug/L			05/21/13 15:40	10
1,2,4-Trimethylbenzene	210		10		ug/L			05/21/13 15:40	10
1,3,5-Trimethylbenzene	62		5.0		ug/L			05/21/13 15:40	10
Vinyl chloride	ND		5.0		ug/L			05/21/13 15:40	10
m,p-Xylene	480		10		ug/L			05/21/13 15:40	10
o-Xylene	490		5.0		ug/L			05/21/13 15:40	10
1,2-Dichlorobenzene	ND		5.0		ug/L			05/21/13 15:40	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		05/21/13 15:40	10
4-Bromofluorobenzene (Surr)	109		80 - 120		05/21/13 15:40	10
Dibromofluoromethane (Surr)	97		80 - 120		05/21/13 15:40	10
Toluene-d8 (Surr)	98		80 - 120		05/21/13 15:40	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-2

Date Collected: 05/20/13 10:48

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		130		ug/L			05/21/13 16:06	5
Benzene	21		1.0		ug/L			05/21/13 16:06	5
Bromobenzene	ND		2.5		ug/L			05/21/13 16:06	5
Bromochloromethane	ND		2.5		ug/L			05/21/13 16:06	5
Bromodichloromethane	ND		2.5		ug/L			05/21/13 16:06	5
Bromoform	ND		5.0		ug/L			05/21/13 16:06	5
Bromomethane	ND		25		ug/L			05/21/13 16:06	5
2-Butanone (MEK)	ND		50		ug/L			05/21/13 16:06	5
n-Butylbenzene	ND		25		ug/L			05/21/13 16:06	5
sec-Butylbenzene	5.6		2.5		ug/L			05/21/13 16:06	5
tert-Butylbenzene	ND		5.0		ug/L			05/21/13 16:06	5
Carbon disulfide	ND		50		ug/L			05/21/13 16:06	5
Carbon tetrachloride	ND		2.5		ug/L			05/21/13 16:06	5
Chlorobenzene	ND		2.5		ug/L			05/21/13 16:06	5
Chloroethane	ND		2.5		ug/L			05/21/13 16:06	5
Chloroform	ND		2.5		ug/L			05/21/13 16:06	5
Chloromethane	ND		25		ug/L			05/21/13 16:06	5
2-Chlorotoluene	ND		2.5		ug/L			05/21/13 16:06	5
4-Chlorotoluene	ND		2.5		ug/L			05/21/13 16:06	5
1,2-Dibromo-3-Chloropropane	ND		25		ug/L			05/21/13 16:06	5
Dibromochloromethane	ND		5.0		ug/L			05/21/13 16:06	5
1,2-Dibromoethane	ND		2.5		ug/L			05/21/13 16:06	5
Dibromomethane	ND		2.5		ug/L			05/21/13 16:06	5
1,2-Dichloroethane	ND		2.5		ug/L			05/21/13 16:06	5
1,3-Dichlorobenzene	ND		2.5		ug/L			05/21/13 16:06	5
1,4-Dichlorobenzene	ND		2.5		ug/L			05/21/13 16:06	5
Dichlorodifluoromethane	ND		25		ug/L			05/21/13 16:06	5
1,1-Dichloroethane	ND		2.5		ug/L			05/21/13 16:06	5
1,1-Dichloroethene	ND		2.5		ug/L			05/21/13 16:06	5
cis-1,2-Dichloroethene	ND		2.5		ug/L			05/21/13 16:06	5
trans-1,2-Dichloroethene	ND		2.5		ug/L			05/21/13 16:06	5
1,2-Dichloropropane	ND		2.5		ug/L			05/21/13 16:06	5
1,3-Dichloropropane	ND		2.5		ug/L			05/21/13 16:06	5
2,2-Dichloropropane	ND		2.5		ug/L			05/21/13 16:06	5
1,1-Dichloropropene	ND		5.0		ug/L			05/21/13 16:06	5
cis-1,3-Dichloropropene	ND		2.5		ug/L			05/21/13 16:06	5
trans-1,3-Dichloropropene	ND		2.5		ug/L			05/21/13 16:06	5
Ethylbenzene	85		2.5		ug/L			05/21/13 16:06	5
Hexachlorobutadiene	ND		20		ug/L			05/21/13 16:06	5
2-Hexanone	ND		50		ug/L			05/21/13 16:06	5
Isopropylbenzene	11		10		ug/L			05/21/13 16:06	5
p-Isopropyltoluene	13		10		ug/L			05/21/13 16:06	5
4-Methyl-2-pentanone (MIBK)	ND		25		ug/L			05/21/13 16:06	5
Methyl tert-butyl ether	ND		5.0		ug/L			05/21/13 16:06	5
Methylene Chloride	ND		25		ug/L			05/21/13 16:06	5
Naphthalene	20		10		ug/L			05/21/13 16:06	5
N-Propylbenzene	15		2.5		ug/L			05/21/13 16:06	5
Styrene	ND		2.5		ug/L			05/21/13 16:06	5
1,1,1,2-Tetrachloroethane	ND		2.5		ug/L			05/21/13 16:06	5

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-2

Date Collected: 05/20/13 10:48

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		2.5		ug/L			05/21/13 16:06	5
Tetrachloroethene	ND		2.5		ug/L			05/21/13 16:06	5
Toluene	12		2.5		ug/L			05/21/13 16:06	5
1,2,3-Trichlorobenzene	ND		5.0		ug/L			05/21/13 16:06	5
1,2,4-Trichlorobenzene	ND		5.0		ug/L			05/21/13 16:06	5
1,1,1-Trichloroethane	ND		2.5		ug/L			05/21/13 16:06	5
1,1,2-Trichloroethane	ND		2.5		ug/L			05/21/13 16:06	5
Trichloroethene	ND		2.5		ug/L			05/21/13 16:06	5
Trichlorofluoromethane	ND		2.5		ug/L			05/21/13 16:06	5
1,2,3-Trichloropropane	ND		2.5		ug/L			05/21/13 16:06	5
1,2,4-Trimethylbenzene	91		5.0		ug/L			05/21/13 16:06	5
1,3,5-Trimethylbenzene	46		2.5		ug/L			05/21/13 16:06	5
Vinyl chloride	ND		2.5		ug/L			05/21/13 16:06	5
m,p-Xylene	60		5.0		ug/L			05/21/13 16:06	5
o-Xylene	87		2.5		ug/L			05/21/13 16:06	5
1,2-Dichlorobenzene	ND		2.5		ug/L			05/21/13 16:06	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					05/21/13 16:06	5
4-Bromofluorobenzene (Surr)	111		80 - 120					05/21/13 16:06	5
Dibromofluoromethane (Surr)	94		80 - 120					05/21/13 16:06	5
Toluene-d8 (Surr)	96		80 - 120					05/21/13 16:06	5

Client Sample ID: S-3

Date Collected: 05/20/13 11:23

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			05/21/13 16:33	10
Benzene	86		2.0		ug/L			05/21/13 16:33	10
Bromobenzene	ND		5.0		ug/L			05/21/13 16:33	10
Bromochloromethane	ND		5.0		ug/L			05/21/13 16:33	10
Bromodichloromethane	ND		5.0		ug/L			05/21/13 16:33	10
Bromoform	ND		10		ug/L			05/21/13 16:33	10
Bromomethane	ND		50		ug/L			05/21/13 16:33	10
2-Butanone (MEK)	ND		100		ug/L			05/21/13 16:33	10
n-Butylbenzene	ND		50		ug/L			05/21/13 16:33	10
sec-Butylbenzene	11		5.0		ug/L			05/21/13 16:33	10
tert-Butylbenzene	ND		10		ug/L			05/21/13 16:33	10
Carbon disulfide	ND		100		ug/L			05/21/13 16:33	10
Carbon tetrachloride	ND		5.0		ug/L			05/21/13 16:33	10
Chlorobenzene	ND		5.0		ug/L			05/21/13 16:33	10
Chloroethane	ND		5.0		ug/L			05/21/13 16:33	10
Chloroform	ND		5.0		ug/L			05/21/13 16:33	10
Chloromethane	ND		50		ug/L			05/21/13 16:33	10
2-Chlorotoluene	ND		5.0		ug/L			05/21/13 16:33	10
4-Chlorotoluene	ND		5.0		ug/L			05/21/13 16:33	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			05/21/13 16:33	10
Dibromochloromethane	ND		10		ug/L			05/21/13 16:33	10
1,2-Dibromoethane	ND		5.0		ug/L			05/21/13 16:33	10
Dibromomethane	ND		5.0		ug/L			05/21/13 16:33	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-3

Date Collected: 05/20/13 11:23

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0		ug/L			05/21/13 16:33	10
1,3-Dichlorobenzene	ND		5.0		ug/L			05/21/13 16:33	10
1,4-Dichlorobenzene	ND		5.0		ug/L			05/21/13 16:33	10
Dichlorodifluoromethane	ND		50		ug/L			05/21/13 16:33	10
1,1-Dichloroethane	ND		5.0		ug/L			05/21/13 16:33	10
1,1-Dichloroethene	ND		5.0		ug/L			05/21/13 16:33	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 16:33	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 16:33	10
1,2-Dichloropropane	ND		5.0		ug/L			05/21/13 16:33	10
1,3-Dichloropropane	ND		5.0		ug/L			05/21/13 16:33	10
2,2-Dichloropropane	ND		5.0		ug/L			05/21/13 16:33	10
1,1-Dichloropropene	ND		10		ug/L			05/21/13 16:33	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 16:33	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 16:33	10
Ethylbenzene	230		5.0		ug/L			05/21/13 16:33	10
Hexachlorobutadiene	ND		40		ug/L			05/21/13 16:33	10
2-Hexanone	ND		100		ug/L			05/21/13 16:33	10
Isopropylbenzene	26		20		ug/L			05/21/13 16:33	10
p-Isopropyltoluene	23		20		ug/L			05/21/13 16:33	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			05/21/13 16:33	10
Methyl tert-butyl ether	ND		10		ug/L			05/21/13 16:33	10
Methylene Chloride	ND		50		ug/L			05/21/13 16:33	10
Naphthalene	61		20		ug/L			05/21/13 16:33	10
N-Propylbenzene	34		5.0		ug/L			05/21/13 16:33	10
Styrene	ND		5.0		ug/L			05/21/13 16:33	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 16:33	10
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 16:33	10
Tetrachloroethene	ND		5.0		ug/L			05/21/13 16:33	10
Toluene	40		5.0		ug/L			05/21/13 16:33	10
1,2,3-Trichlorobenzene	ND		10		ug/L			05/21/13 16:33	10
1,2,4-Trichlorobenzene	ND		10		ug/L			05/21/13 16:33	10
1,1,1-Trichloroethane	ND		5.0		ug/L			05/21/13 16:33	10
1,1,2-Trichloroethane	ND		5.0		ug/L			05/21/13 16:33	10
Trichloroethene	ND		5.0		ug/L			05/21/13 16:33	10
Trichlorofluoromethane	ND		5.0		ug/L			05/21/13 16:33	10
1,2,3-Trichloropropane	ND		5.0		ug/L			05/21/13 16:33	10
1,2,4-Trimethylbenzene	260		10		ug/L			05/21/13 16:33	10
1,3,5-Trimethylbenzene	88		5.0		ug/L			05/21/13 16:33	10
Vinyl chloride	ND		5.0		ug/L			05/21/13 16:33	10
m,p-Xylene	280		10		ug/L			05/21/13 16:33	10
o-Xylene	320		5.0		ug/L			05/21/13 16:33	10
1,2-Dichlorobenzene	ND		5.0		ug/L			05/21/13 16:33	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					05/21/13 16:33	10
4-Bromofluorobenzene (Surr)	110		80 - 120					05/21/13 16:33	10
Dibromofluoromethane (Surr)	95		80 - 120					05/21/13 16:33	10
Toluene-d8 (Surr)	99		80 - 120					05/21/13 16:33	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-4

Date Collected: 05/20/13 11:49

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			05/21/13 17:00	10
Benzene	310		2.0		ug/L			05/21/13 17:00	10
Bromobenzene	ND		5.0		ug/L			05/21/13 17:00	10
Bromochloromethane	ND		5.0		ug/L			05/21/13 17:00	10
Bromodichloromethane	ND		5.0		ug/L			05/21/13 17:00	10
Bromoform	ND		10		ug/L			05/21/13 17:00	10
Bromomethane	ND		50		ug/L			05/21/13 17:00	10
2-Butanone (MEK)	100		100		ug/L			05/21/13 17:00	10
n-Butylbenzene	ND		50		ug/L			05/21/13 17:00	10
sec-Butylbenzene	9.3		5.0		ug/L			05/21/13 17:00	10
tert-Butylbenzene	ND		10		ug/L			05/21/13 17:00	10
Carbon disulfide	ND		100		ug/L			05/21/13 17:00	10
Carbon tetrachloride	ND		5.0		ug/L			05/21/13 17:00	10
Chlorobenzene	ND		5.0		ug/L			05/21/13 17:00	10
Chloroethane	ND		5.0		ug/L			05/21/13 17:00	10
Chloroform	ND		5.0		ug/L			05/21/13 17:00	10
Chloromethane	ND		50		ug/L			05/21/13 17:00	10
2-Chlorotoluene	ND		5.0		ug/L			05/21/13 17:00	10
4-Chlorotoluene	ND		5.0		ug/L			05/21/13 17:00	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			05/21/13 17:00	10
Dibromochloromethane	ND		10		ug/L			05/21/13 17:00	10
1,2-Dibromoethane	ND		5.0		ug/L			05/21/13 17:00	10
Dibromomethane	ND		5.0		ug/L			05/21/13 17:00	10
1,2-Dichloroethane	ND		5.0		ug/L			05/21/13 17:00	10
1,3-Dichlorobenzene	ND		5.0		ug/L			05/21/13 17:00	10
1,4-Dichlorobenzene	ND		5.0		ug/L			05/21/13 17:00	10
Dichlorodifluoromethane	ND		50		ug/L			05/21/13 17:00	10
1,1-Dichloroethane	ND		5.0		ug/L			05/21/13 17:00	10
1,1-Dichloroethene	ND		5.0		ug/L			05/21/13 17:00	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 17:00	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 17:00	10
1,2-Dichloropropane	ND		5.0		ug/L			05/21/13 17:00	10
1,3-Dichloropropane	ND		5.0		ug/L			05/21/13 17:00	10
2,2-Dichloropropane	ND		5.0		ug/L			05/21/13 17:00	10
1,1-Dichloropropene	ND		10		ug/L			05/21/13 17:00	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 17:00	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 17:00	10
Ethylbenzene	420		5.0		ug/L			05/21/13 17:00	10
Hexachlorobutadiene	ND		40		ug/L			05/21/13 17:00	10
2-Hexanone	ND		100		ug/L			05/21/13 17:00	10
Isopropylbenzene	34		20		ug/L			05/21/13 17:00	10
p-Isopropyltoluene	23		20		ug/L			05/21/13 17:00	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			05/21/13 17:00	10
Methyl tert-butyl ether	ND		10		ug/L			05/21/13 17:00	10
Methylene Chloride	ND		50		ug/L			05/21/13 17:00	10
Naphthalene	110		20		ug/L			05/21/13 17:00	10
N-Propylbenzene	44		5.0		ug/L			05/21/13 17:00	10
Styrene	ND		5.0		ug/L			05/21/13 17:00	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 17:00	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-4

Date Collected: 05/20/13 11:49

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 17:00	10
Tetrachloroethene	ND		5.0		ug/L			05/21/13 17:00	10
Toluene	410		5.0		ug/L			05/21/13 17:00	10
1,2,3-Trichlorobenzene	ND		10		ug/L			05/21/13 17:00	10
1,2,4-Trichlorobenzene	ND		10		ug/L			05/21/13 17:00	10
1,1,1-Trichloroethane	ND		5.0		ug/L			05/21/13 17:00	10
1,1,2-Trichloroethane	ND		5.0		ug/L			05/21/13 17:00	10
Trichloroethene	ND		5.0		ug/L			05/21/13 17:00	10
Trichlorofluoromethane	ND		5.0		ug/L			05/21/13 17:00	10
1,2,3-Trichloropropane	ND		5.0		ug/L			05/21/13 17:00	10
1,2,4-Trimethylbenzene	290		10		ug/L			05/21/13 17:00	10
1,3,5-Trimethylbenzene	97		5.0		ug/L			05/21/13 17:00	10
Vinyl chloride	ND		5.0		ug/L			05/21/13 17:00	10
m,p-Xylene	520		10		ug/L			05/21/13 17:00	10
o-Xylene	640		5.0		ug/L			05/21/13 17:00	10
1,2-Dichlorobenzene	ND		5.0		ug/L			05/21/13 17:00	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		05/21/13 17:00	10
4-Bromofluorobenzene (Surr)	108		80 - 120		05/21/13 17:00	10
Dibromofluoromethane (Surr)	93		80 - 120		05/21/13 17:00	10
Toluene-d8 (Surr)	97		80 - 120		05/21/13 17:00	10

Client Sample ID: S-5

Date Collected: 05/20/13 12:21

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		500		ug/L			05/21/13 17:27	20
Benzene	310		4.0		ug/L			05/21/13 17:27	20
Bromobenzene	ND		10		ug/L			05/21/13 17:27	20
Bromochloromethane	ND		10		ug/L			05/21/13 17:27	20
Bromodichloromethane	ND		10		ug/L			05/21/13 17:27	20
Bromoform	ND		20		ug/L			05/21/13 17:27	20
Bromomethane	ND		100		ug/L			05/21/13 17:27	20
2-Butanone (MEK)	ND		200		ug/L			05/21/13 17:27	20
n-Butylbenzene	ND		100		ug/L			05/21/13 17:27	20
sec-Butylbenzene	17		10		ug/L			05/21/13 17:27	20
tert-Butylbenzene	ND		20		ug/L			05/21/13 17:27	20
Carbon disulfide	ND		200		ug/L			05/21/13 17:27	20
Carbon tetrachloride	ND		10		ug/L			05/21/13 17:27	20
Chlorobenzene	ND		10		ug/L			05/21/13 17:27	20
Chloroethane	ND		10		ug/L			05/21/13 17:27	20
Chloroform	ND		10		ug/L			05/21/13 17:27	20
Chloromethane	ND		100		ug/L			05/21/13 17:27	20
2-Chlorotoluene	ND		10		ug/L			05/21/13 17:27	20
4-Chlorotoluene	ND		10		ug/L			05/21/13 17:27	20
1,2-Dibromo-3-Chloropropane	ND		100		ug/L			05/21/13 17:27	20
Dibromochloromethane	ND		20		ug/L			05/21/13 17:27	20
1,2-Dibromoethane	ND		10		ug/L			05/21/13 17:27	20
Dibromomethane	ND		10		ug/L			05/21/13 17:27	20

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-5

Date Collected: 05/20/13 12:21

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		10		ug/L			05/21/13 17:27	20
1,3-Dichlorobenzene	ND		10		ug/L			05/21/13 17:27	20
1,4-Dichlorobenzene	ND		10		ug/L			05/21/13 17:27	20
Dichlorodifluoromethane	ND		100		ug/L			05/21/13 17:27	20
1,1-Dichloroethane	ND		10		ug/L			05/21/13 17:27	20
1,1-Dichloroethene	ND		10		ug/L			05/21/13 17:27	20
cis-1,2-Dichloroethene	ND		10		ug/L			05/21/13 17:27	20
trans-1,2-Dichloroethene	ND		10		ug/L			05/21/13 17:27	20
1,2-Dichloropropane	ND		10		ug/L			05/21/13 17:27	20
1,3-Dichloropropane	ND		10		ug/L			05/21/13 17:27	20
2,2-Dichloropropane	ND		10		ug/L			05/21/13 17:27	20
1,1-Dichloropropene	ND		20		ug/L			05/21/13 17:27	20
cis-1,3-Dichloropropene	ND		10		ug/L			05/21/13 17:27	20
trans-1,3-Dichloropropene	ND		10		ug/L			05/21/13 17:27	20
Ethylbenzene	1100		10		ug/L			05/21/13 17:27	20
Hexachlorobutadiene	ND		80		ug/L			05/21/13 17:27	20
2-Hexanone	ND		200		ug/L			05/21/13 17:27	20
Isopropylbenzene	79		40		ug/L			05/21/13 17:27	20
p-Isopropyltoluene	ND		40		ug/L			05/21/13 17:27	20
4-Methyl-2-pentanone (MIBK)	ND		100		ug/L			05/21/13 17:27	20
Methyl tert-butyl ether	ND		20		ug/L			05/21/13 17:27	20
Methylene Chloride	ND		100		ug/L			05/21/13 17:27	20
Naphthalene	200		40		ug/L			05/21/13 17:27	20
N-Propylbenzene	110		10		ug/L			05/21/13 17:27	20
Styrene	ND		10		ug/L			05/21/13 17:27	20
1,1,1,2-Tetrachloroethane	ND		10		ug/L			05/21/13 17:27	20
1,1,2,2-Tetrachloroethane	ND		10		ug/L			05/21/13 17:27	20
Tetrachloroethene	ND		10		ug/L			05/21/13 17:27	20
Toluene	510		10		ug/L			05/21/13 17:27	20
1,2,3-Trichlorobenzene	ND		20		ug/L			05/21/13 17:27	20
1,2,4-Trichlorobenzene	ND		20		ug/L			05/21/13 17:27	20
1,1,1-Trichloroethane	ND		10		ug/L			05/21/13 17:27	20
1,1,2-Trichloroethane	ND		10		ug/L			05/21/13 17:27	20
Trichloroethene	ND		10		ug/L			05/21/13 17:27	20
Trichlorofluoromethane	ND		10		ug/L			05/21/13 17:27	20
1,2,3-Trichloropropane	ND		10		ug/L			05/21/13 17:27	20
1,2,4-Trimethylbenzene	580		20		ug/L			05/21/13 17:27	20
1,3,5-Trimethylbenzene	120		10		ug/L			05/21/13 17:27	20
Vinyl chloride	ND		10		ug/L			05/21/13 17:27	20
m,p-Xylene	1400		20		ug/L			05/21/13 17:27	20
o-Xylene	1400		10		ug/L			05/21/13 17:27	20
1,2-Dichlorobenzene	ND		10		ug/L			05/21/13 17:27	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		05/21/13 17:27	20
4-Bromofluorobenzene (Surr)	109		80 - 120		05/21/13 17:27	20
Dibromofluoromethane (Surr)	94		80 - 120		05/21/13 17:27	20
Toluene-d8 (Surr)	98		80 - 120		05/21/13 17:27	20

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-6

Date Collected: 05/20/13 13:05

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		500		ug/L			05/21/13 17:53	20
Benzene	140		4.0		ug/L			05/21/13 17:53	20
Bromobenzene	ND		10		ug/L			05/21/13 17:53	20
Bromochloromethane	ND		10		ug/L			05/21/13 17:53	20
Bromodichloromethane	ND		10		ug/L			05/21/13 17:53	20
Bromoform	ND		20		ug/L			05/21/13 17:53	20
Bromomethane	ND		100		ug/L			05/21/13 17:53	20
2-Butanone (MEK)	ND		200		ug/L			05/21/13 17:53	20
n-Butylbenzene	ND		100		ug/L			05/21/13 17:53	20
sec-Butylbenzene	14		10		ug/L			05/21/13 17:53	20
tert-Butylbenzene	ND		20		ug/L			05/21/13 17:53	20
Carbon disulfide	ND		200		ug/L			05/21/13 17:53	20
Carbon tetrachloride	ND		10		ug/L			05/21/13 17:53	20
Chlorobenzene	ND		10		ug/L			05/21/13 17:53	20
Chloroethane	ND		10		ug/L			05/21/13 17:53	20
Chloroform	ND		10		ug/L			05/21/13 17:53	20
Chloromethane	ND		100		ug/L			05/21/13 17:53	20
2-Chlorotoluene	ND		10		ug/L			05/21/13 17:53	20
4-Chlorotoluene	ND		10		ug/L			05/21/13 17:53	20
1,2-Dibromo-3-Chloropropane	ND		100		ug/L			05/21/13 17:53	20
Dibromochloromethane	ND		20		ug/L			05/21/13 17:53	20
1,2-Dibromoethane	ND		10		ug/L			05/21/13 17:53	20
Dibromomethane	ND		10		ug/L			05/21/13 17:53	20
1,2-Dichloroethane	ND		10		ug/L			05/21/13 17:53	20
1,3-Dichlorobenzene	ND		10		ug/L			05/21/13 17:53	20
1,4-Dichlorobenzene	ND		10		ug/L			05/21/13 17:53	20
Dichlorodifluoromethane	ND		100		ug/L			05/21/13 17:53	20
1,1-Dichloroethane	ND		10		ug/L			05/21/13 17:53	20
1,1-Dichloroethene	ND		10		ug/L			05/21/13 17:53	20
cis-1,2-Dichloroethene	ND		10		ug/L			05/21/13 17:53	20
trans-1,2-Dichloroethene	ND		10		ug/L			05/21/13 17:53	20
1,2-Dichloropropane	ND		10		ug/L			05/21/13 17:53	20
1,3-Dichloropropane	ND		10		ug/L			05/21/13 17:53	20
2,2-Dichloropropane	ND		10		ug/L			05/21/13 17:53	20
1,1-Dichloropropene	ND		20		ug/L			05/21/13 17:53	20
cis-1,3-Dichloropropene	ND		10		ug/L			05/21/13 17:53	20
trans-1,3-Dichloropropene	ND		10		ug/L			05/21/13 17:53	20
Ethylbenzene	590		10		ug/L			05/21/13 17:53	20
Hexachlorobutadiene	ND		80		ug/L			05/21/13 17:53	20
2-Hexanone	ND		200		ug/L			05/21/13 17:53	20
Isopropylbenzene	57		40		ug/L			05/21/13 17:53	20
p-Isopropyltoluene	ND		40		ug/L			05/21/13 17:53	20
4-Methyl-2-pentanone (MIBK)	ND		100		ug/L			05/21/13 17:53	20
Methyl tert-butyl ether	ND		20		ug/L			05/21/13 17:53	20
Methylene Chloride	ND		100		ug/L			05/21/13 17:53	20
Naphthalene	130		40		ug/L			05/21/13 17:53	20
N-Propylbenzene	79		10		ug/L			05/21/13 17:53	20
Styrene	ND		10		ug/L			05/21/13 17:53	20
1,1,1,2-Tetrachloroethane	ND		10		ug/L			05/21/13 17:53	20

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-6

Date Collected: 05/20/13 13:05

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		10		ug/L			05/21/13 17:53	20
Tetrachloroethene	ND		10		ug/L			05/21/13 17:53	20
Toluene	570		10		ug/L			05/21/13 17:53	20
1,2,3-Trichlorobenzene	ND		20		ug/L			05/21/13 17:53	20
1,2,4-Trichlorobenzene	ND		20		ug/L			05/21/13 17:53	20
1,1,1-Trichloroethane	ND		10		ug/L			05/21/13 17:53	20
1,1,2-Trichloroethane	ND		10		ug/L			05/21/13 17:53	20
Trichloroethene	ND		10		ug/L			05/21/13 17:53	20
Trichlorofluoromethane	ND		10		ug/L			05/21/13 17:53	20
1,2,3-Trichloropropane	ND		10		ug/L			05/21/13 17:53	20
1,2,4-Trimethylbenzene	470		20		ug/L			05/21/13 17:53	20
1,3,5-Trimethylbenzene	110		10		ug/L			05/21/13 17:53	20
Vinyl chloride	ND		10		ug/L			05/21/13 17:53	20
m,p-Xylene	790		20		ug/L			05/21/13 17:53	20
o-Xylene	710		10		ug/L			05/21/13 17:53	20
1,2-Dichlorobenzene	ND		10		ug/L			05/21/13 17:53	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		05/21/13 17:53	20
4-Bromofluorobenzene (Surr)	110		80 - 120		05/21/13 17:53	20
Dibromofluoromethane (Surr)	96		80 - 120		05/21/13 17:53	20
Toluene-d8 (Surr)	98		80 - 120		05/21/13 17:53	20

Client Sample ID: S-7

Date Collected: 05/20/13 13:36

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			05/21/13 18:20	10
Benzene	96		2.0		ug/L			05/21/13 18:20	10
Bromobenzene	ND		5.0		ug/L			05/21/13 18:20	10
Bromochloromethane	ND		5.0		ug/L			05/21/13 18:20	10
Bromodichloromethane	ND		5.0		ug/L			05/21/13 18:20	10
Bromoform	ND		10		ug/L			05/21/13 18:20	10
Bromomethane	ND		50		ug/L			05/21/13 18:20	10
2-Butanone (MEK)	ND		100		ug/L			05/21/13 18:20	10
n-Butylbenzene	ND		50		ug/L			05/21/13 18:20	10
sec-Butylbenzene	13		5.0		ug/L			05/21/13 18:20	10
tert-Butylbenzene	ND		10		ug/L			05/21/13 18:20	10
Carbon disulfide	ND		100		ug/L			05/21/13 18:20	10
Carbon tetrachloride	ND		5.0		ug/L			05/21/13 18:20	10
Chlorobenzene	ND		5.0		ug/L			05/21/13 18:20	10
Chloroethane	ND		5.0		ug/L			05/21/13 18:20	10
Chloroform	ND		5.0		ug/L			05/21/13 18:20	10
Chloromethane	ND		50		ug/L			05/21/13 18:20	10
2-Chlorotoluene	ND		5.0		ug/L			05/21/13 18:20	10
4-Chlorotoluene	ND		5.0		ug/L			05/21/13 18:20	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			05/21/13 18:20	10
Dibromochloromethane	ND		10		ug/L			05/21/13 18:20	10
1,2-Dibromoethane	ND		5.0		ug/L			05/21/13 18:20	10
Dibromomethane	ND		5.0		ug/L			05/21/13 18:20	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-7

Date Collected: 05/20/13 13:36

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0		ug/L			05/21/13 18:20	10
1,3-Dichlorobenzene	ND		5.0		ug/L			05/21/13 18:20	10
1,4-Dichlorobenzene	ND		5.0		ug/L			05/21/13 18:20	10
Dichlorodifluoromethane	ND		50		ug/L			05/21/13 18:20	10
1,1-Dichloroethane	ND		5.0		ug/L			05/21/13 18:20	10
1,1-Dichloroethene	ND		5.0		ug/L			05/21/13 18:20	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 18:20	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 18:20	10
1,2-Dichloropropane	ND		5.0		ug/L			05/21/13 18:20	10
1,3-Dichloropropane	ND		5.0		ug/L			05/21/13 18:20	10
2,2-Dichloropropane	ND		5.0		ug/L			05/21/13 18:20	10
1,1-Dichloropropene	ND		10		ug/L			05/21/13 18:20	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 18:20	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 18:20	10
Ethylbenzene	480		5.0		ug/L			05/21/13 18:20	10
Hexachlorobutadiene	ND		40		ug/L			05/21/13 18:20	10
2-Hexanone	ND		100		ug/L			05/21/13 18:20	10
Isopropylbenzene	51		20		ug/L			05/21/13 18:20	10
p-Isopropyltoluene	ND		20		ug/L			05/21/13 18:20	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			05/21/13 18:20	10
Methyl tert-butyl ether	ND		10		ug/L			05/21/13 18:20	10
Methylene Chloride	ND		50		ug/L			05/21/13 18:20	10
Naphthalene	100		20		ug/L			05/21/13 18:20	10
N-Propylbenzene	67		5.0		ug/L			05/21/13 18:20	10
Styrene	ND		5.0		ug/L			05/21/13 18:20	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 18:20	10
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 18:20	10
Tetrachloroethene	ND		5.0		ug/L			05/21/13 18:20	10
Toluene	120		5.0		ug/L			05/21/13 18:20	10
1,2,3-Trichlorobenzene	ND		10		ug/L			05/21/13 18:20	10
1,2,4-Trichlorobenzene	ND		10		ug/L			05/21/13 18:20	10
1,1,1-Trichloroethane	ND		5.0		ug/L			05/21/13 18:20	10
1,1,2-Trichloroethane	ND		5.0		ug/L			05/21/13 18:20	10
Trichloroethene	ND		5.0		ug/L			05/21/13 18:20	10
Trichlorofluoromethane	ND		5.0		ug/L			05/21/13 18:20	10
1,2,3-Trichloropropane	ND		5.0		ug/L			05/21/13 18:20	10
1,2,4-Trimethylbenzene	340		10		ug/L			05/21/13 18:20	10
1,3,5-Trimethylbenzene	81		5.0		ug/L			05/21/13 18:20	10
Vinyl chloride	ND		5.0		ug/L			05/21/13 18:20	10
m,p-Xylene	580		10		ug/L			05/21/13 18:20	10
o-Xylene	470		5.0		ug/L			05/21/13 18:20	10
1,2-Dichlorobenzene	ND		5.0		ug/L			05/21/13 18:20	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		05/21/13 18:20	10
4-Bromofluorobenzene (Surr)	112		80 - 120		05/21/13 18:20	10
Dibromofluoromethane (Surr)	101		80 - 120		05/21/13 18:20	10
Toluene-d8 (Surr)	100		80 - 120		05/21/13 18:20	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-8

Date Collected: 05/20/13 14:44

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		250		ug/L			05/21/13 18:47	10
Benzene	110		2.0		ug/L			05/21/13 18:47	10
Bromobenzene	ND		5.0		ug/L			05/21/13 18:47	10
Bromochloromethane	ND		5.0		ug/L			05/21/13 18:47	10
Bromodichloromethane	ND		5.0		ug/L			05/21/13 18:47	10
Bromoform	ND		10		ug/L			05/21/13 18:47	10
Bromomethane	ND		50		ug/L			05/21/13 18:47	10
2-Butanone (MEK)	ND		100		ug/L			05/21/13 18:47	10
n-Butylbenzene	ND		50		ug/L			05/21/13 18:47	10
sec-Butylbenzene	6.6		5.0		ug/L			05/21/13 18:47	10
tert-Butylbenzene	ND		10		ug/L			05/21/13 18:47	10
Carbon disulfide	ND		100		ug/L			05/21/13 18:47	10
Carbon tetrachloride	ND		5.0		ug/L			05/21/13 18:47	10
Chlorobenzene	ND		5.0		ug/L			05/21/13 18:47	10
Chloroethane	ND		5.0		ug/L			05/21/13 18:47	10
Chloroform	ND		5.0		ug/L			05/21/13 18:47	10
Chloromethane	ND		50		ug/L			05/21/13 18:47	10
2-Chlorotoluene	ND		5.0		ug/L			05/21/13 18:47	10
4-Chlorotoluene	ND		5.0		ug/L			05/21/13 18:47	10
1,2-Dibromo-3-Chloropropane	ND		50		ug/L			05/21/13 18:47	10
Dibromochloromethane	ND		10		ug/L			05/21/13 18:47	10
1,2-Dibromoethane	ND		5.0		ug/L			05/21/13 18:47	10
Dibromomethane	ND		5.0		ug/L			05/21/13 18:47	10
1,2-Dichloroethane	ND		5.0		ug/L			05/21/13 18:47	10
1,3-Dichlorobenzene	ND		5.0		ug/L			05/21/13 18:47	10
1,4-Dichlorobenzene	ND		5.0		ug/L			05/21/13 18:47	10
Dichlorodifluoromethane	ND		50		ug/L			05/21/13 18:47	10
1,1-Dichloroethane	ND		5.0		ug/L			05/21/13 18:47	10
1,1-Dichloroethene	ND		5.0		ug/L			05/21/13 18:47	10
cis-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 18:47	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			05/21/13 18:47	10
1,2-Dichloropropane	ND		5.0		ug/L			05/21/13 18:47	10
1,3-Dichloropropane	ND		5.0		ug/L			05/21/13 18:47	10
2,2-Dichloropropane	ND		5.0		ug/L			05/21/13 18:47	10
1,1-Dichloropropene	ND		10		ug/L			05/21/13 18:47	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 18:47	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			05/21/13 18:47	10
Ethylbenzene	250		5.0		ug/L			05/21/13 18:47	10
Hexachlorobutadiene	ND		40		ug/L			05/21/13 18:47	10
2-Hexanone	ND		100		ug/L			05/21/13 18:47	10
Isopropylbenzene	26		20		ug/L			05/21/13 18:47	10
p-Isopropyltoluene	ND		20		ug/L			05/21/13 18:47	10
4-Methyl-2-pentanone (MIBK)	ND		50		ug/L			05/21/13 18:47	10
Methyl tert-butyl ether	ND		10		ug/L			05/21/13 18:47	10
Methylene Chloride	ND		50		ug/L			05/21/13 18:47	10
Naphthalene	54		20		ug/L			05/21/13 18:47	10
N-Propylbenzene	35		5.0		ug/L			05/21/13 18:47	10
Styrene	ND		5.0		ug/L			05/21/13 18:47	10
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 18:47	10

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-8

Date Collected: 05/20/13 14:44

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			05/21/13 18:47	10
Tetrachloroethene	ND		5.0		ug/L			05/21/13 18:47	10
Toluene	440		5.0		ug/L			05/21/13 18:47	10
1,2,3-Trichlorobenzene	ND		10		ug/L			05/21/13 18:47	10
1,2,4-Trichlorobenzene	ND		10		ug/L			05/21/13 18:47	10
1,1,1-Trichloroethane	ND		5.0		ug/L			05/21/13 18:47	10
1,1,2-Trichloroethane	ND		5.0		ug/L			05/21/13 18:47	10
Trichloroethene	ND		5.0		ug/L			05/21/13 18:47	10
Trichlorofluoromethane	ND		5.0		ug/L			05/21/13 18:47	10
1,2,3-Trichloropropane	ND		5.0		ug/L			05/21/13 18:47	10
1,2,4-Trimethylbenzene	200		10		ug/L			05/21/13 18:47	10
1,3,5-Trimethylbenzene	44		5.0		ug/L			05/21/13 18:47	10
Vinyl chloride	ND		5.0		ug/L			05/21/13 18:47	10
m,p-Xylene	500		10		ug/L			05/21/13 18:47	10
o-Xylene	440		5.0		ug/L			05/21/13 18:47	10
1,2-Dichlorobenzene	ND		5.0		ug/L			05/21/13 18:47	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		05/21/13 18:47	10
4-Bromofluorobenzene (Surr)	108		80 - 120		05/21/13 18:47	10
Dibromofluoromethane (Surr)	97		80 - 120		05/21/13 18:47	10
Toluene-d8 (Surr)	97		80 - 120		05/21/13 18:47	10

Client Sample ID: W-32

Date Collected: 05/20/13 09:31

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25		ug/L			05/21/13 13:53	1
Benzene	ND		0.20		ug/L			05/21/13 13:53	1
Bromobenzene	ND		0.50		ug/L			05/21/13 13:53	1
Bromochloromethane	ND		0.50		ug/L			05/21/13 13:53	1
Bromodichloromethane	ND		0.50		ug/L			05/21/13 13:53	1
Bromoform	ND		1.0		ug/L			05/21/13 13:53	1
Bromomethane	ND		5.0		ug/L			05/21/13 13:53	1
2-Butanone (MEK)	ND		10		ug/L			05/21/13 13:53	1
n-Butylbenzene	ND		5.0		ug/L			05/21/13 13:53	1
sec-Butylbenzene	ND		0.50		ug/L			05/21/13 13:53	1
tert-Butylbenzene	ND		1.0		ug/L			05/21/13 13:53	1
Carbon disulfide	ND		10		ug/L			05/21/13 13:53	1
Carbon tetrachloride	ND		0.50		ug/L			05/21/13 13:53	1
Chlorobenzene	ND		0.50		ug/L			05/21/13 13:53	1
Chloroethane	ND		0.50		ug/L			05/21/13 13:53	1
Chloroform	ND		0.50		ug/L			05/21/13 13:53	1
Chloromethane	ND		5.0		ug/L			05/21/13 13:53	1
2-Chlorotoluene	ND		0.50		ug/L			05/21/13 13:53	1
4-Chlorotoluene	ND		0.50		ug/L			05/21/13 13:53	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/21/13 13:53	1
Dibromochloromethane	ND		1.0		ug/L			05/21/13 13:53	1
1,2-Dibromoethane	ND		0.50		ug/L			05/21/13 13:53	1
Dibromomethane	ND		0.50		ug/L			05/21/13 13:53	1

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: W-32

Date Collected: 05/20/13 09:31

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50		ug/L			05/21/13 13:53	1
1,3-Dichlorobenzene	ND		0.50		ug/L			05/21/13 13:53	1
1,4-Dichlorobenzene	ND		0.50		ug/L			05/21/13 13:53	1
Dichlorodifluoromethane	ND		5.0		ug/L			05/21/13 13:53	1
1,1-Dichloroethane	ND		0.50		ug/L			05/21/13 13:53	1
1,1-Dichloroethene	ND		0.50		ug/L			05/21/13 13:53	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			05/21/13 13:53	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			05/21/13 13:53	1
1,2-Dichloropropane	ND		0.50		ug/L			05/21/13 13:53	1
1,3-Dichloropropane	ND		0.50		ug/L			05/21/13 13:53	1
2,2-Dichloropropane	ND		0.50		ug/L			05/21/13 13:53	1
1,1-Dichloropropene	ND		1.0		ug/L			05/21/13 13:53	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			05/21/13 13:53	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			05/21/13 13:53	1
Ethylbenzene	ND		0.50		ug/L			05/21/13 13:53	1
Hexachlorobutadiene	ND		4.0		ug/L			05/21/13 13:53	1
2-Hexanone	ND		10		ug/L			05/21/13 13:53	1
Isopropylbenzene	ND		2.0		ug/L			05/21/13 13:53	1
p-Isopropyltoluene	ND		2.0		ug/L			05/21/13 13:53	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			05/21/13 13:53	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/21/13 13:53	1
Methylene Chloride	ND		5.0		ug/L			05/21/13 13:53	1
Naphthalene	ND		2.0		ug/L			05/21/13 13:53	1
N-Propylbenzene	ND		0.50		ug/L			05/21/13 13:53	1
Styrene	ND		0.50		ug/L			05/21/13 13:53	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			05/21/13 13:53	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			05/21/13 13:53	1
Tetrachloroethene	ND		0.50		ug/L			05/21/13 13:53	1
Toluene	ND		0.50		ug/L			05/21/13 13:53	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/21/13 13:53	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/21/13 13:53	1
1,1,1-Trichloroethane	ND		0.50		ug/L			05/21/13 13:53	1
1,1,2-Trichloroethane	ND		0.50		ug/L			05/21/13 13:53	1
Trichloroethene	ND		0.50		ug/L			05/21/13 13:53	1
Trichlorofluoromethane	ND		0.50		ug/L			05/21/13 13:53	1
1,2,3-Trichloropropane	ND		0.50		ug/L			05/21/13 13:53	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/21/13 13:53	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			05/21/13 13:53	1
Vinyl chloride	ND		0.50		ug/L			05/21/13 13:53	1
m,p-Xylene	ND		1.0		ug/L			05/21/13 13:53	1
o-Xylene	ND		0.50		ug/L			05/21/13 13:53	1
1,2-Dichlorobenzene	ND		0.50		ug/L			05/21/13 13:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120					05/21/13 13:53	1
4-Bromofluorobenzene (Surr)	106		80 - 120					05/21/13 13:53	1
Dibromofluoromethane (Surr)	96		80 - 120					05/21/13 13:53	1
Toluene-d8 (Surr)	95		80 - 120					05/21/13 13:53	1

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.

TestAmerica Job ID: 250-11923-1

Project/Site: Paramount Petroleum-Willbridge Facility

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: W-33

Lab Sample ID: 250-11923-11

Date Collected: 05/20/13 09:52

Matrix: Water

Date Received: 05/20/13 16:08

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25		ug/L			05/21/13 14:19	1
Benzene	ND		0.20		ug/L			05/21/13 14:19	1
Bromobenzene	ND		0.50		ug/L			05/21/13 14:19	1
Bromochloromethane	ND		0.50		ug/L			05/21/13 14:19	1
Bromodichloromethane	ND		0.50		ug/L			05/21/13 14:19	1
Bromoform	ND		1.0		ug/L			05/21/13 14:19	1
Bromomethane	ND		5.0		ug/L			05/21/13 14:19	1
2-Butanone (MEK)	ND		10		ug/L			05/21/13 14:19	1
n-Butylbenzene	ND		5.0		ug/L			05/21/13 14:19	1
sec-Butylbenzene	ND		0.50		ug/L			05/21/13 14:19	1
tert-Butylbenzene	ND		1.0		ug/L			05/21/13 14:19	1
Carbon disulfide	ND		10		ug/L			05/21/13 14:19	1
Carbon tetrachloride	ND		0.50		ug/L			05/21/13 14:19	1
Chlorobenzene	ND		0.50		ug/L			05/21/13 14:19	1
Chloroethane	ND		0.50		ug/L			05/21/13 14:19	1
Chloroform	ND		0.50		ug/L			05/21/13 14:19	1
Chloromethane	ND		5.0		ug/L			05/21/13 14:19	1
2-Chlorotoluene	ND		0.50		ug/L			05/21/13 14:19	1
4-Chlorotoluene	ND		0.50		ug/L			05/21/13 14:19	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/21/13 14:19	1
Dibromochloromethane	ND		1.0		ug/L			05/21/13 14:19	1
1,2-Dibromoethane	ND		0.50		ug/L			05/21/13 14:19	1
Dibromomethane	ND		0.50		ug/L			05/21/13 14:19	1
1,2-Dichloroethane	ND		0.50		ug/L			05/21/13 14:19	1
1,3-Dichlorobenzene	ND		0.50		ug/L			05/21/13 14:19	1
1,4-Dichlorobenzene	ND		0.50		ug/L			05/21/13 14:19	1
Dichlorodifluoromethane	ND		5.0		ug/L			05/21/13 14:19	1
1,1-Dichloroethane	ND		0.50		ug/L			05/21/13 14:19	1
1,1-Dichloroethene	ND		0.50		ug/L			05/21/13 14:19	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			05/21/13 14:19	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			05/21/13 14:19	1
1,2-Dichloropropane	ND		0.50		ug/L			05/21/13 14:19	1
1,3-Dichloropropane	ND		0.50		ug/L			05/21/13 14:19	1
2,2-Dichloropropane	ND		0.50		ug/L			05/21/13 14:19	1
1,1-Dichloropropene	ND		1.0		ug/L			05/21/13 14:19	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			05/21/13 14:19	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			05/21/13 14:19	1
Ethylbenzene	ND		0.50		ug/L			05/21/13 14:19	1
Hexachlorobutadiene	ND		4.0		ug/L			05/21/13 14:19	1
2-Hexanone	ND		10		ug/L			05/21/13 14:19	1
Isopropylbenzene	ND		2.0		ug/L			05/21/13 14:19	1
p-Isopropyltoluene	ND		2.0		ug/L			05/21/13 14:19	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			05/21/13 14:19	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/21/13 14:19	1
Methylene Chloride	ND		5.0		ug/L			05/21/13 14:19	1
Naphthalene	ND		2.0		ug/L			05/21/13 14:19	1
N-Propylbenzene	ND		0.50		ug/L			05/21/13 14:19	1
Styrene	ND		0.50		ug/L			05/21/13 14:19	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			05/21/13 14:19	1

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: W-33

Date Collected: 05/20/13 09:52

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			05/21/13 14:19	1
Tetrachloroethene	ND		0.50		ug/L			05/21/13 14:19	1
Toluene	ND		0.50		ug/L			05/21/13 14:19	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/21/13 14:19	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/21/13 14:19	1
1,1,1-Trichloroethane	ND		0.50		ug/L			05/21/13 14:19	1
1,1,2-Trichloroethane	ND		0.50		ug/L			05/21/13 14:19	1
Trichloroethene	ND		0.50		ug/L			05/21/13 14:19	1
Trichlorofluoromethane	ND		0.50		ug/L			05/21/13 14:19	1
1,2,3-Trichloropropane	ND		0.50		ug/L			05/21/13 14:19	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/21/13 14:19	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			05/21/13 14:19	1
Vinyl chloride	ND		0.50		ug/L			05/21/13 14:19	1
m,p-Xylene	ND		1.0		ug/L			05/21/13 14:19	1
o-Xylene	ND		0.50		ug/L			05/21/13 14:19	1
1,2-Dichlorobenzene	ND		0.50		ug/L			05/21/13 14:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		05/21/13 14:19	1
4-Bromofluorobenzene (Surr)	107		80 - 120		05/21/13 14:19	1
Dibromofluoromethane (Surr)	98		80 - 120		05/21/13 14:19	1
Toluene-d8 (Surr)	96		80 - 120		05/21/13 14:19	1

Client Sample ID: W-34

Date Collected: 05/20/13 09:05

Date Received: 05/20/13 16:08

Lab Sample ID: 250-11923-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25		ug/L			05/21/13 14:46	1
Benzene	ND		0.20		ug/L			05/21/13 14:46	1
Bromobenzene	ND		0.50		ug/L			05/21/13 14:46	1
Bromochloromethane	ND		0.50		ug/L			05/21/13 14:46	1
Bromodichloromethane	ND		0.50		ug/L			05/21/13 14:46	1
Bromoform	ND		1.0		ug/L			05/21/13 14:46	1
Bromomethane	ND		5.0		ug/L			05/21/13 14:46	1
2-Butanone (MEK)	ND		10		ug/L			05/21/13 14:46	1
n-Butylbenzene	ND		5.0		ug/L			05/21/13 14:46	1
sec-Butylbenzene	ND		0.50		ug/L			05/21/13 14:46	1
tert-Butylbenzene	ND		1.0		ug/L			05/21/13 14:46	1
Carbon disulfide	ND		10		ug/L			05/21/13 14:46	1
Carbon tetrachloride	ND		0.50		ug/L			05/21/13 14:46	1
Chlorobenzene	ND		0.50		ug/L			05/21/13 14:46	1
Chloroethane	ND		0.50		ug/L			05/21/13 14:46	1
Chloroform	ND		0.50		ug/L			05/21/13 14:46	1
Chloromethane	ND		5.0		ug/L			05/21/13 14:46	1
2-Chlorotoluene	ND		0.50		ug/L			05/21/13 14:46	1
4-Chlorotoluene	ND		0.50		ug/L			05/21/13 14:46	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/21/13 14:46	1
Dibromochloromethane	ND		1.0		ug/L			05/21/13 14:46	1
1,2-Dibromoethane	ND		0.50		ug/L			05/21/13 14:46	1
Dibromomethane	ND		0.50		ug/L			05/21/13 14:46	1

TestAmerica Portland

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: W-34

Lab Sample ID: 250-11923-12

Date Collected: 05/20/13 09:05

Matrix: Water

Date Received: 05/20/13 16:08

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50		ug/L			05/21/13 14:46	1
1,3-Dichlorobenzene	ND		0.50		ug/L			05/21/13 14:46	1
1,4-Dichlorobenzene	ND		0.50		ug/L			05/21/13 14:46	1
Dichlorodifluoromethane	ND		5.0		ug/L			05/21/13 14:46	1
1,1-Dichloroethane	ND		0.50		ug/L			05/21/13 14:46	1
1,1-Dichloroethene	ND		0.50		ug/L			05/21/13 14:46	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			05/21/13 14:46	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			05/21/13 14:46	1
1,2-Dichloropropane	ND		0.50		ug/L			05/21/13 14:46	1
1,3-Dichloropropane	ND		0.50		ug/L			05/21/13 14:46	1
2,2-Dichloropropane	ND		0.50		ug/L			05/21/13 14:46	1
1,1-Dichloropropene	ND		1.0		ug/L			05/21/13 14:46	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			05/21/13 14:46	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			05/21/13 14:46	1
Ethylbenzene	ND		0.50		ug/L			05/21/13 14:46	1
Hexachlorobutadiene	ND		4.0		ug/L			05/21/13 14:46	1
2-Hexanone	ND		10		ug/L			05/21/13 14:46	1
Isopropylbenzene	ND		2.0		ug/L			05/21/13 14:46	1
p-Isopropyltoluene	ND		2.0		ug/L			05/21/13 14:46	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			05/21/13 14:46	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/21/13 14:46	1
Methylene Chloride	ND		5.0		ug/L			05/21/13 14:46	1
Naphthalene	ND		2.0		ug/L			05/21/13 14:46	1
N-Propylbenzene	ND		0.50		ug/L			05/21/13 14:46	1
Styrene	ND		0.50		ug/L			05/21/13 14:46	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			05/21/13 14:46	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			05/21/13 14:46	1
Tetrachloroethene	ND		0.50		ug/L			05/21/13 14:46	1
Toluene	ND		0.50		ug/L			05/21/13 14:46	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/21/13 14:46	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/21/13 14:46	1
1,1,1-Trichloroethane	ND		0.50		ug/L			05/21/13 14:46	1
1,1,2-Trichloroethane	ND		0.50		ug/L			05/21/13 14:46	1
Trichloroethene	ND		0.50		ug/L			05/21/13 14:46	1
Trichlorofluoromethane	ND		0.50		ug/L			05/21/13 14:46	1
1,2,3-Trichloropropane	ND		0.50		ug/L			05/21/13 14:46	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/21/13 14:46	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			05/21/13 14:46	1
Vinyl chloride	ND		0.50		ug/L			05/21/13 14:46	1
m,p-Xylene	ND		1.0		ug/L			05/21/13 14:46	1
o-Xylene	ND		0.50		ug/L			05/21/13 14:46	1
1,2-Dichlorobenzene	ND		0.50		ug/L			05/21/13 14:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		05/21/13 14:46	1
4-Bromofluorobenzene (Surr)	106		80 - 120		05/21/13 14:46	1
Dibromofluoromethane (Surr)	100		80 - 120		05/21/13 14:46	1
Toluene-d8 (Surr)	97		80 - 120		05/21/13 14:46	1

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 250-16966/9

Matrix: Water

Analysis Batch: 16966

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		25		ug/L			05/21/13 12:05	1
Benzene	ND		0.20		ug/L			05/21/13 12:05	1
Bromobenzene	ND		0.50		ug/L			05/21/13 12:05	1
Bromochloromethane	ND		0.50		ug/L			05/21/13 12:05	1
Bromodichloromethane	ND		0.50		ug/L			05/21/13 12:05	1
Bromoform	ND		1.0		ug/L			05/21/13 12:05	1
Bromomethane	ND		5.0		ug/L			05/21/13 12:05	1
2-Butanone (MEK)	ND		10		ug/L			05/21/13 12:05	1
n-Butylbenzene	ND		5.0		ug/L			05/21/13 12:05	1
sec-Butylbenzene	ND		0.50		ug/L			05/21/13 12:05	1
tert-Butylbenzene	ND		1.0		ug/L			05/21/13 12:05	1
Carbon disulfide	ND		10		ug/L			05/21/13 12:05	1
Carbon tetrachloride	ND		0.50		ug/L			05/21/13 12:05	1
Chlorobenzene	ND		0.50		ug/L			05/21/13 12:05	1
Chloroethane	ND		0.50		ug/L			05/21/13 12:05	1
Chloroform	ND		0.50		ug/L			05/21/13 12:05	1
Chloromethane	ND		5.0		ug/L			05/21/13 12:05	1
2-Chlorotoluene	ND		0.50		ug/L			05/21/13 12:05	1
4-Chlorotoluene	ND		0.50		ug/L			05/21/13 12:05	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/21/13 12:05	1
Dibromochloromethane	ND		1.0		ug/L			05/21/13 12:05	1
1,2-Dibromoethane	ND		0.50		ug/L			05/21/13 12:05	1
Dibromomethane	ND		0.50		ug/L			05/21/13 12:05	1
1,2-Dichloroethane	ND		0.50		ug/L			05/21/13 12:05	1
1,3-Dichlorobenzene	ND		0.50		ug/L			05/21/13 12:05	1
1,4-Dichlorobenzene	ND		0.50		ug/L			05/21/13 12:05	1
Dichlorodifluoromethane	ND		5.0		ug/L			05/21/13 12:05	1
1,1-Dichloroethane	ND		0.50		ug/L			05/21/13 12:05	1
1,1-Dichloroethene	ND		0.50		ug/L			05/21/13 12:05	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			05/21/13 12:05	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			05/21/13 12:05	1
1,2-Dichloropropane	ND		0.50		ug/L			05/21/13 12:05	1
1,3-Dichloropropane	ND		0.50		ug/L			05/21/13 12:05	1
2,2-Dichloropropane	ND		0.50		ug/L			05/21/13 12:05	1
1,1-Dichloropropene	ND		1.0		ug/L			05/21/13 12:05	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			05/21/13 12:05	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			05/21/13 12:05	1
Ethylbenzene	ND		0.50		ug/L			05/21/13 12:05	1
Hexachlorobutadiene	ND		4.0		ug/L			05/21/13 12:05	1
2-Hexanone	ND		10		ug/L			05/21/13 12:05	1
Isopropylbenzene	ND		2.0		ug/L			05/21/13 12:05	1
p-Isopropyltoluene	ND		2.0		ug/L			05/21/13 12:05	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			05/21/13 12:05	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/21/13 12:05	1
Methylene Chloride	ND		5.0		ug/L			05/21/13 12:05	1
Naphthalene	ND		2.0		ug/L			05/21/13 12:05	1
N-Propylbenzene	ND		0.50		ug/L			05/21/13 12:05	1
Styrene	ND		0.50		ug/L			05/21/13 12:05	1

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 250-16966/9

Matrix: Water

Analysis Batch: 16966

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			05/21/13 12:05	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			05/21/13 12:05	1
Tetrachloroethene	ND		0.50		ug/L			05/21/13 12:05	1
Toluene	ND		0.50		ug/L			05/21/13 12:05	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/21/13 12:05	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/21/13 12:05	1
1,1,1-Trichloroethane	ND		0.50		ug/L			05/21/13 12:05	1
1,1,2-Trichloroethane	ND		0.50		ug/L			05/21/13 12:05	1
Trichloroethene	ND		0.50		ug/L			05/21/13 12:05	1
Trichlorofluoromethane	ND		0.50		ug/L			05/21/13 12:05	1
1,2,3-Trichloropropane	ND		0.50		ug/L			05/21/13 12:05	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/21/13 12:05	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			05/21/13 12:05	1
Vinyl chloride	ND		0.50		ug/L			05/21/13 12:05	1
m,p-Xylene	ND		1.0		ug/L			05/21/13 12:05	1
o-Xylene	ND		0.50		ug/L			05/21/13 12:05	1
1,2-Dichlorobenzene	ND		0.50		ug/L			05/21/13 12:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		05/21/13 12:05	1
4-Bromofluorobenzene (Surr)	105		80 - 120		05/21/13 12:05	1
Dibromofluoromethane (Surr)	96		80 - 120		05/21/13 12:05	1
Toluene-d8 (Surr)	96		80 - 120		05/21/13 12:05	1

Lab Sample ID: LCS 250-16966/4

Matrix: Water

Analysis Batch: 16966

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	100	102		ug/L		102	55 - 145
Benzene	20.0	19.4		ug/L		97	80 - 120
Bromobenzene	20.0	21.9		ug/L		109	75 - 120
Bromochloromethane	20.0	19.8		ug/L		99	75 - 125
Bromodichloromethane	20.0	20.1		ug/L		100	80 - 130
Bromoform	20.0	21.8		ug/L		109	55 - 135
Bromomethane	20.0	21.0		ug/L		105	35 - 150
2-Butanone (MEK)	100	91.5		ug/L		91	70 - 140
n-Butylbenzene	20.0	19.9		ug/L		99	75 - 130
sec-Butylbenzene	20.0	21.1		ug/L		106	60 - 130
tert-Butylbenzene	20.0	21.0		ug/L		105	70 - 130
Carbon disulfide	40.0	38.9		ug/L		97	60 - 120
Carbon tetrachloride	20.0	21.5		ug/L		107	70 - 135
Chlorobenzene	20.0	19.5		ug/L		98	80 - 125
Chloroethane	20.0	21.1		ug/L		105	75 - 125
Chloroform	20.0	19.5		ug/L		98	80 - 120
Chloromethane	20.0	21.0		ug/L		105	45 - 150
2-Chlorotoluene	20.0	20.5		ug/L		102	70 - 125
4-Chlorotoluene	20.0	20.9		ug/L		105	75 - 125

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 250-16966/4

Matrix: Water

Analysis Batch: 16966

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	20.0	22.4		ug/L		112	70 - 135
Dibromochloromethane	20.0	20.5		ug/L		103	65 - 140
1,2-Dibromoethane	20.0	20.9		ug/L		104	80 - 125
Dibromomethane	20.0	19.0		ug/L		95	80 - 120
1,2-Dichloroethane	20.0	18.6		ug/L		93	75 - 125
1,3-Dichlorobenzene	20.0	21.1		ug/L		105	75 - 125
1,4-Dichlorobenzene	20.0	21.2		ug/L		106	70 - 120
Dichlorodifluoromethane	20.0	22.0		ug/L		110	45 - 140
1,1-Dichloroethane	20.0	19.2		ug/L		96	80 - 120
1,1-Dichloroethene	20.0	19.6		ug/L		98	75 - 120
cis-1,2-Dichloroethene	20.0	19.9		ug/L		100	80 - 120
trans-1,2-Dichloroethene	20.0	19.7		ug/L		99	80 - 120
1,2-Dichloropropane	20.0	19.8		ug/L		99	80 - 130
1,3-Dichloropropane	20.0	19.2		ug/L		96	80 - 120
2,2-Dichloropropane	20.0	22.8		ug/L		114	60 - 145
1,1-Dichloropropene	20.0	19.8		ug/L		99	80 - 120
cis-1,3-Dichloropropene	20.0	21.5		ug/L		107	80 - 125
trans-1,3-Dichloropropene	20.0	20.3		ug/L		102	80 - 130
Ethylbenzene	20.0	20.9		ug/L		104	80 - 120
Hexachlorobutadiene	20.0	21.4		ug/L		107	60 - 150
2-Hexanone	100	89.0		ug/L		89	70 - 140
Isopropylbenzene	20.0	21.2		ug/L		106	75 - 125
p-Isopropyltoluene	20.0	21.5		ug/L		107	65 - 130
4-Methyl-2-pentanone (MIBK)	100	87.2		ug/L		87	70 - 135
Methyl tert-butyl ether	20.0	18.9		ug/L		95	80 - 130
Methylene Chloride	20.0	20.1		ug/L		100	80 - 120
Naphthalene	20.0	20.7		ug/L		103	70 - 150
N-Propylbenzene	20.0	21.4		ug/L		107	75 - 130
Styrene	20.0	21.7		ug/L		108	70 - 130
1,1,1,2-Tetrachloroethane	20.0	20.7		ug/L		104	65 - 140
1,1,2,2-Tetrachloroethane	20.0	21.7		ug/L		109	75 - 130
Tetrachloroethene	20.0	19.8		ug/L		99	80 - 125
Toluene	20.0	19.5		ug/L		97	80 - 125
1,2,3-Trichlorobenzene	20.0	20.8		ug/L		104	65 - 140
1,2,4-Trichlorobenzene	20.0	20.3		ug/L		102	75 - 130
1,1,1-Trichloroethane	20.0	20.9		ug/L		105	75 - 135
1,1,2-Trichloroethane	20.0	19.2		ug/L		96	80 - 125
Trichloroethene	20.0	19.9		ug/L		99	80 - 135
Trichlorofluoromethane	20.0	20.2		ug/L		101	75 - 140
1,2,3-Trichloropropane	20.0	20.9		ug/L		105	75 - 125
1,2,4-Trimethylbenzene	20.0	21.4		ug/L		107	70 - 130
1,3,5-Trimethylbenzene	20.0	21.2		ug/L		106	75 - 135
Vinyl chloride	20.0	21.1		ug/L		106	75 - 135
m,p-Xylene	40.0	42.1		ug/L		105	70 - 130
o-Xylene	20.0	21.1		ug/L		106	75 - 125
1,2-Dichlorobenzene	20.0	20.0		ug/L		100	80 - 120

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 250-16966/4

Matrix: Water

Analysis Batch: 16966

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		80 - 120
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120
Toluene-d8 (Surr)	99		80 - 120

Lab Sample ID: LCSD 250-16966/5

Matrix: Water

Analysis Batch: 16966

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	100	90.9		ug/L		91	55 - 145	11	25
Benzene	20.0	20.1		ug/L		101	80 - 120	4	25
Bromobenzene	20.0	22.0		ug/L		110	75 - 120	1	25
Bromochloromethane	20.0	19.9		ug/L		99	75 - 125	1	25
Bromodichloromethane	20.0	20.3		ug/L		102	80 - 130	1	25
Bromoform	20.0	21.5		ug/L		107	55 - 135	1	25
Bromomethane	20.0	20.5		ug/L		102	35 - 150	2	25
2-Butanone (MEK)	100	90.8		ug/L		91	70 - 140	1	25
n-Butylbenzene	20.0	20.8		ug/L		104	75 - 130	4	25
sec-Butylbenzene	20.0	21.4		ug/L		107	60 - 130	1	25
tert-Butylbenzene	20.0	21.1		ug/L		106	70 - 130	1	25
Carbon disulfide	40.0	37.0		ug/L		92	60 - 120	5	25
Carbon tetrachloride	20.0	21.8		ug/L		109	70 - 135	1	25
Chlorobenzene	20.0	19.3		ug/L		97	80 - 125	1	25
Chloroethane	20.0	20.6		ug/L		103	75 - 125	2	25
Chloroform	20.0	19.3		ug/L		97	80 - 120	1	25
Chloromethane	20.0	20.2		ug/L		101	45 - 150	4	25
2-Chlorotoluene	20.0	20.9		ug/L		105	70 - 125	2	25
4-Chlorotoluene	20.0	21.3		ug/L		106	75 - 125	2	25
1,2-Dibromo-3-Chloropropane	20.0	20.0		ug/L		100	70 - 135	11	25
Dibromochloromethane	20.0	20.8		ug/L		104	65 - 140	1	25
1,2-Dibromoethane	20.0	21.4		ug/L		107	80 - 125	2	
Dibromomethane	20.0	19.1		ug/L		96	80 - 120	1	25
1,2-Dichloroethane	20.0	18.5		ug/L		92	75 - 125	1	25
1,3-Dichlorobenzene	20.0	21.1		ug/L		106	75 - 125	0	25
1,4-Dichlorobenzene	20.0	21.5		ug/L		107	70 - 120	1	25
Dichlorodifluoromethane	20.0	21.6		ug/L		108	45 - 140	2	25
1,1-Dichloroethane	20.0	18.8		ug/L		94	80 - 120	2	25
1,1-Dichloroethene	20.0	19.6		ug/L		98	75 - 120	0	25
cis-1,2-Dichloroethene	20.0	19.9		ug/L		99	80 - 120	0	25
trans-1,2-Dichloroethene	20.0	19.6		ug/L		98	80 - 120	1	25
1,2-Dichloropropane	20.0	20.2		ug/L		101	80 - 130	2	25
1,3-Dichloropropane	20.0	19.5		ug/L		98	80 - 120	2	25
2,2-Dichloropropane	20.0	23.4		ug/L		117	60 - 145	2	25
1,1-Dichloropropene	20.0	20.2		ug/L		101	80 - 120	2	25
cis-1,3-Dichloropropene	20.0	21.8		ug/L		109	80 - 125	1	25
trans-1,3-Dichloropropene	20.0	20.6		ug/L		103	80 - 130	1	25
Ethylbenzene	20.0	21.5		ug/L		107	80 - 120	3	25

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 250-16966/5

Matrix: Water

Analysis Batch: 16966

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexachlorobutadiene	20.0	21.2		ug/L		106	60 - 150	1	25
2-Hexanone	100	88.8		ug/L		89	70 - 140	0	25
Isopropylbenzene	20.0	21.7		ug/L		109	75 - 125	3	25
p-Isopropyltoluene	20.0	21.6		ug/L		108	65 - 130	1	25
4-Methyl-2-pentanone (MIBK)	100	89.9		ug/L		90	70 - 135	3	25
Methyl tert-butyl ether	20.0	19.1		ug/L		95	80 - 130	1	25
Methylene Chloride	20.0	20.3		ug/L		101	80 - 120	1	25
Naphthalene	20.0	20.1		ug/L		101	70 - 150	3	25
N-Propylbenzene	20.0	21.7		ug/L		109	75 - 130	2	25
Styrene	20.0	21.9		ug/L		110	70 - 130	1	25
1,1,1,2-Tetrachloroethane	20.0	21.6		ug/L		108	65 - 140	4	25
1,1,2,2-Tetrachloroethane	20.0	20.9		ug/L		104	75 - 130	4	25
Tetrachloroethene	20.0	20.0		ug/L		100	80 - 125	1	25
Toluene	20.0	20.2		ug/L		101	80 - 125	4	25
1,2,3-Trichlorobenzene	20.0	20.6		ug/L		103	65 - 140	1	25
1,2,4-Trichlorobenzene	20.0	20.7		ug/L		104	75 - 130	2	25
1,1,1-Trichloroethane	20.0	21.3		ug/L		107	75 - 135	2	25
1,1,2-Trichloroethane	20.0	19.5		ug/L		97	80 - 125	2	25
Trichloroethene	20.0	20.2		ug/L		101	80 - 135	2	25
Trichlorofluoromethane	20.0	20.1		ug/L		101	75 - 140	1	25
1,2,3-Trichloropropane	20.0	19.7		ug/L		99	75 - 125	6	25
1,2,4-Trimethylbenzene	20.0	21.7		ug/L		109	70 - 130	2	25
1,3,5-Trimethylbenzene	20.0	21.5		ug/L		107	75 - 135	1	25
Vinyl chloride	20.0	21.0		ug/L		105	75 - 135	1	25
m,p-Xylene	40.0	43.2		ug/L		108	70 - 130	3	25
o-Xylene	20.0	21.4		ug/L		107	75 - 125	1	25
1,2-Dichlorobenzene	20.0	20.6		ug/L		103	80 - 120	3	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		80 - 120
4-Bromofluorobenzene (Surr)	106		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120
Toluene-d8 (Surr)	99		80 - 120

Lab Sample ID: 250-11923-1 MS

Matrix: Water

Analysis Batch: 16966

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	ND		1000	939		ug/L		94	55 - 125
Benzene	ND		200	200		ug/L		100	80 - 125
Bromobenzene	ND		200	214		ug/L		107	80 - 125
Bromochloromethane	ND		200	199		ug/L		100	80 - 130
Bromodichloromethane	ND		200	205		ug/L		103	80 - 135
Bromoform	ND		200	206		ug/L		103	65 - 150
Bromomethane	ND		200	216		ug/L		108	30 - 150
2-Butanone (MEK)	ND		1000	961		ug/L		96	70 - 145
n-Butylbenzene	ND		200	223		ug/L		101	70 - 140

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-11923-1 MS

Matrix: Water

Analysis Batch: 16966

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
sec-Butylbenzene	16		200	230		ug/L		107	70 - 135
tert-Butylbenzene	ND		200	211		ug/L		105	70 - 135
Carbon disulfide	ND		400	389		ug/L		97	40 - 150
Carbon tetrachloride	ND		200	219		ug/L		109	75 - 130
Chlorobenzene	ND		200	194		ug/L		97	70 - 135
Chloroethane	ND		200	211		ug/L		106	75 - 130
Chloroform	ND		200	198		ug/L		99	80 - 125
Chloromethane	ND		200	208		ug/L		104	40 - 150
2-Chlorotoluene	ND		200	203		ug/L		102	80 - 120
4-Chlorotoluene	ND		200	283	F	ug/L		141	80 - 125
1,2-Dibromo-3-Chloropropane	ND		200	222		ug/L		111	55 - 145
Dibromochloromethane	ND		200	206		ug/L		103	80 - 130
1,2-Dibromoethane	ND		200	216		ug/L		108	80 - 130
Dibromomethane	ND		200	195		ug/L		97	75 - 135
1,2-Dichloroethane	ND		200	187		ug/L		94	80 - 125
1,3-Dichlorobenzene	ND		200	211		ug/L		106	80 - 125
1,4-Dichlorobenzene	ND		200	216		ug/L		108	80 - 120
Dichlorodifluoromethane	ND		200	219		ug/L		110	60 - 135
1,1-Dichloroethane	ND		200	192		ug/L		96	80 - 125
1,1-Dichloroethene	ND		200	196		ug/L		98	75 - 130
cis-1,2-Dichloroethene	ND		200	201		ug/L		100	75 - 140
trans-1,2-Dichloroethene	ND		200	199		ug/L		99	80 - 120
1,2-Dichloropropane	ND		200	203		ug/L		102	80 - 120
1,3-Dichloropropane	ND		200	194		ug/L		97	80 - 135
2,2-Dichloropropane	ND		200	234		ug/L		117	70 - 145
1,1-Dichloropropene	ND		200	203		ug/L		101	80 - 125
cis-1,3-Dichloropropene	ND		200	216		ug/L		108	80 - 130
trans-1,3-Dichloropropene	ND		200	201		ug/L		101	80 - 135
Ethylbenzene	120		200	322		ug/L		102	80 - 125
Hexachlorobutadiene	ND		200	209		ug/L		104	45 - 150
2-Hexanone	ND		1000	875		ug/L		87	60 - 150
Isopropylbenzene	57		200	264		ug/L		103	80 - 130
p-Isopropyltoluene	28		200	242		ug/L		107	70 - 140
4-Methyl-2-pentanone (MIBK)	ND		1000	882		ug/L		88	55 - 150
Methyl tert-butyl ether	ND		200	195		ug/L		98	80 - 130
Methylene Chloride	ND		200	202		ug/L		101	80 - 120
Naphthalene	65		200	257		ug/L		96	65 - 150
N-Propylbenzene	82		200	290		ug/L		104	70 - 135
Styrene	ND		200	213		ug/L		107	45 - 150
1,1,1,2-Tetrachloroethane	ND		200	211		ug/L		106	80 - 130
1,1,2,2-Tetrachloroethane	ND		200	204		ug/L		102	75 - 150
Tetrachloroethene	ND		200	199		ug/L		100	80 - 125
Toluene	ND		200	197		ug/L		99	75 - 135
1,2,3-Trichlorobenzene	ND		200	207		ug/L		103	70 - 150
1,2,4-Trichlorobenzene	ND		200	209		ug/L		104	70 - 150
1,1,1-Trichloroethane	ND		200	214		ug/L		107	80 - 130
1,1,2-Trichloroethane	ND		200	197		ug/L		99	80 - 130
Trichloroethene	ND		200	208		ug/L		104	65 - 130

TestAmerica Portland



QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-11923-1 MS

Matrix: Water

Analysis Batch: 16966

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichlorofluoromethane	ND		200	205		ug/L		102	75 - 130
1,2,3-Trichloropropane	ND		200	191		ug/L		96	80 - 135
1,2,4-Trimethylbenzene	520		200	712		ug/L		95	80 - 140
1,3,5-Trimethylbenzene	120		200	329		ug/L		103	70 - 145
Vinyl chloride	ND		200	214		ug/L		107	70 - 135
m,p-Xylene	390		400	790		ug/L		101	75 - 135
o-Xylene	300		200	502		ug/L		101	80 - 125
1,2-Dichlorobenzene	ND		200	199		ug/L		100	80 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		80 - 120
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
Toluene-d8 (Surr)	99		80 - 120

Lab Sample ID: 250-11923-1 MSD

Matrix: Water

Analysis Batch: 16966

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Acetone	ND		1000	853		ug/L		85	55 - 125	10	25
Benzene	ND		200	193		ug/L		96	80 - 125	3	25
Bromobenzene	ND		200	207		ug/L		104	80 - 125	3	25
Bromochloromethane	ND		200	183		ug/L		92	80 - 130	8	25
Bromodichloromethane	ND		200	197		ug/L		98	80 - 135	4	25
Bromoform	ND		200	203		ug/L		102	65 - 150	1	25
Bromomethane	ND		200	204		ug/L		102	30 - 150	6	25
2-Butanone (MEK)	ND		1000	870		ug/L		87	70 - 145	10	25
n-Butylbenzene	ND		200	219		ug/L		99	70 - 140	2	25
sec-Butylbenzene	16		200	223		ug/L		103	70 - 135	3	25
tert-Butylbenzene	ND		200	207		ug/L		103	70 - 135	2	25
Carbon disulfide	ND		400	361		ug/L		90	40 - 150	7	25
Carbon tetrachloride	ND		200	210		ug/L		105	75 - 130	4	25
Chlorobenzene	ND		200	186		ug/L		93	70 - 135	4	25
Chloroethane	ND		200	197		ug/L		99	75 - 130	7	25
Chloroform	ND		200	178		ug/L		89	80 - 125	11	25
Chloromethane	ND		200	189		ug/L		95	40 - 150	9	25
2-Chlorotoluene	ND		200	199		ug/L		100	80 - 120	2	25
4-Chlorotoluene	ND		200	275	F	ug/L		138	80 - 125	3	25
1,2-Dibromo-3-Chloropropane	ND		200	279		ug/L		140	55 - 145	23	25
Dibromochloromethane	ND		200	196		ug/L		98	80 - 130	5	25
1,2-Dibromoethane	ND		200	200		ug/L		100	80 - 130	8	
Dibromomethane	ND		200	174		ug/L		87	75 - 135	11	25
1,2-Dichloroethane	ND		200	176		ug/L		88	80 - 125	6	25
1,3-Dichlorobenzene	ND		200	206		ug/L		103	80 - 125	3	25
1,4-Dichlorobenzene	ND		200	204		ug/L		102	80 - 120	6	25
Dichlorodifluoromethane	ND		200	205		ug/L		103	60 - 135	7	25
1,1-Dichloroethane	ND		200	177		ug/L		88	80 - 125	8	25

TestAmerica Portland

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-11923-1 MSD

Matrix: Water

Analysis Batch: 16966

Client Sample ID: A-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		200	177		ug/L		89	75 - 130	10	25
cis-1,2-Dichloroethene	ND		200	184		ug/L		92	75 - 140	8	25
trans-1,2-Dichloroethene	ND		200	187		ug/L		93	80 - 120	6	25
1,2-Dichloropropane	ND		200	194		ug/L		97	80 - 120	5	25
1,3-Dichloropropane	ND		200	186		ug/L		93	80 - 135	4	25
2,2-Dichloropropane	ND		200	217		ug/L		109	70 - 145	8	25
1,1-Dichloropropene	ND		200	194		ug/L		97	80 - 125	4	25
cis-1,3-Dichloropropene	ND		200	208		ug/L		104	80 - 130	4	25
trans-1,3-Dichloropropene	ND		200	194		ug/L		97	80 - 135	3	25
Ethylbenzene	120		200	314		ug/L		98	80 - 125	2	25
Hexachlorobutadiene	ND		200	205		ug/L		102	45 - 150	2	25
2-Hexanone	ND		1000	851		ug/L		85	60 - 150	3	25
Isopropylbenzene	57		200	260		ug/L		101	80 - 130	2	25
p-Isopropyltoluene	28		200	237		ug/L		104	70 - 140	2	25
4-Methyl-2-pentanone (MIBK)	ND		1000	858		ug/L		86	55 - 150	3	25
Methyl tert-butyl ether	ND		200	196		ug/L		98	80 - 130	0	25
Methylene Chloride	ND		200	189		ug/L		95	80 - 120	7	25
Naphthalene	65		200	252		ug/L		94	65 - 150	2	25
N-Propylbenzene	82		200	287		ug/L		103	70 - 135	1	25
Styrene	ND		200	208		ug/L		104	45 - 150	2	25
1,1,1,2-Tetrachloroethane	ND		200	200		ug/L		100	80 - 130	5	25
1,1,2,2-Tetrachloroethane	ND		200	192		ug/L		96	75 - 150	6	25
Tetrachloroethene	ND		200	192		ug/L		96	80 - 125	3	25
Toluene	ND		200	192		ug/L		96	75 - 135	3	25
1,2,3-Trichlorobenzene	ND		200	194		ug/L		97	70 - 150	6	25
1,2,4-Trichlorobenzene	ND		200	197		ug/L		98	70 - 150	6	25
1,1,1-Trichloroethane	ND		200	202		ug/L		101	80 - 130	6	25
1,1,2-Trichloroethane	ND		200	187		ug/L		94	80 - 130	5	25
Trichloroethene	ND		200	193		ug/L		97	65 - 130	7	25
Trichlorofluoromethane	ND		200	190		ug/L		95	75 - 130	8	25
1,2,3-Trichloropropane	ND		200	192		ug/L		96	80 - 135	0	25
1,2,4-Trimethylbenzene	520		200	702		ug/L		90	80 - 140	1	25
1,3,5-Trimethylbenzene	120		200	322		ug/L		100	70 - 145	2	25
Vinyl chloride	ND		200	199		ug/L		100	70 - 135	7	25
m,p-Xylene	390		400	772		ug/L		97	75 - 135	2	25
o-Xylene	300		200	487		ug/L		93	80 - 125	3	25
1,2-Dichlorobenzene	ND		200	195		ug/L		97	80 - 120	2	25
MSD MSD Surrogate %Recovery Qualifier Limits											
1,2-Dichloroethane-d4 (Surr)	91			80 - 120							
4-Bromofluorobenzene (Surr)	106			80 - 120							
Dibromofluoromethane (Surr)	93			80 - 120							
Toluene-d8 (Surr)	99			80 - 120							

TestAmerica Portland

Certification Summary

Client: Hart Crowser, Inc.

Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	OR00040	06-30-13
Alaska (UST)	State Program	10	UST-012	12-26-13
California	State Program	9	2597	09-30-13
Oregon	NELAP	10	OR100021	01-09-14
USDA	Federal		P330-11-00092	02-17-14
Washington	State Program	10	C586	06-23-13

Method Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum-Willbridge Facility

TestAmerica Job ID: 250-11923-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PRT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PRT = TestAmerica Portland, 9405 SW Nimbus Ave., Beaverton, OR 97008, TEL (503)906-9200



9405 SW Nimbus Ave
Beaverton, OR 97008-7145
503-906-9200 Fax 503-906-9210

Chain of Custody Record



250-11923 Chain of Custody

America Laboratories, Inc.

Client Contact		Project Manager: Chris Martin		Site Contact: Jason R. Miles		Date: 05/20/2013		COC No:		
Client Name: Hart Crowder Inc		Tel/Fax: 503-620-7284 / 6918		Lab Contact: Vanessa		Carrier:		1 of 2 COCs		
Address: 8910 SW Gemini Drive		Analysis Turnaround Time		Full list VOCs 8260B				Job No. 17203-52		
City/State/Zip: Beaverton/OR 97008		Calendar (C) or Work Days (W)								
Phone: 503-620-7284		☒ FAT if different from Below								
FAX: 503-620-6918		☐ 2 weeks								
Project Name: Paramount Petroleum-Willbridge Facility		☐ 1 week						SDG No.		
Site: Portland, OR		☐ 2 days						Sampler: Jason R. Miles		
P O #: 17203-52		☐ 1 day						Sample Specific Notes:		
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.				
A-4		5-20-13	1019	Grab	W	5				
S-1			1410			5				
S-2			1048			6				
S-3			1123			6				
S-4			1149			4				
S-5			1221			6				
S-6			1305			6				
S-7			1336			6				
S-8			1444			6				
W-32			0931			6				
W-33			0952			6				
W-34		✓	0905	✓	✓	6				
Preservation Used: 1=Ice; 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other		1, 2								
Possible Hazard Identification		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
				☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months						
Special Instructions/QC Requirements & Comments:										
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
[Signature]		Hart Crowder Inc		5-20-13/1608		Tom Krause		[Signature]		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		

Chain of Custody Record

TestAr
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TestAmerica Law

Client Contact		Project Manager: Chris Martin		Site Contact: Jason R. Miles		Date: 05/20/2013		COC No:			
Client Name: Hart Crowder, Inc		Tel/Fax: 503-620-7284 / 6918		Lab Contact: Vanessa		Carrier:		2 of 2 COCs			
Address: 8910 SW Gemini Drive		Analysis Turnaround Time		Full List 8260 B				Job No.			
City/State/Zip: Beaverton, OR / 97008		Calendar (C) or Work Days (W)						17203-52			
Phone: 503-620-7284		TAT if different from Below									
FAX: 503-620-6918		☒ 2 weeks									
Project Name: Paramount Petroleum-Willbridge Facility		☐ 1 week						SDG No.			
Site: Portland, OR		☐ 2 days						Sampler: Jason R. Miles			
P O #: 17203-52		☐ 1 day						Sample Specific Notes:			
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.					
TB#345		4/11/13	-	Grab	W	1					
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other		4 2									
Possible Hazard Identification		Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return To Client ☐ Disposal By Lab ☒ Archive For ☐ Months					
Special Instructions/QC Requirements & Comments:		Hold TB#345 with samples for possible analysis.									
Relinquished by: [Signature]		Company: Hart Crowder, Inc		Date/Time: 5-20-13/1608		Received by: Tom Krause		Company: TAP			
Relinquished by:		Company:		Date/Time:		Received by:		Company:			
Relinquished by:		Company:		Date/Time:		Received by:		Company:			

Login Sample Receipt Checklist

Client: Hart Crowser, Inc.

Job Number: 250-11923-1

Login Number: 11923

List Source: TestAmerica Portland

List Number: 1

Creator: Krause, Thomas

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Tel: (503)906-9200

TestAmerica Job ID: 250-4791-1

TestAmerica Sample Delivery Group: 17203-48
Client Project/Site: Paramount Petroleum

For:

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, Oregon 97008

Attn: Chris Martin

Vanessa Frahs

Authorized for release by:
7/19/2012 4:19:53 PM

Vanessa Frahs
Project Manager I
vanessa.frahs@testamericainc.com

LINKS

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results through

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

1281
Spill Con
Paramount
Petroleum
Naphtha Spill

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Sample Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
250-4791-1	S-1-1	Solid	07/12/12 08:05	07/12/12 15:15
250-4791-2	S-2-2	Solid	07/12/12 08:17	07/12/12 15:15
250-4791-3	S-3-3	Solid	07/12/12 08:24	07/12/12 15:15
250-4791-4	S-4-4	Solid	07/12/12 08:32	07/12/12 15:15

Case Narrative

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Job ID: 250-4791-1

Laboratory: TestAmerica Portland

Narrative

Receipt

The samples were received on 7/12/2012 3:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.5° C.

GC/MS VOA

Method(s) 8260B: The following sample(s) was diluted due to the abundance of non-target analytes: (250-4669-1 MS), (250-4669-1 MSD). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The following sample(s) was diluted due to the abundance of non-target analytes: S-2-2 (250-4791-2). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The following sample(s) was diluted due to the abundance of non-target analytes: EPB@8.5'bgs (250-4669-1). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with batch 7511 were outside control limits: (250-4669-1 MS). The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with batch 7511 were outside control limits: (250-4669-1 MSD). The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 8260B: The matrix duplicate %RPD for vinyl chloride associated with batch 7511 was outside the control limits due to. LCS was within acceptable limits.

No other analytical or quality issues were noted.

GC VOA

Method(s) NWTPH-Gx: S-1-1 (250-4791-1), S-2-2 (250-4791-2), S-3-3 (250-4791-3), S-4-4 (250-4791-4) Hydrocarbon result due to mostly diesel.

Method(s) NWTPH-Gx: Bella Vista Composition #1 (250-4655-1) Hydrocarbon result due to mostly diesel.

Method(s) NWTPH-Gx: (250-4655-2 DU), Bella Vista Composition #2 (250-4655-2) Hydrocarbon result due to mostly diesel.

Method(s) NWTPH-Gx: The matrix duplicate %RPD for gasoline range hydrocarbons associated with batch 7558 was outside the control limits due to matrix interference of the sample.

No other analytical or quality issues were noted.

GC Semi VOA

Method(s) NWTPH-Dx: Due to the level of dilution required for the following sample(s), surrogate recoveries are not useful: S-4-4 (250-4791-4).

Method(s) NWTPH-Dx: Detected hydrocarbons in the diesel range appear to be due to heavily weathered diesel. Detected hydrocarbons in the oil range appear to be due to diesel overlap. (250-4791-1 DU), S-1-1 (250-4791-1)

Method(s) NWTPH-Dx: Detected hydrocarbons in the diesel range appear to be due to a heavy gas/light weight diesel component as well as heavily weathered diesel. Detected hydrocarbons in the oil range appear to be due to diesel overlap. S-2-2 (250-4791-2), S-4-4 (250-4791-4)

Method(s) NWTPH-Dx: Detected hydrocarbons appear to be due to heavily weathered diesel as well as oil. S-3-3 (250-4791-3)

No other analytical or quality issues were noted.

Metals

Case Narrative

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Job ID: 250-4791-1 (Continued)

Laboratory: TestAmerica Portland (Continued)

No analytical or quality issues were noted.

Organic Prep

No analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.

- 1
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Definitions/Glossary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits

GC VOA

Qualifier	Qualifier Description
F	Duplicate RPD exceeds the control limit

GC Semi VOA

Qualifier	Qualifier Description
F	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1

Matrix: Solid

Percent Solids: 85.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,1,1-Trichloroethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,1,2,2-Tetrachloroethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,1,2-Trichloroethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,1-Dichloroethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,1-Dichloroethene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,1-Dichloropropene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,2,3-Trichlorobenzene	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,2,3-Trichloropropane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,2,4-Trichlorobenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,2,4-Trimethylbenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,2-Dibromo-3-Chloropropane	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,2-Dichlorobenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,2-Dichloroethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,2-Dichloropropane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,3,5-Trimethylbenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,3-Dichlorobenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,3-Dichloropropane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,4-Dichlorobenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
2,2-Dichloropropane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
2-Chlorotoluene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
4-Chlorotoluene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
p-Isopropyltoluene	ND		260		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Acetone	ND		3300		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Benzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Bromobenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Bromoform	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Bromomethane	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Carbon tetrachloride	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Chlorobenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Bromochloromethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Dibromochloromethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Chloroethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Chloroform	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Chloromethane	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
cis-1,2-Dichloroethene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
cis-1,3-Dichloropropene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Dibromomethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Bromodichloromethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Dichlorodifluoromethane	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Ethylbenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
1,2-Dibromoethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Hexachlorobutadiene	ND		520		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Isopropylbenzene	ND		260		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Methyl tert-butyl ether	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Methylene Chloride	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
m,p-Xylene	ND		260		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Naphthalene	ND		260		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
n-Butylbenzene	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
N-Propylbenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
o-Xylene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1

Matrix: Solid

Percent Solids: 85.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Styrene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
tert-Butylbenzene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Tetrachloroethene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Toluene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
trans-1,2-Dichloroethene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
trans-1,3-Dichloropropene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Trichloroethene	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Trichlorofluoromethane	ND		130		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Vinyl chloride	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
2-Butanone (MEK)	ND		1300		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
2-Hexanone	ND		1300		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
4-Methyl-2-pentanone (MIBK)	ND		650		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1
Carbon disulfide	ND		1300		ug/Kg	☼	07/12/12 18:48	07/13/12 12:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		75 - 125	07/12/12 18:48	07/13/12 12:10	1
4-Bromofluorobenzene (Surr)	104		75 - 125	07/12/12 18:48	07/13/12 12:10	1
Dibromofluoromethane (Surr)	98		75 - 125	07/12/12 18:48	07/13/12 12:10	1
Toluene-d8 (Surr)	97		75 - 125	07/12/12 18:48	07/13/12 12:10	1

Client Sample ID: S-2-2

Date Collected: 07/12/12 08:17

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-2

Matrix: Solid

Percent Solids: 83.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1,1-Trichloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1,1,2,2-Tetrachloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1,1,2-Trichloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1-Dichloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1-Dichloroethene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,1-Dichloropropene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2,3-Trichlorobenzene	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2,3-Trichloropropane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2,4-Trichlorobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2,4-Trimethylbenzene	450		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2-Dibromo-3-Chloropropane	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2-Dichlorobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2-Dichloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2-Dichloropropane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,3,5-Trimethylbenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,3-Dichlorobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,3-Dichloropropane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,4-Dichlorobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
2,2-Dichloropropane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
2-Chlorotoluene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
4-Chlorotoluene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
p-Isopropyltoluene	ND		550		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Acetone	ND		6800		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Benzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Bromobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-2-2

Date Collected: 07/12/12 08:17

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-2

Matrix: Solid

Percent Solids: 83.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Bromomethane	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Carbon tetrachloride	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Chlorobenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Bromochloromethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Dibromochloromethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Chloroethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Chloroform	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Chloromethane	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
cis-1,2-Dichloroethene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
cis-1,3-Dichloropropene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Dibromomethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Bromodichloromethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Dichlorodifluoromethane	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Ethylbenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
1,2-Dibromoethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Hexachlorobutadiene	ND		1100		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Isopropylbenzene	ND		550		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Methyl tert-butyl ether	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Methylene Chloride	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
m,p-Xylene	ND		550		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Naphthalene	ND		550		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
n-Butylbenzene	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
N-Propylbenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
o-Xylene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
sec-Butylbenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Styrene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
tert-Butylbenzene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Tetrachloroethene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Toluene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
trans-1,2-Dichloroethene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
trans-1,3-Dichloropropene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Trichloroethene	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Trichlorofluoromethane	ND		270		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Vinyl chloride	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
2-Butanone (MEK)	ND		2700		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
2-Hexanone	ND		2700		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
4-Methyl-2-pentanone (MIBK)	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2
Carbon disulfide	ND		2700		ug/Kg	☼	07/12/12 18:48	07/13/12 15:52	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		75 - 125	07/12/12 18:48	07/13/12 15:52	2
4-Bromofluorobenzene (Surr)	105		75 - 125	07/12/12 18:48	07/13/12 15:52	2
Dibromofluoromethane (Surr)	100		75 - 125	07/12/12 18:48	07/13/12 15:52	2
Toluene-d8 (Surr)	100		75 - 125	07/12/12 18:48	07/13/12 15:52	2

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,1,2,2-Tetrachloroethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,1,2-Trichloroethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,1-Dichloroethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,1-Dichloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,1-Dichloropropene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,2,3-Trichlorobenzene	ND		710		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,2,3-Trichloropropane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,2,4-Trichlorobenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,2,4-Trimethylbenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,2-Dibromo-3-Chloropropane	ND		710		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,2-Dichlorobenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,2-Dichloroethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,2-Dichloropropane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,3,5-Trimethylbenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,3-Dichlorobenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,3-Dichloropropane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,4-Dichlorobenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
2,2-Dichloropropane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
2-Chlorotoluene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
4-Chlorotoluene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
p-Isopropyltoluene	ND		280		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Acetone	ND		3600		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Benzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Bromobenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Bromoform	ND		710		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Bromomethane	ND		710		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Carbon tetrachloride	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Chlorobenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Bromochloromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Dibromochloromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Chloroethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Chloroform	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Chloromethane	ND		710		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
cis-1,2-Dichloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
cis-1,3-Dichloropropene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Dibromomethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Bromodichloromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Dichlorodifluoromethane	ND		710		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Ethylbenzene	340		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
1,2-Dibromoethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Hexachlorobutadiene	ND		570		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Isopropylbenzene	ND		280		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Methyl tert-butyl ether	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Methylene Chloride	ND		710		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
m,p-Xylene	290		280		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
Naphthalene	ND		280		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
n-Butylbenzene	ND		710		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
N-Propylbenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
o-Xylene	300		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1
sec-Butylbenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:32	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
tert-Butylbenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Tetrachloroethene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Toluene	330		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
trans-1,2-Dichloroethene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
trans-1,3-Dichloropropene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Trichloroethene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Trichlorofluoromethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Vinyl chloride	ND		710		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
2-Butanone (MEK)	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
2-Hexanone	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
4-Methyl-2-pentanone (MIBK)	ND		710		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Carbon disulfide	ND		1400		ug/Kg	*	07/12/12 18:48	07/13/12 12:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 125				07/12/12 18:48	07/13/12 12:32	1
4-Bromofluorobenzene (Surr)	107		75 - 125				07/12/12 18:48	07/13/12 12:32	1
Dibromofluoromethane (Surr)	100		75 - 125				07/12/12 18:48	07/13/12 12:32	1
Toluene-d8 (Surr)	103		75 - 125				07/12/12 18:48	07/13/12 12:32	1

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:22

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4

Matrix: Solid

Percent Solids: 82.9

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1,1-Trichloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1,2,2-Tetrachloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1,2-Trichloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1-Dichloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1-Dichloroethene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,1-Dichloropropene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2,3-Trichlorobenzene	ND		680		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2,3-Trichloropropane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2,4-Trichlorobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2,4-Trimethylbenzene	5700		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2-Dibromo-3-Chloropropane	ND		680		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2-Dichlorobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2-Dichloroethane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,2-Dichloropropane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,3,5-Trimethylbenzene	2000		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,3-Dichlorobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,3-Dichloropropane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
1,4-Dichlorobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
2,2-Dichloropropane	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
2-Chlorotoluene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
4-Chlorotoluene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
p-Isopropyltoluene	1400		270		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
Acetone	ND		3400		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
Benzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
Bromobenzene	ND		140		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1
Bromoform	ND		680		ug/Kg	*	07/12/12 18:48	07/13/12 12:54	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:32

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4

Matrix: Solid

Percent Solids: 82.9

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Carbon tetrachloride	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Chlorobenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Bromochloromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Dibromochloromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Chloroethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Chloroform	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Chloromethane	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
cis-1,2-Dichloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
cis-1,3-Dichloropropene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Dibromomethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Bromodichloromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Dichlorodifluoromethane	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Ethylbenzene	1600		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
1,2-Dibromoethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Hexachlorobutadiene	ND		550		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Isopropylbenzene	630		270		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Methyl tert-butyl ether	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Methylene Chloride	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
m,p-Xylene	3900		270		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Naphthalene	670		270		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
n-Butylbenzene	1800		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
N-Propylbenzene	1400		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
o-Xylene	3600		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
sec-Butylbenzene	750		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Styrene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
tert-Butylbenzene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Tetrachloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Toluene	250		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
trans-1,2-Dichloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
trans-1,3-Dichloropropene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Trichloroethene	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Trichlorofluoromethane	ND		140		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Vinyl chloride	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
2-Butanone (MEK)	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
2-Hexanone	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
4-Methyl-2-pentanone (MIBK)	ND		680		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Carbon disulfide	ND		1400		ug/Kg	☼	07/12/12 18:48	07/13/12 12:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 125				07/12/12 18:48	07/13/12 12:54	1
4-Bromofluorobenzene (Surr)	87		75 - 125				07/12/12 18:48	07/13/12 12:54	1
Dibromofluoromethane (Surr)	103		75 - 125				07/12/12 18:48	07/13/12 12:54	1
Toluene-d8 (Surr)	100		75 - 125				07/12/12 18:48	07/13/12 12:54	1

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1

Matrix: Solid

Percent Solids: 85.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	150000		5200		ug/Kg	✱	07/12/12 20:01	07/13/12 14:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	96		50 - 150				07/12/12 20:01	07/13/12 14:03	1

Client Sample ID: S-2-2

Date Collected: 07/12/12 08:17

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-2

Matrix: Solid

Percent Solids: 83.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	350000		22000		ug/Kg	✱	07/12/12 20:01	07/13/12 14:59	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	92		50 - 150				07/12/12 20:01	07/13/12 14:59	4

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	53000		5700		ug/Kg	✱	07/12/12 20:01	07/13/12 14:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	93		50 - 150				07/12/12 20:01	07/13/12 14:31	1

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:32

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4

Matrix: Solid

Percent Solids: 82.9

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	1300000		110000		ug/Kg	✱	07/12/12 20:01	07/13/12 15:27	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	87		50 - 150				07/12/12 20:01	07/13/12 15:27	20

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1

Matrix: Solid

Percent Solids: 85.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	530		15		mg/Kg	✱	07/16/12 10:06	07/16/12 20:08	1
RRO (nC25-nC36)	190		29		mg/Kg	✱	07/16/12 10:06	07/16/12 20:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	68		50 - 150				07/16/12 10:06	07/16/12 20:08	1

Client Sample ID: S-2-2

Date Collected: 07/12/12 08:17

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-2

Matrix: Solid

Percent Solids: 83.4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	540		15		mg/Kg	✱	07/16/12 10:06	07/16/12 20:26	1
RRO (nC25-nC36)	190		30		mg/Kg	✱	07/16/12 10:06	07/16/12 20:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	84		50 - 150				07/16/12 10:06	07/16/12 20:26	1

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	170		15		mg/Kg	✱	07/16/12 10:06	07/16/12 20:44	1
RRO (nC25-nC36)	280		30		mg/Kg	✱	07/16/12 10:06	07/16/12 20:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	63		50 - 150				07/16/12 10:06	07/16/12 20:44	1

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:32

Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4

Matrix: Solid

Percent Solids: 82.9

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	2200		300		mg/Kg	✱	07/16/12 10:06	07/16/12 21:02	20
RRO (nC25-nC36)	1400		600		mg/Kg	✱	07/16/12 10:06	07/16/12 21:02	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	96		50 - 150				07/16/12 10:06	07/16/12 21:02	20

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 6020 - Metals (ICP/MS)

Client Sample ID: S-1-1

Date Collected: 07/12/12 08:05

Date Received: 07/12/12 15:15

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	15		0.57		mg/Kg	☼	07/13/12 13:04	07/13/12 21:44	10

Lab Sample ID: 250-4791-1

Matrix: Solid

Percent Solids: 85.4

Client Sample ID: S-2-2

Date Collected: 07/12/12 08:17

Date Received: 07/12/12 15:15

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	17		0.59		mg/Kg	☼	07/13/12 13:04	07/13/12 22:01	10

Lab Sample ID: 250-4791-2

Matrix: Solid

Percent Solids: 83.4

Client Sample ID: S-3-3

Date Collected: 07/12/12 08:24

Date Received: 07/12/12 15:15

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	40		0.61		mg/Kg	☼	07/13/12 13:04	07/13/12 22:05	10

Lab Sample ID: 250-4791-3

Matrix: Solid

Percent Solids: 81.2

Client Sample ID: S-4-4

Date Collected: 07/12/12 08:32

Date Received: 07/12/12 15:15

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	18		0.60		mg/Kg	☼	07/13/12 13:04	07/13/12 22:08	10

Lab Sample ID: 250-4791-4

Matrix: Solid

Percent Solids: 82.9

Client Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

General Chemistry

Client Sample ID: S-1-1
Date Collected: 07/12/12 08:05
Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-1
Matrix: Solid

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15		0.010		%			07/13/12 17:38	1
Percent Solids	85		0.010		%			07/13/12 17:38	1

Client Sample ID: S-2-2
Date Collected: 07/12/12 08:17
Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-2
Matrix: Solid

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17		0.010		%			07/13/12 17:38	1
Percent Solids	83		0.010		%			07/13/12 17:38	1

Client Sample ID: S-3-3
Date Collected: 07/12/12 08:24
Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-3
Matrix: Solid

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19		0.010		%			07/13/12 17:38	1
Percent Solids	81		0.010		%			07/13/12 17:38	1

Client Sample ID: S-4-4
Date Collected: 07/12/12 08:32
Date Received: 07/12/12 15:15

Lab Sample ID: 250-4791-4
Matrix: Solid

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17		0.010		%			07/13/12 17:38	1
Percent Solids	83		0.010		%			07/13/12 17:38	1

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 250-7476/1-A
Matrix: Solid
Analysis Batch: 7511

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7476

Analyte	Result	MB MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1,1-Trichloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1,2,2-Tetrachloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1,2-Trichloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1-Dichloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1-Dichloroethene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,1-Dichloropropene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2,3-Trichlorobenzene	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2,3-Trichloropropane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2,4-Trichlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2,4-Trimethylbenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dibromo-3-Chloropropane	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dichlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dichloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dichloropropane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,3,5-Trimethylbenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,3-Dichlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,3-Dichloropropane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,4-Dichlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
2,2-Dichloropropane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
2-Chlorotoluene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
4-Chlorotoluene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
p-Isopropyltoluene	ND		200		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Acetone	ND		2500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Benzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromoform	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromomethane	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Carbon tetrachloride	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Chlorobenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromochloromethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Dibromochloromethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Chloroethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Chloroform	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Chloromethane	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
cis-1,2-Dichloroethene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
cis-1,3-Dichloropropene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Dibromomethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Bromodichloromethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Dichlorodifluoromethane	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Ethylbenzene	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
1,2-Dibromoethane	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Hexachlorobutadiene	ND		400		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Isopropylbenzene	ND		200		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Methyl tert-butyl ether	ND		99		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Methylene Chloride	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
m,p-Xylene	ND		200		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Naphthalene	ND		200		ug/Kg		07/12/12 07:55	07/12/12 10:42	1
n-Butylbenzene	ND		500		ug/Kg		07/12/12 07:55	07/12/12 10:42	1

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 250-7476/1-A

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7476

Analyte	MB Result	MB Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
N-Propylbenzene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
o-Xylene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
sec-Butylbenzene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Styrene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
tert-Butylbenzene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Tetrachloroethene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Toluene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
trans-1,2-Dichloroethene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
trans-1,3-Dichloropropene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Trichloroethene	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Trichlorofluoromethane	ND		99	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Vinyl chloride	ND		500	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
2-Butanone (MEK)	ND		990	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
2-Hexanone	ND		990	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
4-Methyl-2-pentanone (MIBK)	ND		500	ug/Kg		07/12/12 07:55	07/12/12 10:42	1
Carbon disulfide	ND		990	ug/Kg		07/12/12 07:55	07/12/12 10:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		75 - 125	07/12/12 07:55	07/12/12 10:42	1
4-Bromofluorobenzene (Surr)	103		75 - 125	07/12/12 07:55	07/12/12 10:42	1
Dibromofluoromethane (Surr)	100		75 - 125	07/12/12 07:55	07/12/12 10:42	1
Toluene-d8 (Surr)	101		75 - 125	07/12/12 07:55	07/12/12 10:42	1

Lab Sample ID: LCS 250-7476/2-A

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	1980	1940		ug/Kg		98	80 - 130
1,1,1-Trichloroethane	1980	1890		ug/Kg		95	80 - 125
1,1,2,2-Tetrachloroethane	1980	2030		ug/Kg		102	70 - 135
1,1,2-Trichloroethane	1980	1920		ug/Kg		97	80 - 125
1,1-Dichloroethane	1980	1840		ug/Kg		93	80 - 120
1,1-Dichloroethene	1980	1870		ug/Kg		94	75 - 125
1,1-Dichloropropene	1980	1790		ug/Kg		90	80 - 125
1,2,3-Trichlorobenzene	1980	2090		ug/Kg		105	80 - 145
1,2,3-Trichloropropane	1980	2010		ug/Kg		102	65 - 125
1,2,4-Trichlorobenzene	1980	2100		ug/Kg		106	85 - 150
1,2,4-Trimethylbenzene	1980	2010		ug/Kg		101	80 - 135
1,2-Dibromo-3-Chloropropane	1980	1990		ug/Kg		100	60 - 130
1,2-Dichlorobenzene	1980	2020		ug/Kg		102	80 - 120
1,2-Dichloroethane	1980	1900		ug/Kg		96	80 - 120
1,2-Dichloropropane	1980	1940		ug/Kg		98	80 - 125
1,3,5-Trimethylbenzene	1980	2070		ug/Kg		105	80 - 135
1,3-Dichlorobenzene	1980	1930		ug/Kg		97	80 - 125
1,3-Dichloropropane	1980	1920		ug/Kg		97	75 - 130
1,4-Dichlorobenzene	1980	1960		ug/Kg		99	75 - 120
2,2-Dichloropropane	1980	2000		ug/Kg		101	70 - 130
2-Chlorotoluene	1980	1900		ug/Kg		96	80 - 120

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 250-7476/2-A

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chlorotoluene	1980	1910		ug/Kg		96	80 - 125
p-Isopropyltoluene	1980	2110		ug/Kg		106	80 - 120
Acetone	9920	9030		ug/Kg		91	65 - 150
Benzene	1980	1790		ug/Kg		90	80 - 120
Bromobenzene	1980	1960		ug/Kg		99	80 - 120
Bromoform	1980	1930		ug/Kg		97	75 - 150
Bromomethane	1980	1930		ug/Kg		97	65 - 130
Carbon tetrachloride	1980	1830		ug/Kg		92	70 - 130
Chlorobenzene	1980	1830		ug/Kg		92	80 - 125
Bromochloromethane	1980	1910		ug/Kg		96	80 - 120
Dibromochloromethane	1980	1970		ug/Kg		99	75 - 125
Chloroethane	1980	2020		ug/Kg		102	75 - 125
Chloroform	1980	1860		ug/Kg		94	80 - 120
Chloromethane	1980	2080		ug/Kg		105	40 - 150
cis-1,2-Dichloroethene	1980	1770		ug/Kg		89	75 - 125
cis-1,3-Dichloropropene	1980	1980		ug/Kg		100	80 - 125
Dibromomethane	1980	1830		ug/Kg		92	80 - 120
Bromodichloromethane	1980	1910		ug/Kg		96	80 - 140
Dichlorodifluoromethane	1980	2100		ug/Kg		106	75 - 120
Ethylbenzene	1980	1900		ug/Kg		96	80 - 125
1,2-Dibromoethane	1980	2030		ug/Kg		102	80 - 125
Hexachlorobutadiene	1980	2250		ug/Kg		113	80 - 150
Isopropylbenzene	1980	1950		ug/Kg		98	80 - 130
Methyl tert-butyl ether	1980	1900		ug/Kg		96	75 - 125
Methylene Chloride	1980	1820		ug/Kg		92	75 - 125
m,p-Xylene	3970	3840		ug/Kg		97	80 - 120
Naphthalene	1980	2200		ug/Kg		111	80 - 130
n-Butylbenzene	1980	2080		ug/Kg		105	80 - 150
N-Propylbenzene	1980	2030		ug/Kg		102	80 - 120
o-Xylene	1980	1940		ug/Kg		98	80 - 125
sec-Butylbenzene	1980	2060		ug/Kg		104	80 - 135
Styrene	1980	1980		ug/Kg		100	80 - 125
tert-Butylbenzene	1980	2060		ug/Kg		104	80 - 130
Tetrachloroethene	1980	1830		ug/Kg		92	80 - 125
Toluene	1980	1830		ug/Kg		92	80 - 120
trans-1,2-Dichloroethene	1980	1820		ug/Kg		92	75 - 125
trans-1,3-Dichloropropene	1980	1830		ug/Kg		92	65 - 145
Trichloroethene	1980	1800		ug/Kg		91	80 - 125
Trichlorofluoromethane	1980	2020		ug/Kg		102	55 - 150
Vinyl chloride	1980	1200		ug/Kg		61	10 - 140
2-Butanone (MEK)	9920	10000		ug/Kg		101	70 - 125
2-Hexanone	9920	10300		ug/Kg		104	55 - 120
4-Methyl-2-pentanone (MIBK)	9920	10000		ug/Kg		101	50 - 120
Carbon disulfide	3970	3520		ug/Kg		89	65 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		75 - 125
4-Bromofluorobenzene (Surr)	102		75 - 125
Dibromofluoromethane (Surr)	100		75 - 125

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 250-7476/2-A

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7476

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	101		75 - 125

Lab Sample ID: 250-4669-B-1-A MS

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		6020	5650		ug/Kg	☼	94	80 - 130
1,1,1-Trichloroethane	ND		6020	5810		ug/Kg	☼	97	80 - 125
1,1,2,2-Tetrachloroethane	ND		6020	6620		ug/Kg	☼	110	70 - 130
1,1,2-Trichloroethane	ND		6020	6360		ug/Kg	☼	106	80 - 130
1,1-Dichloroethane	ND		6020	6290		ug/Kg	☼	105	80 - 125
1,1-Dichloroethene	ND		6020	6070		ug/Kg	☼	101	70 - 130
1,1-Dichloropropene	ND		6020	6170		ug/Kg	☼	103	80 - 125
1,2,3-Trichlorobenzene	ND		6020	6180		ug/Kg	☼	103	70 - 130
1,2,3-Trichloropropane	ND		6020	6580		ug/Kg	☼	109	70 - 130
1,2,4-Trichlorobenzene	ND		6020	6120		ug/Kg	☼	102	70 - 150
1,2,4-Trimethylbenzene	5300		6020	13000		ug/Kg	☼	129	70 - 130
1,2-Dibromo-3-Chloropropane	ND		6020	6460		ug/Kg	☼	107	60 - 145
1,2-Dichlorobenzene	ND		6020	6370		ug/Kg	☼	106	80 - 120
1,2-Dichloroethane	ND		6020	6110		ug/Kg	☼	102	75 - 120
1,2-Dichloropropane	ND		6020	6270		ug/Kg	☼	104	80 - 130
1,3,5-Trimethylbenzene	1400		6020	8290		ug/Kg	☼	115	75 - 140
1,3-Dichlorobenzene	ND		6020	6200		ug/Kg	☼	103	80 - 130
1,3-Dichloropropane	ND		6020	5950		ug/Kg	☼	99	75 - 130
1,4-Dichlorobenzene	ND		6020	6270		ug/Kg	☼	104	80 - 120
2,2-Dichloropropane	ND		6020	5990		ug/Kg	☼	100	70 - 130
2-Chlorotoluene	ND		6020	6180		ug/Kg	☼	103	80 - 125
4-Chlorotoluene	ND		6020	6710		ug/Kg	☼	112	70 - 130
p-Isopropyltoluene	ND		6020	7160		ug/Kg	☼	119	70 - 140
Acetone	ND		30100	29600		ug/Kg	☼	98	60 - 145
Benzene	ND		6020	6020		ug/Kg	☼	100	80 - 125
Bromobenzene	ND		6020	6870		ug/Kg	☼	114	70 - 130
Bromoform	ND		6020	5210		ug/Kg	☼	87	70 - 130
Bromomethane	ND		6020	5550		ug/Kg	☼	92	70 - 130
Carbon tetrachloride	ND		6020	5290		ug/Kg	☼	88	70 - 125
Chlorobenzene	ND		6020	5940		ug/Kg	☼	99	70 - 130
Bromochloromethane	ND		6020	6220		ug/Kg	☼	103	80 - 130
Dibromochloromethane	ND		6020	5660		ug/Kg	☼	94	80 - 130
Chloroethane	ND		6020	6200		ug/Kg	☼	103	70 - 130
Chloroform	ND		6020	6150		ug/Kg	☼	102	80 - 125
Chloromethane	ND		6020	6030		ug/Kg	☼	100	40 - 150
cis-1,2-Dichloroethene	ND		6020	6080		ug/Kg	☼	101	75 - 120
cis-1,3-Dichloropropene	ND		6020	5960		ug/Kg	☼	99	80 - 130
Dibromomethane	ND		6020	6140		ug/Kg	☼	102	75 - 125
Bromodichloromethane	ND		6020	5880		ug/Kg	☼	98	80 - 135
Dichlorodifluoromethane	ND		6020	6080		ug/Kg	☼	101	65 - 135
Ethylbenzene	320		6020	6770		ug/Kg	☼	107	80 - 125
1,2-Dibromoethane	ND		6020	6400		ug/Kg	☼	106	80 - 130

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-4669-B-1-A MS

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Hexachlorobutadiene	ND		6020	6690		ug/Kg	☼	111	45 - 150
Isopropylbenzene	ND		6020	6720		ug/Kg	☼	112	80 - 130
Methyl tert-butyl ether	ND		6020	5930		ug/Kg	☼	99	70 - 130
Methylene Chloride	ND		6020	6030		ug/Kg	☼	100	70 - 120
m,p-Xylene	2000		12000	15200		ug/Kg	☼	109	75 - 135
Naphthalene	5300		6020	13200	F	ug/Kg	☼	131	70 - 130
n-Butylbenzene	ND		6020	7920		ug/Kg	☼	132	70 - 140
N-Propylbenzene	440		6020	7170		ug/Kg	☼	112	70 - 130
o-Xylene	1100		6020	7860		ug/Kg	☼	113	70 - 130
sec-Butylbenzene	390		6020	6980		ug/Kg	☼	109	70 - 135
Styrene	ND		6020	6600		ug/Kg	☼	110	85 - 120
tert-Butylbenzene	ND		6020	6450		ug/Kg	☼	107	80 - 135
Tetrachloroethene	ND		6020	5860		ug/Kg	☼	97	75 - 140
Toluene	ND		6020	5970		ug/Kg	☼	99	70 - 130
trans-1,2-Dichloroethene	ND		6020	6290		ug/Kg	☼	105	70 - 130
trans-1,3-Dichloropropene	ND		6020	5440		ug/Kg	☼	90	70 - 145
Trichloroethene	ND		6020	6260		ug/Kg	☼	104	80 - 125
Trichlorofluoromethane	ND		6020	5960		ug/Kg	☼	99	70 - 130
Vinyl chloride	ND		6020	4180		ug/Kg	☼	69	10 - 140
2-Butanone (MEK)	ND		30100	29900		ug/Kg	☼	100	70 - 145
2-Hexanone	ND		30100	32100		ug/Kg	☼	107	65 - 150
4-Methyl-2-pentanone (MIBK)	ND		30100	32400		ug/Kg	☼	108	60 - 150
Carbon disulfide	ND		12000	11300		ug/Kg	☼	94	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		75 - 125
4-Bromofluorobenzene (Surr)	106		75 - 125
Dibromofluoromethane (Surr)	103		75 - 125
Toluene-d8 (Surr)	102		75 - 125

Lab Sample ID: 250-4669-B-1-B MSD

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,1,2-Tetrachloroethane	ND		6180	6200		ug/Kg	☼	100	80 - 130	9	25
1,1,1-Trichloroethane	ND		6180	6600		ug/Kg	☼	107	80 - 125	13	25
1,1,2,2-Tetrachloroethane	ND		6180	7360		ug/Kg	☼	119	70 - 130	11	25
1,1,2-Trichloroethane	ND		6180	6900		ug/Kg	☼	112	80 - 130	8	25
1,1-Dichloroethane	ND		6180	6890		ug/Kg	☼	112	80 - 125	9	25
1,1-Dichloroethene	ND		6180	6850		ug/Kg	☼	111	70 - 130	12	25
1,1-Dichloropropene	ND		6180	6780		ug/Kg	☼	110	80 - 125	9	25
1,2,3-Trichlorobenzene	ND		6180	6820		ug/Kg	☼	110	70 - 130	10	25
1,2,3-Trichloropropane	ND		6180	7300		ug/Kg	☼	118	70 - 130	10	25
1,2,4-Trichlorobenzene	ND		6180	6830		ug/Kg	☼	111	70 - 150	11	25
1,2,4-Trimethylbenzene	5300		6180	13800	F	ug/Kg	☼	139	70 - 130	6	25
1,2-Dibromo-3-Chloropropane	ND		6180	8050		ug/Kg	☼	130	60 - 145	22	25
1,2-Dichlorobenzene	ND		6180	6880		ug/Kg	☼	111	80 - 120	8	25
1,2-Dichloroethane	ND		6180	6660		ug/Kg	☼	108	75 - 120	9	25

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-4669-B-1-B MSD

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
1,2-Dichloropropane	ND		6180	6900		ug/Kg	☼	112	80 - 130	10	25
1,3,5-Trimethylbenzene	1400		6180	8870		ug/Kg	☼	121	75 - 140	7	25
1,3-Dichlorobenzene	ND		6180	6920		ug/Kg	☼	112	80 - 130	11	25
1,3-Dichloropropane	ND		6180	6550		ug/Kg	☼	106	75 - 130	10	25
1,4-Dichlorobenzene	ND		6180	6900		ug/Kg	☼	112	80 - 120	9	25
2,2-Dichloropropane	ND		6180	6870		ug/Kg	☼	111	70 - 130	14	25
2-Chlorotoluene	ND		6180	6860		ug/Kg	☼	111	80 - 125	10	25
4-Chlorotoluene	ND		6180	7350		ug/Kg	☼	119	70 - 130	9	25
p-Isopropyltoluene	ND		6180	7870		ug/Kg	☼	127	70 - 140	10	25
Acetone	ND		30900	33500		ug/Kg	☼	108	60 - 145	12	25
Benzene	ND		6180	6620		ug/Kg	☼	107	80 - 125	10	25
Bromobenzene	ND		6180	7470		ug/Kg	☼	121	70 - 130	8	25
Bromoform	ND		6180	5470		ug/Kg	☼	89	70 - 130	5	25
Bromomethane	ND		6180	6670		ug/Kg	☼	108	70 - 130	18	25
Carbon tetrachloride	ND		6180	5810		ug/Kg	☼	94	70 - 125	9	25
Chlorobenzene	ND		6180	6650		ug/Kg	☼	108	70 - 130	11	25
Bromochloromethane	ND		6180	6850		ug/Kg	☼	111	80 - 130	10	25
Dibromochloromethane	ND		6180	5940		ug/Kg	☼	96	80 - 130	5	25
Chloroethane	ND		6180	6870		ug/Kg	☼	111	70 - 130	10	25
Chloroform	ND		6180	6780		ug/Kg	☼	110	80 - 125	10	25
Chloromethane	ND		6180	6570		ug/Kg	☼	106	40 - 150	9	25
cis-1,2-Dichloroethene	ND		6180	6640		ug/Kg	☼	108	75 - 120	9	25
cis-1,3-Dichloropropene	ND		6180	6780		ug/Kg	☼	110	80 - 130	13	25
Dibromomethane	ND		6180	6730		ug/Kg	☼	109	75 - 125	9	25
Bromodichloromethane	ND		6180	6350		ug/Kg	☼	103	80 - 135	8	25
Dichlorodifluoromethane	ND		6180	6550		ug/Kg	☼	106	65 - 135	7	25
Ethylbenzene	320		6180	7310		ug/Kg	☼	113	80 - 125	8	25
1,2-Dibromoethane	ND		6180	7060		ug/Kg	☼	114	80 - 130	10	25
Hexachlorobutadiene	ND		6180	7480		ug/Kg	☼	121	45 - 150	11	25
Isopropylbenzene	ND		6180	7370		ug/Kg	☼	119	80 - 130	9	25
Methyl tert-butyl ether	ND		6180	6820		ug/Kg	☼	111	70 - 130	14	25
Methylene Chloride	ND		6180	6670		ug/Kg	☼	108	70 - 120	10	25
m,p-Xylene	2000		12400	16300		ug/Kg	☼	116	75 - 135	7	25
Naphthalene	5300		6180	14400	F	ug/Kg	☼	146	70 - 130	8	25
n-Butylbenzene	ND		6180	8100		ug/Kg	☼	131	70 - 140	2	25
N-Propylbenzene	440		6180	7780		ug/Kg	☼	119	70 - 130	8	25
o-Xylene	1100		6180	8420		ug/Kg	☼	119	70 - 130	7	25
sec-Butylbenzene	390		6180	7550		ug/Kg	☼	116	70 - 135	8	25
Styrene	ND		6180	7310		ug/Kg	☼	118	85 - 120	10	25
tert-Butylbenzene	ND		6180	7160		ug/Kg	☼	116	80 - 135	10	25
Tetrachloroethene	ND		6180	6590		ug/Kg	☼	107	75 - 140	12	25
Toluene	ND		6180	6670		ug/Kg	☼	108	70 - 130	11	25
trans-1,2-Dichloroethene	ND		6180	6860		ug/Kg	☼	111	70 - 130	9	25
trans-1,3-Dichloropropene	ND		6180	6130		ug/Kg	☼	99	70 - 145	12	25
Trichloroethene	ND		6180	6730		ug/Kg	☼	109	80 - 125	7	25
Trichlorofluoromethane	ND		6180	6670		ug/Kg	☼	108	70 - 130	11	25
Vinyl chloride	ND		6180	2300	F	ug/Kg	☼	37	10 - 140	58	25
2-Butanone (MEK)	ND		30900	34300		ug/Kg	☼	111	70 - 145	14	25
2-Hexanone	ND		30900	37500		ug/Kg	☼	121	65 - 150	15	25
4-Methyl-2-pentanone (MIBK)	ND		30900	36900		ug/Kg	☼	119	60 - 150	13	25

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 250-4669-B-1-B MSD

Matrix: Solid

Analysis Batch: 7511

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7476

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Carbon disulfide	ND		12400	13300		ug/Kg	☼	108	70 - 130	17	25

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		75 - 125
4-Bromofluorobenzene (Surr)	110		75 - 125
Dibromofluoromethane (Surr)	109		75 - 125
Toluene-d8 (Surr)	108		75 - 125

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 250-7514/1-A

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7514

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		3700		ug/Kg		07/12/12 14:16	07/13/12 09:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	104		50 - 150	07/12/12 14:16	07/13/12 09:17	1

Lab Sample ID: LCS 250-7514/2-A

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7514

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Hydrocarbons	23800	28300		ug/Kg		119	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	113		50 - 150

Lab Sample ID: LCSD 250-7514/3-A

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7514

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline Range Hydrocarbons	24300	27700		ug/Kg		114	70 - 130	2	40

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	111		50 - 150

Lab Sample ID: 250-4655-A-1-B MS

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Hydrocarbons	99000		36200	136000		ug/Kg	☼	102	65 - 130

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 250-4655-A-1-B MS

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7514

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	99		50 - 150

Lab Sample ID: 250-4655-A-2-B DU

Matrix: Solid

Analysis Batch: 7558

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 7514

	Sample	Sample		DU	DU				RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D		RPD
Gasoline Range Hydrocarbons	73000			46100	F	ug/Kg	✱		45
									40
Surrogate	%Recovery	Qualifier	Limits						
a,a,a-Trifluorotoluene (fid)	99		50 - 150						

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 250-7607/1-A

Matrix: Solid

Analysis Batch: 7669

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7607

	MB	MB								
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil	Fac
DRO (C10-C25)	ND		12		mg/Kg		07/16/12 10:06	07/16/12 19:14	1	
RRO (nC25-nC36)	ND		25		mg/Kg		07/16/12 10:06	07/16/12 19:14	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil	Fac
1-Chlorooctadecane	91		50 - 150				07/16/12 10:06	07/16/12 19:14	1	

Lab Sample ID: LCS 250-7607/2-A

Matrix: Solid

Analysis Batch: 7669

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7607

	Spike	LCS	LCS					%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits		
DRO (C10-C25)	124	103		mg/Kg		83	50 - 150		
RRO (nC25-nC36)	74.6	57.4		mg/Kg		77	50 - 150		
Surrogate	%Recovery	Qualifier	Limits						
1-Chlorooctadecane	78		50 - 150						

Lab Sample ID: 250-4791-1 DU

Matrix: Solid

Analysis Batch: 7669

Client Sample ID: S-1-1

Prep Type: Total/NA

Prep Batch: 7607

	Sample	Sample		DU	DU				RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D		RPD
DRO (C10-C25)	530			1030	F	mg/Kg	✱		64
RRO (nC25-nC36)	190			265		mg/Kg	✱		30
									40
Surrogate	%Recovery	Qualifier	Limits						
1-Chlorooctadecane	74		50 - 150						

QC Sample Results

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 250-7564/1-A
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7564

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.49		mg/Kg		07/13/12 13:04	07/13/12 21:25	10

Lab Sample ID: LCS 250-7564/2-A
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	48.8	55.8		mg/Kg		114	80 - 120

Lab Sample ID: 250-4791-1 MS
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: S-1-1
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	14		58.1	82.8		mg/Kg	☼	119	75 - 125

Lab Sample ID: 250-4791-1 MS
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: S-1-1
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	14		58.1	81.4		mg/Kg	☼	117	75 - 125

Lab Sample ID: 250-4791-1 MSD
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: S-1-1
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	14		57.8	76.4		mg/Kg	☼	109	75 - 125	8	40

Lab Sample ID: 250-4791-1 MSD
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: S-1-1
Prep Type: Total/NA
Prep Batch: 7564

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	14		57.8	81.9		mg/Kg	☼	118	75 - 125	1	40

Method: D2216-80 - Percent Dry Weight (Solids) per ASTM D2216-80

Lab Sample ID: 250-4791-4 DU
Matrix: Solid
Analysis Batch: 7578

Client Sample ID: S-4-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	17		15		%		16	20
Percent Solids	83		85		%		3	20

QC Association Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

GC/MS VOA

Prep Batch: 7476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4669-B-1-A MS	Matrix Spike	Total/NA	Solid	5030B	
250-4669-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5030B	
250-4791-1	S-1-1	Total/NA	Solid	5030B	
250-4791-2	S-2-2	Total/NA	Solid	5030B	
250-4791-3	S-3-3	Total/NA	Solid	5030B	
250-4791-4	S-4-4	Total/NA	Solid	5030B	
LCS 250-7476/2-A	Lab Control Sample	Total/NA	Solid	5030B	
MB 250-7476/1-A	Method Blank	Total/NA	Solid	5030B	

Analysis Batch: 7511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4669-B-1-A MS	Matrix Spike	Total/NA	Solid	8260B	7476
250-4669-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	7476
LCS 250-7476/2-A	Lab Control Sample	Total/NA	Solid	8260B	7476
MB 250-7476/1-A	Method Blank	Total/NA	Solid	8260B	7476

Analysis Batch: 7557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	8260B	7476
250-4791-2	S-2-2	Total/NA	Solid	8260B	7476
250-4791-3	S-3-3	Total/NA	Solid	8260B	7476
250-4791-4	S-4-4	Total/NA	Solid	8260B	7476

GC VOA

Prep Batch: 7514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4655-A-1-B MS	Matrix Spike	Total/NA	Solid	5030B	
250-4655-A-2-B DU	Duplicate	Total/NA	Solid	5030B	
250-4791-1	S-1-1	Total/NA	Solid	5030B	
250-4791-2	S-2-2	Total/NA	Solid	5030B	
250-4791-3	S-3-3	Total/NA	Solid	5030B	
250-4791-4	S-4-4	Total/NA	Solid	5030B	
LCS 250-7514/2-A	Lab Control Sample	Total/NA	Solid	5030B	
LCSD 250-7514/3-A	Lab Control Sample Dup	Total/NA	Solid	5030B	
MB 250-7514/1-A	Method Blank	Total/NA	Solid	5030B	

Analysis Batch: 7558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4655-A-1-B MS	Matrix Spike	Total/NA	Solid	NWTPH-Gx	7514
250-4655-A-2-B DU	Duplicate	Total/NA	Solid	NWTPH-Gx	7514
250-4791-1	S-1-1	Total/NA	Solid	NWTPH-Gx	7514
250-4791-2	S-2-2	Total/NA	Solid	NWTPH-Gx	7514
250-4791-3	S-3-3	Total/NA	Solid	NWTPH-Gx	7514
250-4791-4	S-4-4	Total/NA	Solid	NWTPH-Gx	7514
LCS 250-7514/2-A	Lab Control Sample	Total/NA	Solid	NWTPH-Gx	7514
LCSD 250-7514/3-A	Lab Control Sample Dup	Total/NA	Solid	NWTPH-Gx	7514
MB 250-7514/1-A	Method Blank	Total/NA	Solid	NWTPH-Gx	7514

QC Association Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

GC Semi VOA

Prep Batch: 7607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	3550B	
250-4791-1 DU	S-1-1	Total/NA	Solid	3550B	
250-4791-2	S-2-2	Total/NA	Solid	3550B	
250-4791-3	S-3-3	Total/NA	Solid	3550B	
250-4791-4	S-4-4	Total/NA	Solid	3550B	
LCS 250-7607/2-A	Lab Control Sample	Total/NA	Solid	3550B	
MB 250-7607/1-A	Method Blank	Total/NA	Solid	3550B	

Analysis Batch: 7669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	NWTPH-Dx	7607
250-4791-1 DU	S-1-1	Total/NA	Solid	NWTPH-Dx	7607
250-4791-2	S-2-2	Total/NA	Solid	NWTPH-Dx	7607
250-4791-3	S-3-3	Total/NA	Solid	NWTPH-Dx	7607
250-4791-4	S-4-4	Total/NA	Solid	NWTPH-Dx	7607
LCS 250-7607/2-A	Lab Control Sample	Total/NA	Solid	NWTPH-Dx	7607
MB 250-7607/1-A	Method Blank	Total/NA	Solid	NWTPH-Dx	7607

Metals

Prep Batch: 7564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	3050B	
250-4791-1 MS	S-1-1	Total/NA	Solid	3050B	
250-4791-1 MSD	S-1-1	Total/NA	Solid	3050B	
250-4791-2	S-2-2	Total/NA	Solid	3050B	
250-4791-3	S-3-3	Total/NA	Solid	3050B	
250-4791-4	S-4-4	Total/NA	Solid	3050B	
LCS 250-7564/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 250-7564/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 7586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	6020	7564
250-4791-1 MS	S-1-1	Total/NA	Solid	6020	7564
250-4791-1 MS	S-1-1	Total/NA	Solid	6020	7564
250-4791-1 MSD	S-1-1	Total/NA	Solid	6020	7564
250-4791-1 MSD	S-1-1	Total/NA	Solid	6020	7564
250-4791-2	S-2-2	Total/NA	Solid	6020	7564
250-4791-3	S-3-3	Total/NA	Solid	6020	7564
250-4791-4	S-4-4	Total/NA	Solid	6020	7564
LCS 250-7564/2-A	Lab Control Sample	Total/NA	Solid	6020	7564
MB 250-7564/1-A	Method Blank	Total/NA	Solid	6020	7564

General Chemistry

Analysis Batch: 7578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-1	S-1-1	Total/NA	Solid	D2216-80	
250-4791-2	S-2-2	Total/NA	Solid	D2216-80	
250-4791-3	S-3-3	Total/NA	Solid	D2216-80	
250-4791-4	S-4-4	Total/NA	Solid	D2216-80	

QC Association Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

General Chemistry (Continued)

Analysis Batch: 7578 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-4791-4 DU	S-4-4	Total/NA	Solid	D2216-80	

Certification Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Portland	Alaska	State Program	10	OR00040
TestAmerica Portland	Alaska (UST)	State Program	10	UST-012
TestAmerica Portland	California	State Program	9	2597
TestAmerica Portland	Oregon	NELAC	10	OR100021
TestAmerica Portland	USDA	Federal		P330-11-00092
TestAmerica Portland	Washington	State Program	10	C586

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method Summary

Client: Hart Crowser, Inc.
Project/Site: Paramount Petroleum

TestAmerica Job ID: 250-4791-1
SDG: 17203-48

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PRT
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL PRT
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL PRT
6020	Metals (ICP/MS)	SW846	TAL PRT
D2216-80	Percent Dry Weight (Solids) per ASTM D2216-80	ASTM	TAL PRT

Protocol References:

ASTM = ASTM International

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PRT = TestAmerica Portland, 9405 SW Nimbus Ave., Beaverton, OR 97008, TEL (503)906-9200

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244
11922 E. First Ave, Spokane, WA 99206-5302
9405 SW Nimbus Ave, Beaverton, OR 97008-7145
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

Loc: 250 4-9290
4791 6-9210
3-9210

CHAIN OF CUSTODY REPORT

Work Order

CLIENT: <i>Hart Crowder</i>		INVOICE TO: <i>Chris Martin</i> <i>chris.martin@hartcrowder.com</i>		TURNAROUND REQUEST in Business Days * Organic & Inorganic Analyses 10 7 5 4 3 2 1 <1 STD. Petroleum Hydrocarbon Analyses 5 4 3 2 1 <1 STD. OTHER Specify: * Turnaround Requests less than standard may incur Rush Charges.					
REPORT TO: <i>Chris Martin</i> ADDRESS: <i>8910 SW Gemini Drive Beaverton, OR, 97008</i> PHONE: <i>503-620-7284</i> FAX: <i>503-620-6918</i>		P.O. NUMBER: <i>17203-48</i>							
PROJECT NAME: <i>Paramount Petroleum</i>		PRESERVATIVE							
PROJECT NUMBER: <i>17203-48</i>		REQUESTED ANALYSES							
SAMPLED BY: <i>Jason R. Miles</i>									
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NWTPH-DA	NWTPH-GB	VOL 5 EPA SWB	Lead	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1 <i>S-1-1</i>	<i>7/12/12 / 0805</i>	X	X	X	X	<i>S</i>	<i>3</i>		
2 <i>S-2-2</i>	<i>1 / 0817</i>	X	X	X	X	<i>S</i>	<i>2</i>		
3 <i>S-3-3</i>	<i>1 / 0824</i>	X	X	X	X	<i>S</i>	<i>3</i>		
4 <i>S-4-4</i>	<i>1 / 0832</i>	X	X	X	X	<i>S</i>	<i>2</i>		
5									
6									
7									
8									
9									
10									
RELEASED BY: <i>Jason R. Miles</i>	FIRM: <i>Hart Crowder</i>	DATE: <i>7/12/12</i>	TIME: <i>1515</i>	RECEIVED BY: <i>Phil Smith Sr</i>	FIRM: <i>TAP</i>	DATE: <i>7/12/12</i>	TIME: <i>1515</i>		
PRINT NAME:				PRINT NAME:					
RELEASED BY:				RECEIVED BY:					
PRINT NAME:				PRINT NAME:					
ADDITIONAL REMARKS:				TEMP: <i>9.5</i>				PAGE OF	

Login Sample Receipt Checklist

Client: Hart Crowser, Inc.

Job Number: 250-4791-1

SDG Number: 17203-48

Login Number: 4791

List Number: 1

List Source: TestAmerica Portland

Creator: Svabik-Seror, Philip

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

1281

Spill Con

Paramount
Petroleum

Naphtha Spill

June 28, 2012

Mr. David Broderick
Paramount Petroleum Willbridge Facility
5501 NW Front Avenue
Portland, Oregon 97210

**Re: Ex-Situ Soil Pile Sampling
Willbridge Facility
Portland, Oregon
17203-48**

Dear Mr. Broderick:

This letter presents a sampling plan for soil treatment effectiveness at the Paramount Petroleum Willbridge Facility in Portland, Oregon. During cleanup efforts near tank T-113, approximately 100 cubic yards of soil were excavated for treatment. The soil was placed in a lined and bermed treatment cell fitted with vapor extraction piping. Five PVC vapor extraction pipes are placed horizontally and evenly spaced throughout the pile. Two samples were collected from the soil pile on July 27, 2011. The samples were analyzed for gasoline and diesel concentrations using the Northwest Methods for total petroleum hydrocarbons, NWTPH-Gx and NWTPH-Dx, respectively. Benzene, toluene, ethylbenzene, and total xylenes (BTEX), and lead were analyzed using a leaching method to determine the constituents' potential effects on groundwater. In July 2012 the soil will have been treated for one year, as such, samples should be collected to determine the effectiveness of treatment.

SAMPLING PLAN

To assess the concentration of gasoline, diesel, BTEX, and lead in the excavated soil, two composite soil samples will be collected from the treatment cell in July 2012. A stainless steel hand auger will be used to collect continuous vertical soil samples from the surface to the bottom of the soil pile. The soil from each location will be homogenized in a stainless steel bowl and quickly packed into two laboratory supplied soil jars for analysis leaving little or no headspace. Staff will determine the sample locations in the field with their decisions based on representing the entire soil pile, and avoiding treatment cell piping within the pile. Two soil samples will be analyzed for:



- Gasoline-range hydrocarbons by NWTPH-Gx;
- Diesel-range hydrocarbons by NWTPH-Dx;
- TCLP BTEX by EPA Method 1311/8260B; and
- TCLP Lead by EPA Method 1311/6020.

Gx

no/retention

or x20

We appreciate this opportunity to work with you on this project. If we may provide any additional information or clarification, please feel free to call me at 971-327-9112.

Sincerely,

4

HART CROWSER, INC.

CHRISTOPHER W. MARTIN, P.E.
Sr. Staff Engineer

4' ball pile

depth 7



A subsidiary of
ALON USA

5501 NW Front Avenue
Portland, OR 97210

1281
Spill Con
Paramount
Petroleum
Naphtha Spill

May 7, 2012

Michael Greenburg
Oregon DEQ State On-Scene Coordinator
2020 SW 4th Ave., Suite 400
Portland, OR 97201-4987

RE: Paramount Petroleum Naphtha Leak

Dear Mr. Greenburg,

Paramount has prepared this summary to update the ODEQ of the progress in cleaning up the naphtha release from July 2011 to present, and to provide a future work plan. Paramount's naphtha removal system has been operating for about 6 months now. As a result of the aggressive manner in which Paramount has addressed the leak, mass balance calculations estimate that 89% of the 19,150 gallons of naphtha has been removed from the subsurface.

The system consists of 90' of soil vapor extraction (SVE) lines down gradient of the leak, SVE lines in the soil treatment cell, and 8 recovery sumps. The multi-phase removal system is designed to remove free-phase naphtha and naphtha dissolved in groundwater from the sumps, as well as vapors from the SVE lines. A diagram of the system is attached. The system became operational on October 27th, 2011. During the three months between discovery of the leak and the liquid-ring pump system going online, the naphtha in the 8 sumps were vacuumed out manually three days a week. Figure 1 shows the estimated naphtha (liquid and vapor phase) removed each month and Figure 2 shows the average product layer in the 8 sumps.

Currently the air discharge from the system is being treated with a catalytic oxidizer. Paramount has followed the ODEQ's "Guidance for Managing Hazardous Substance Air Discharges From Remedial Systems," 2006. At this point of the cleanup Paramount plans to continue operating the removal system but to suspend the use of the catalytic oxidizer. This is within the guidelines set forth in the Guidance Document.

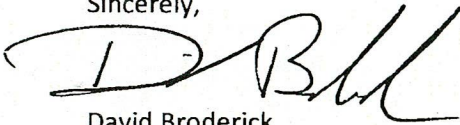
The Guidance Document sets two standards to determine if a system should have air discharge treatment. A system must demonstrate that it does not present an unacceptable risk by: the results of a dispersion model indicating volatile organic compounds (VOC) levels that do not exceed the values in Table 2.3 of the Guidance Document, or by meeting all five of the

"Screening Criteria for Petroleum Remediation Systems." Paramount's consultant, Hart Crowser, has run the SCREEN3 air dispersion model with the most recent data collected, and the system does not exceed the values in Table 2.3 of the Guidance Document. The data over the past six months also indicates a steady decline in concentrations, and Paramount anticipates continued concentration declines in the future. Table 1 presents the inputs Hart Crowser used with the model and Table 2 presents the outputs from the model.

Paramount's plan is to continue running the system, without the catalytic oxidizer, until the recoverable free-phase naphtha floating on the groundwater has been removed from the sumps. And, until the groundwater and soil (around the release and the soil treatment cell) concentrations are below acceptable Risk-Based Concentrations.

If you have any questions or comments please let us know, we look forward to completing this cleanup.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Broderick', with a large, stylized 'D' and 'B'.

David Broderick

Attachments

Figure 1: Estimated Gallons of Naphtha Recovered by Month

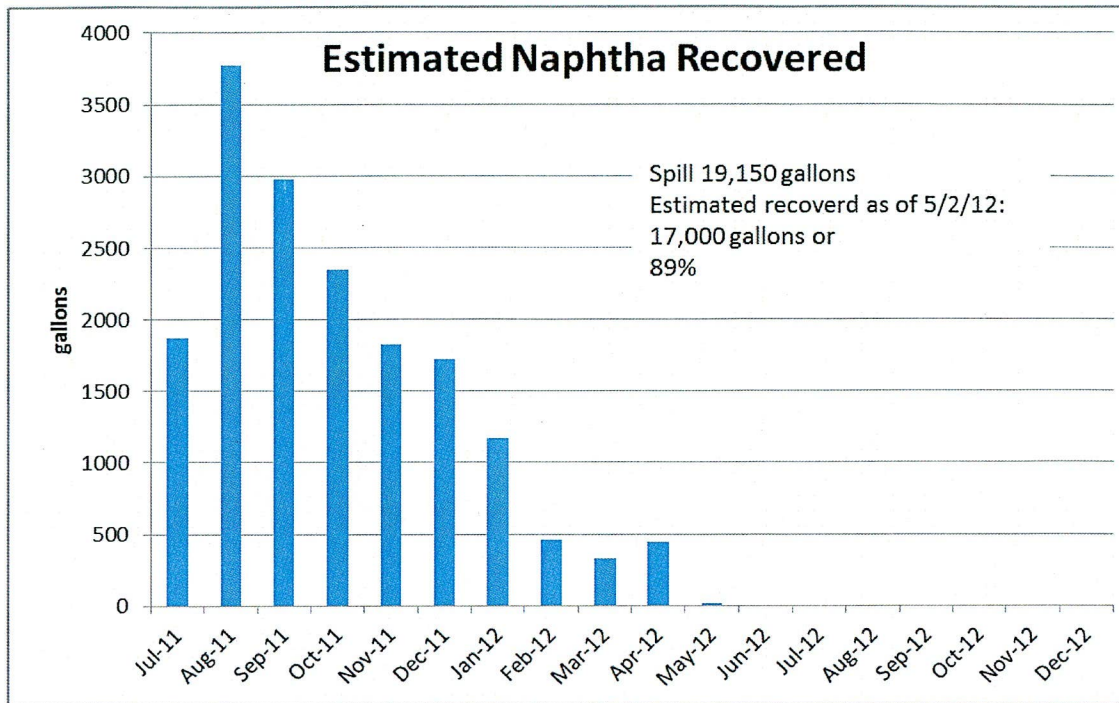


Figure 2: Thickness of Naphtha in Sumps (Average of All 8 Sumps)

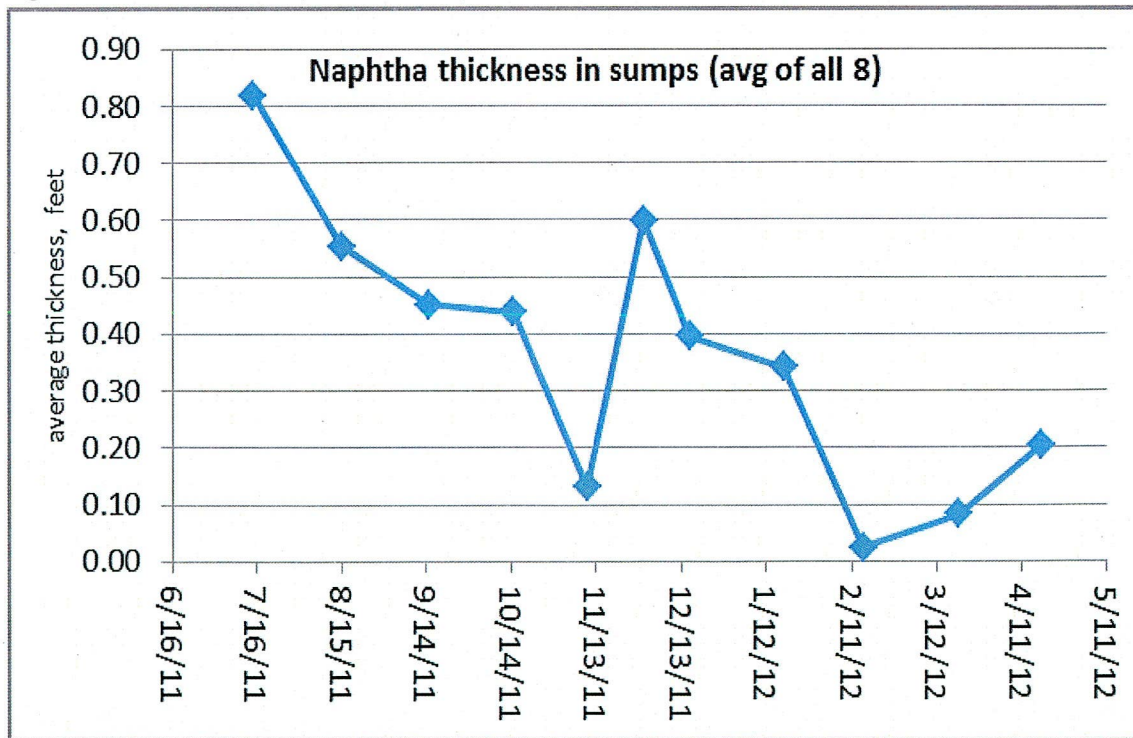


Table 1: SCREEN3 Input Parameters

Description	Input Values	Units
Source Type	P	point source
Emission Rate	0.275	grams/second
Stack Height	4.27	meters
Stack Diameter	0.152	meters
Flow Rate	VF=156.2	ACFM
Stack Discharge Temperature	321	Kelvin
Ambient Temperature	293	Kelvin
Receptor Height	2	meters
Urban Setting	U	Urban
Consider Downwash	Y	Yes
Building Height	12.2	meters
Building Minimum Horizontal Dimension	37	meters
Building Maximum Horizontal Dimension	37	meters
Use Complex Terrain Above Stack Height	N	No
Simple Terrain Above Stack Base	Y	Yes
All Stability Classes and Wind Speeds	1	Unitless
Use Automated Distance Array	N	No
Use Discrete Distances	Y	Yes
Enter Terrain Height Above Stack Base	0	meters
Enter Distance from Source	50	meters
Enter Distance from Source	100	meters
Enter Distance from Source	150	meters
Enter Distance from Source	200	meters
Enter Distance from Source	250	meters
Enter Distance from Source	300	meters
Enter Distance from Source	350	meters
Enter Distance from Source	400	meters

Notes:

Emission rate = 3,734,150 ug/m³ TPH-Gx @ 156.2 ACFM = 0.275 grams/sec TPH-Gx

Measured flow rate of 150 CFM at a pressure of 16.5 inches of water is about 156.2 ACFM

Stack height = 14 feet or 4.27 meters

Stack diameter = 6 inches or 0.152 meters

ACFM = actual cubic feet per minute

Stack Discharge Temperature 118 Fahrenheit = 321 Kelvin

Ambient temperature default (293 K) was used

Building height is 40 feet or 12.2 meters

Building dimension = 120 feet diameter tank is approximately 37 meters

Model assumes 5 year operation and exposure for occupational workers and child residents

Nearest residence is 1160 feet or 353 meters

Nearest occupational building is 370 feet or 113 meters

Table 2 : SCREEN3 Output Results

Distance from Discharge Point (meters)	TPH-Gx Concentration (ug/m3)
50	428.0
100	283.1
150	188.6
200	137.1
250	104.9
300	83.3
350	68.1
400	57.0
Permissible Concentration Increases	
TPH-Gasoline Range Noncarcinogen for Occupational Workers	2,600
TPH-Gasoline Range Noncarcinogen for Residential Child Receptor	340

Notes:

Closest building with Occupational Workers is located about 113 meters from the discharge point.

Closest residence is located about 1160 feet or 354 meters from the discharge point.

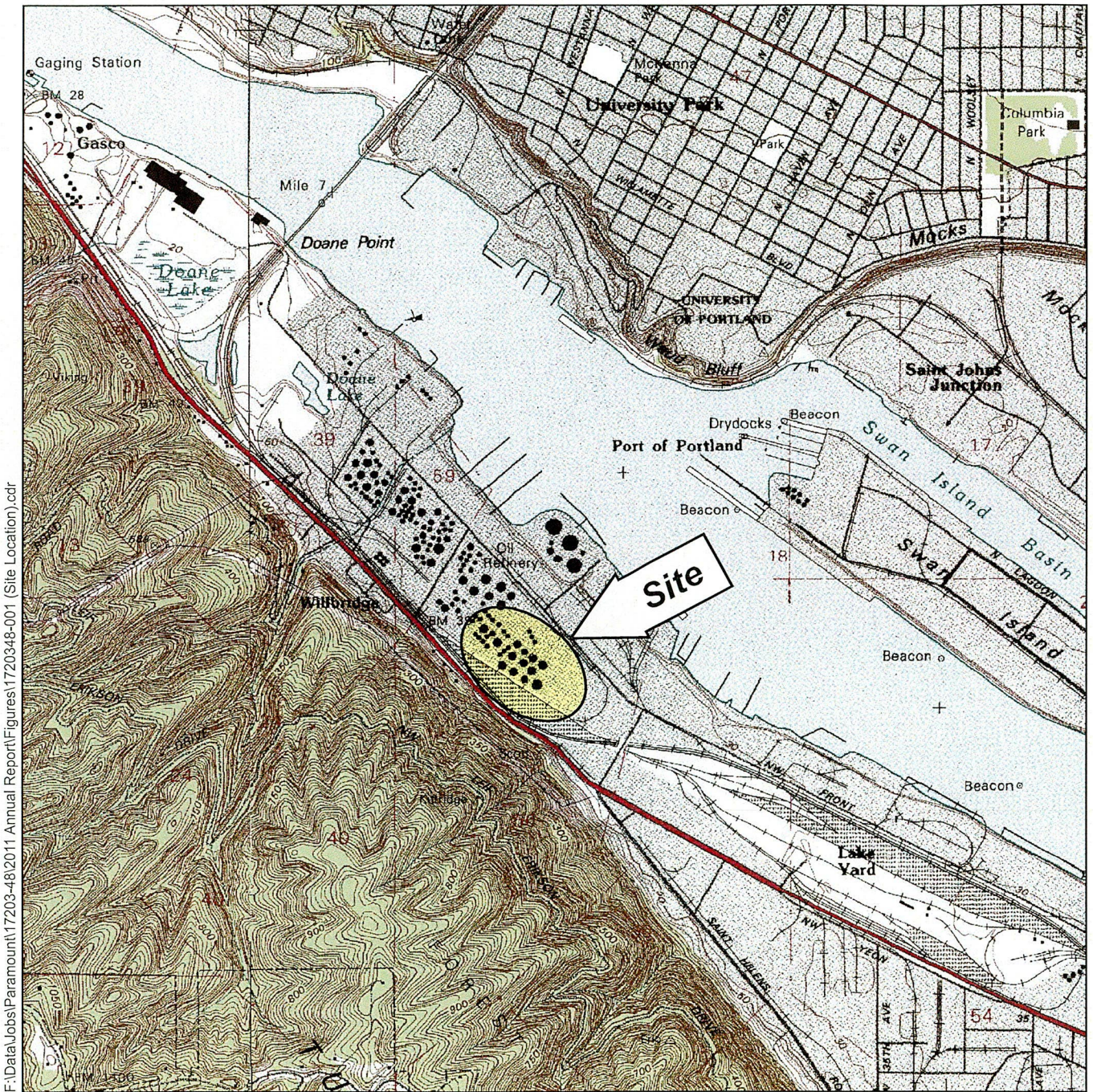
Simple terrain maximum concentration of 428.0 ug/m³ at 50 meters from discharge point.

Building cavity maximum concentration of 406.1 ug/m³ at 37 meters from discharge point.

Site Location Map

Paramount Willbridge Asphalt Plant

Portland, Oregon



F:\Data\Jobs\Paramount\17203-48\2011 Annual Report\Figures\1720348-001 (Site Location).cdr

Note: Base map prepared from the USGS 7.5-minute quadrangle of Linnton and Portland, Oregon, dated 1990.



0 2,000 4,000

Scale in Feet
Contour Interval 10 Feet



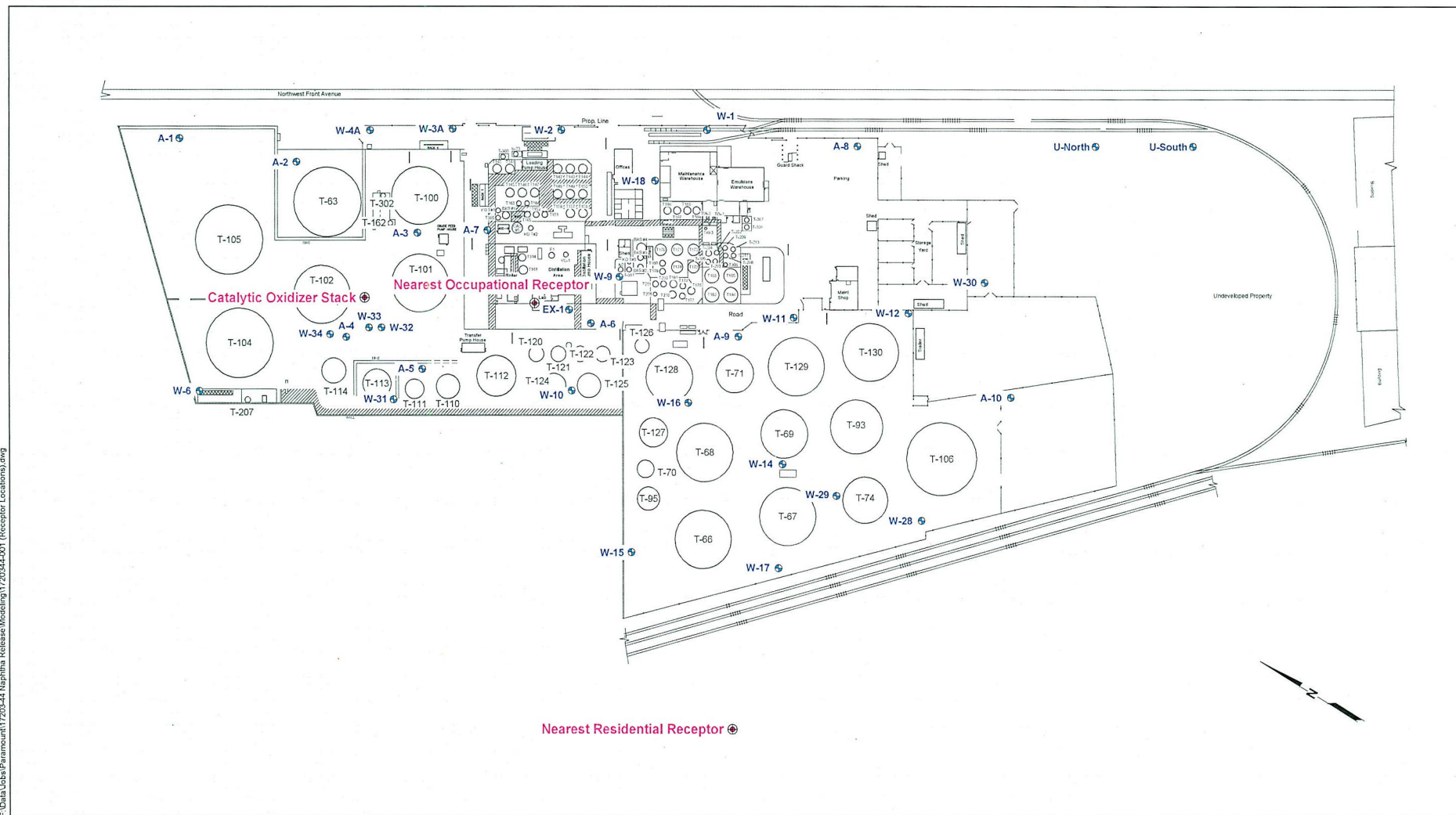
HARTCROWSER

17203-48

4/12

Figure 1

Occupational and Residential Receptor Locations
Paramount Willbridge Asphalt Plant
Portland, Oregon



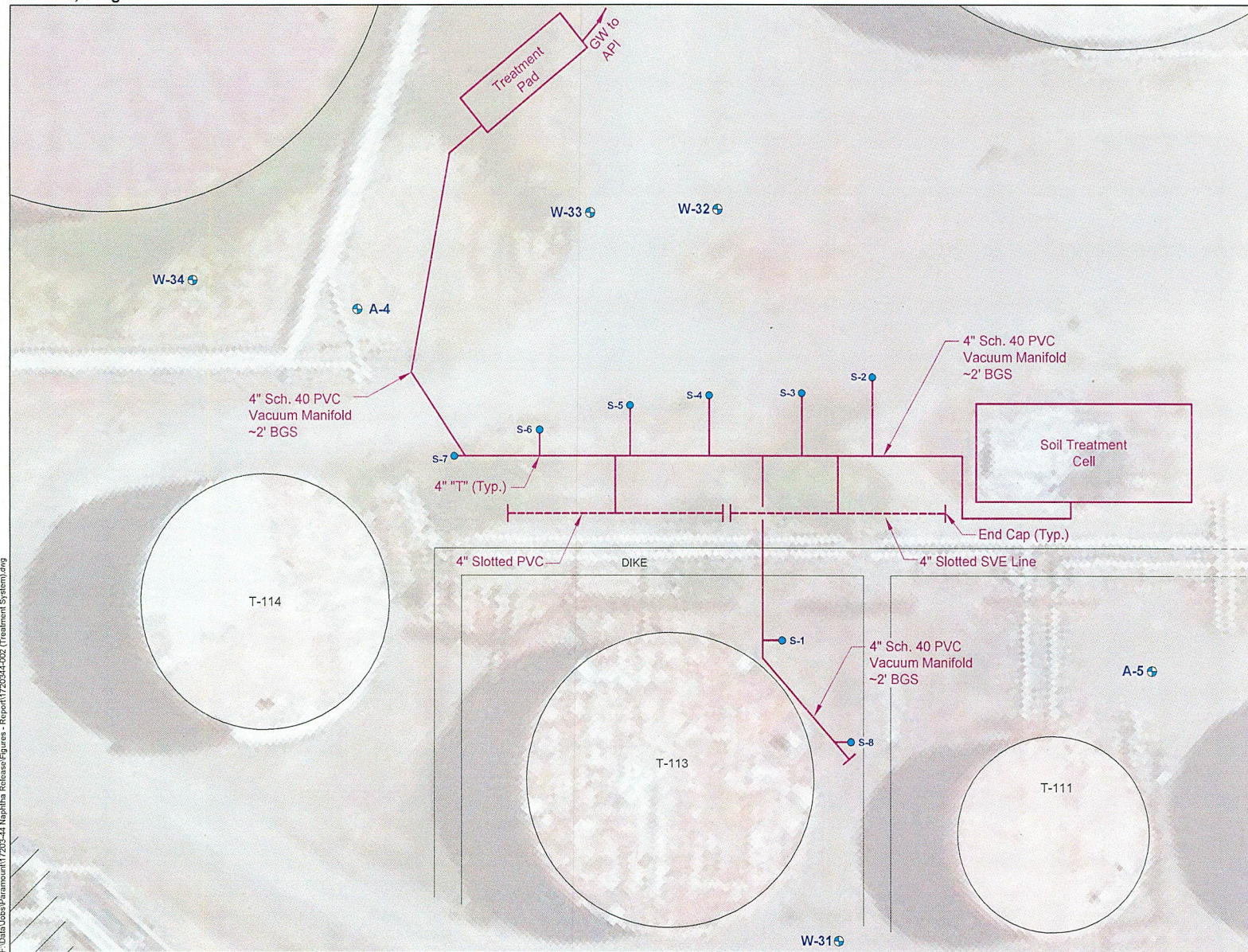
Source: Base map prepared from a Paramount Petroleum, Inc. Site Plan, dated 9/24/99.

A-1 Groundwater Monitoring Well Location and Number

0 200 400
 Scale in Feet

HARTCROWSER
 17203-44 5/12
 Figure 2

Treatment System
Paramount Willbridge Asphalt Plant
Portland, Oregon



- S-1 ● Sump Location and Number
- A-3 ● Groundwater Monitoring Well Location and Number

Source: Base map prepared from a Paramount Petroleum, Inc. Site Plan, dated 9/24/99.

0 20 40
 Scale in Feet

HARTCROWSER
 17203-44 12/11
 Figure 2



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ALON USA

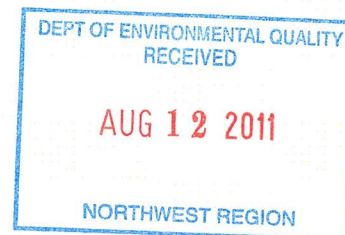
5501 NW Front Avenue
Portland, OR 97210

1281

Spill Con
Paramount
Petroleum
Spill

August 11, 2011

Mike Greenburg
Oregon DEQ State On-Scene Coordinator
2020 SW 4th Ave., Suite 400
Portland, OR 97201-4987



RE: Paramount Petroleum Naphtha Leak

Dear Mr. Greenburg,

This letter report is to serve as Paramount Petroleum Corporation's Spill/Release Report for Oregon DEQ. Paramount's Willbridge Asphalt Plant had a naphtha leak at the facility located at 5501 NW Front Ave. Portland, OR 97210. The leak was reported to ORES, report number 2011-1718. The leak occurred in Paramount's Crude Tank Farm within the containment berm around Tank 113 (naphtha tank). Enclosed is a map of the area. The spill will not leave the facility and will not have an off-site impact. There are no residential areas adjacent to the location. The site is surrounded by a security fence and the gate is manned by a guard 24 hours a day. There is no threat to public safety.

Initially, Paramount believed that the leak occurred on July 18, 2011, but after further investigation and review of tank levels in Tank 113 it was evident that the leak began on the afternoon of July 5th. The release was discovered and stopped on the morning of July 18th at approximately 0700. The release was reported to ORES and NRC. Based on the decrease in the tank level, the release was estimated at approximately 19,000 gallons of naphtha. A copy of the MSDS is enclosed.

The leak occurred from an aboveground pipe that had corroded. The pipe was used to move naphtha from Tank 113 to the emulsified asphalt manufacturing area. The leak dripped down onto the soil and was immediately absorbed into the ground (sandy soil). The naphtha quickly reached the groundwater which is at about 7 feet bgs. The Willamette River is the closest surface water, located about 1250 feet from the spill. The spill has not reached any storm water drains or surface water.

When the leak was discovered the valve on Tank 113 was closed, removing the head pressure on the pipe. The pipe was then fitted with a temporary patch to stop the leak. Approximately 3 gallons of naphtha were removed from the surface below the leak. The pipe was then emptied of product and will not be returned to service.

On the morning that the leak was discovered, July 18th, initial emergency response and cleanup consisted of hand digging the area around the leak and putting the contaminated dirt into six drums with lids. By the next day it was evident that more soil was naphtha-



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5501 NW Front Avenue
Portland, OR 97210

impacted than initially thought. Paramount reported the leak to OERS and began investigating the leak. On Wednesday, July 20th, HartCrowser inspected Paramount's groundwater monitoring wells in the area for product and did not find any naphtha.

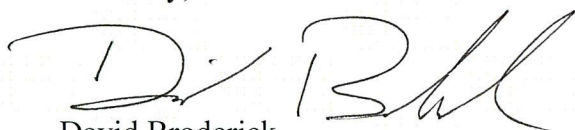
Thursday, July 21st, Paramount had a general contractor dig a test pit with a back hoe to determine the extent of the soil contamination. In the mean time, Paramount reconciled product inventories to determine how much product was missing. It was determined that about 450 barrels of product was missing and the test pits confirmed that it was in the soil. At that point we called OERS with the additional information and reported the spill to NRC. On Friday, July 22nd, a drilling contractor drilled 17 Geo-probes to determine the location of the plume of contaminated groundwater. The results of the drilling indicated that the spill had radiated about 30 feet from the location of the leak.

On Tuesday, July 26th, Terra Hydr installed four 6" recovery wells. On Wednesday, July 27th, Terra Hydr added 4 more recovery wells and a 90' Soil Vapor Extraction system. Terra Hydr is vacuuming product from the wells 3 days a week (Monday, Wednesday, and Friday) until a permanent vacuum pump can be installed. As of August 11, 2011, a total of 3600 gallons of product have been vacuumed from the wells.

No soil has been removed from the site. Soil from the installation of the recovery wells is being temporarily stored on-site on a visqueen secondary containment under covered.

Paramount will keep you updated on progress. Call me at 971-322-4214 (cell) or 503-273-4741 (office) if you have any questions.

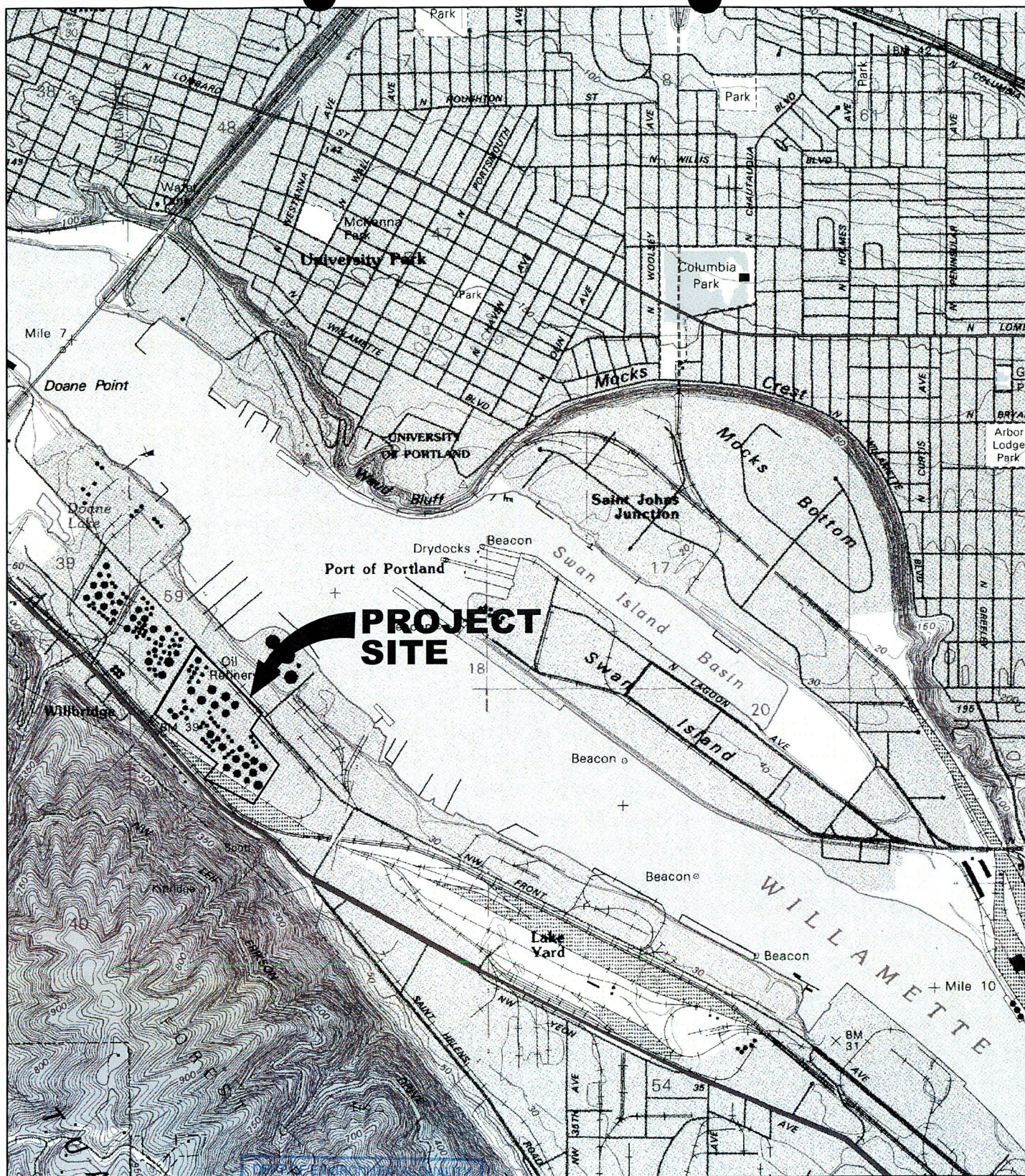
Sincerely,



David Broderick

Enclosures (2)

cc: Richard Franklin, EPA FOSC



0 1000 2000



SCALE IN FEET

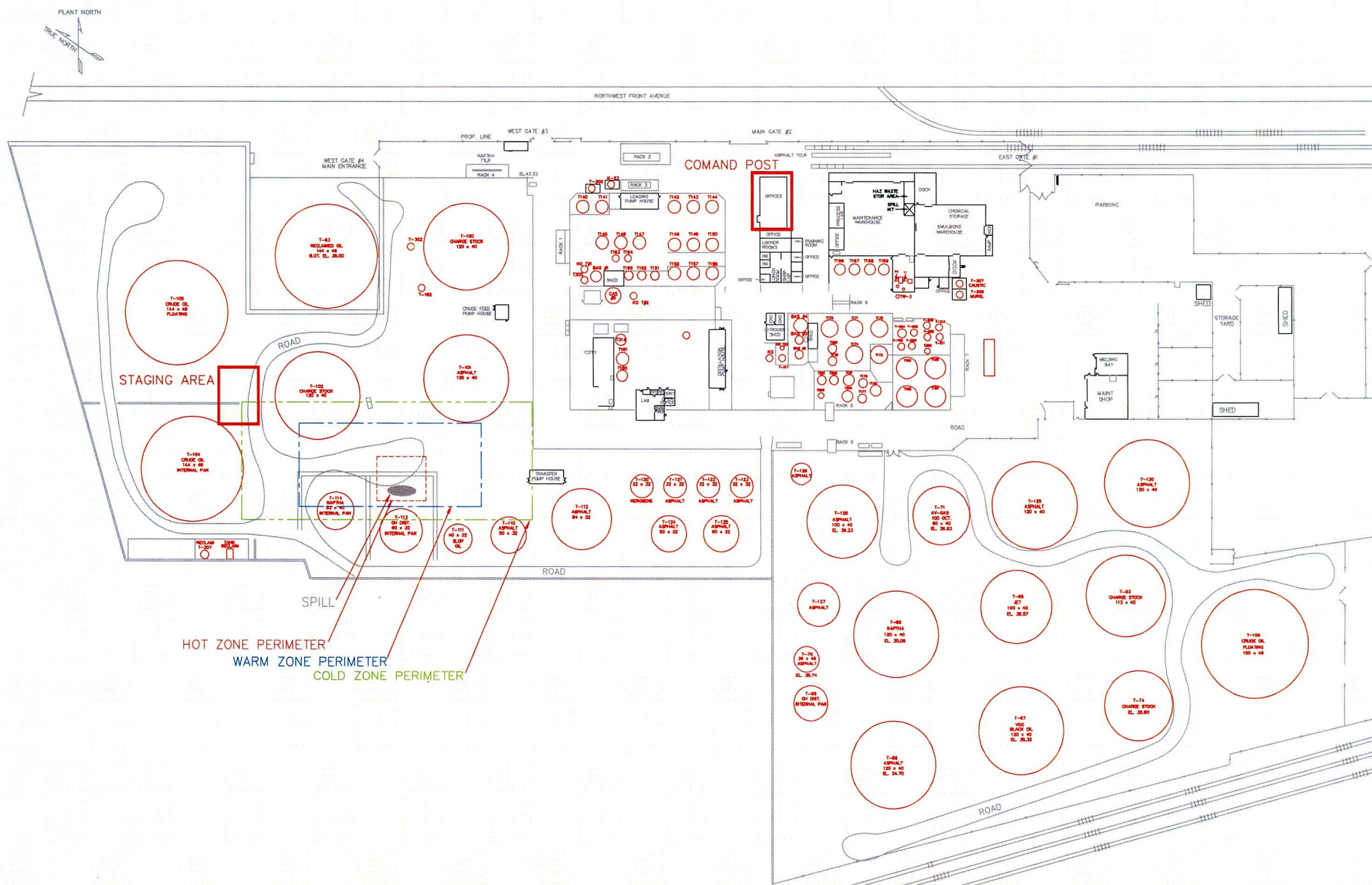
RECEIVED

AUG 12 2011

NORTHWEST REGION

Figure A-1
SITE LOCATION MAP
PARAMOUNT PETROLEUM
WILLBRIDGE REFINERY SPCC
PORTLAND, OREGON

CH2MHILL



MATERIAL SAFETY DATA SHEET

EMERGENCY TELEPHONE NUMBERS

CHEMTREC: 800-424-9300 (24 HOURS)
PARAMOUNT of OREGON: 503-273-4700

SECTION 1:	PRODUCT AND COMPANY IDENTIFICATION
------------	------------------------------------

PRODUCT: Naphtha

PRODUCT CODE: 11601, 11610, 11617, 11619

SYNONYMS: Unfinished Naphtha, Light Straight Run Untreated, Heavy Naphtha, Full Range Naphtha

MANUFACTURER: PARAMOUNT of OREGON
5501 N. W Front Avenue
Portland, OR 97210

MSDS DATE: March 7, 2005

SECTION 2:	COMPOSITION/INFORMATION ON INGREDIENTS
------------	--

HAZARDOUS COMPONENTS	% Weight	EXPOSURE GUIDELINE		
		Limits	Agency	Type
Naphtha, straight run full-range (CAS#64741-42-0)	< 100.00			
Benzene (CAS#71-43-2)	0.1 – 5.00	0.5 ppm	ACGIH	TWA
		2.5 ppm	ACGIH	STEL
		1 ppm	OSHA SRS	TWA
		5 ppm	OSHA SRS	STEL
		10 ppm	OSHA Z-2	TWA
		25 ppm	OSHA Z-2	Ceiling
Toluene (methylbenzene) (CAS#108-88-3)	1.00 – 6.00	50 ppm	ACGIH	TWA
		200 ppm	OSHA Z-2	
		300 ppm	OSHA Z-2	Ceiling
Xylene (CAS#1330-20-7)*	1.00 – 4.00	100 ppm	ACGIH	TWA
		150 ppm	ACGIH	STEL
		435 mg/m3	OSHA Z-1	TWA
*(contains o-, m-, & p- xylene isomers in varying amounts)				
Hydrogen Sulfide (CAS# 7783-06-4) (May be liberated if heated)	Varies (<1)	10 ppm	ACGIH	TWA
		15 ppm	ACGIH	STEL
		20 ppm	OSHA	CEIL
		50 ppm	OSHA	10 min. peak; once per 8 hour shift
		10 ppm	Cal OSHA	TWA
		15 ppm	Cal OSHA	STEL
		50 ppm	Cal OSHA	CEIL

Note: All the components of this material are on the Toxic Substances Control Act Chemical Substances Inventory.

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or you local agencies, for further information.

SECTION 3:	HAZARDS IDENTIFICATION
-------------------	-------------------------------

EMERGENCY OVERVIEW

- **FLAMMABLE LIQUID AND VAPOR**
- **HARMFUL OR FATAL IF SWALLOWED—MAY CAUSE LUNG DAMAGE IF SWALLOWED**
- **CAUSES EYE, SKIN, AND RESPIRATORY TRACT IRRITATION**
- **HARMFUL OR FATAL IF SWALLOWED—CAN ENTER LUNGS AND CAUSE DAMAGE**
- **SUSPECT CANCER HAZARD—MAY CAUSE CANCER**
- **TOXIC TO AQUATIC ORGANISMS**

< Physical Form: Liquid	NFPA HAZARD CLASS: Health:	1 (Slight)
< Appearance: Yellow	Flammability:	3 (High)
< Odor: Hydrocarbon	Reactivity:	0 (Least)

POTENTIAL HEALTH EFFECTS:

Eye: Contact with the eyes causes irritation.

Skin: Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Inhalation (Breathing): The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

Ingestion (Swallowing): Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach.

Signs and Symptoms: Eye irritation: symptoms may include pain, tearing, reddening, swelling and impaired vision. Skin irritation: symptoms may include pain, itching, discoloration, swelling, and blistering. Digestive tract irritation: symptoms may include pain, nausea, vomiting, and diarrhea.

Cancer: Prolonged or repeated exposure to this material may cause cancer. Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Risk depends on duration and level of exposure. See Section 11 for additional information.

Target Organs:

Developmental:

Other Comments:

Pre-Existing Medical Conditions:

SECTION 4:	FIRST AID MEASURES
-------------------	---------------------------

Eye: Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Inhalation (Breathing): Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention if breathing difficulties continue.

Ingestion (Swallowing): If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Note(s) to Physicians: Ingestion of this product or subsequent vomiting can result in aspiration of light hydrocarbon liquid which can cause pneumonitis.

SECTION 5:	FIRE FIGHTING MEASURES
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Flammable Properties:
Flash Point: $< -7^{\circ}\text{C}$ ($< 20^{\circ}\text{F}$) (Estimated)
OSHA Flammability Class: Flammable liquid
LEL/UEL: % by volume in air: 1.1 / 5.9 (Estimated)
Auto-ignition Temperature: 550°F (Estimated)

Unusual Fire & Explosion Hazards: Flammable Liquid. Sealed containers may rupture when heated.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO_2) to extinguish flames.

Fire Fighting Instructions: For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposure. Vapors may easily flow along surfaces to distant ignition source and flash back.

SECTION 6:	ACCIDENTAL RELEASE MEASURES
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Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Control/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Product Name: PARAMOUNT of OREGON Naphtha
Product Code(s): PARP 11601, 11610, 11617, 11619

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7: HANDLING AND STORAGE

Precautionary Measures: This material presents a fire hazard. Liquid quickly evaporates and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 15 °F.

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, "Flammable and Combustible Liquids," National Fire Protection Association (NFPA) 77 "Recommended Practice on Static Electricity," and/or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents."

General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner, or disposed of properly.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

General considerations: Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually supplied for a limited time or under certain circumstances.

Engineering controls: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

Personal Protective Equipment (PPE):

Respiratory: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.

Product Name: PARAMOUNT of OREGON Naphtha
Product Code(s): PARP 11601, 11610, 11617, 11619

Use a positive pressure, air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection

Skin: Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.

Eye/Face: Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.

Other Protective Equipment:

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Flash Point: $< -7^{\circ}\text{C}$ ($< 20^{\circ}\text{F}$) (Estimated)

Flammable/Explosive Limits (%): % by volume in air: Lower: 1.1 Upper: 5.9 (Estimated)

Autoignition Temperature: 550°F (Estimated)

Appearance: Yellow

Physical State: Liquid

Odor: Hydrocarbon

Vapor Pressure (mm Hg): 3.37 – 11.5

Vapor Density (air=1): 2.8 (Estimated)

Specific Gravity: 0.7 – 0.75 @ 15.6°C (60.1°F)

API Gravity:

Bulk Density: 43.4 – 46.5 lbs/ft³ H₂O=1

Boiling Point: -3.9°C (25°F) – 162.8°C (325°F)

Solubility: Insoluble in water.

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Conditions To Avoid: Avoid contact with heat, sparks, fire and oxidizing agents

Incompatible Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected).

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Naphtha, straight run full-range (CAS#64741-42-0)

Benzene (CAS#71-43-2)

Toluene (methylbenzene) (CAS#108-88-3)

Xylene (CAS#1330-20-7)*

*(contains o-, m-, & p- xylene isomers in varying amounts)

Eye effects: The eye irritation hazard is based on an evaluation of data for similar material or product components.

Product Name: PARAMOUNT of OREGON Naphtha
Product Code(s): PARP 11601, 11610, 11617, 11619

Skin effects: The skin irritation hazard is based on an evaluation of data for similar material or product components.
The skin sensitization hazard is based on an evaluation of data for similar material or product components.
The acute dermal toxicity is based on an evaluation of data for similar material or product components.

Acute oral effects: The acute oral toxicity is based on an evaluation of data for similar material or product components.

Acute inhalation effects: The acute respiratory toxicity is based on an evaluation of data for similar material or product components.

Additional toxicology information:

This product contains benzene.

GENETIC TOXICITY/CANCER: Repeated or prolonged breathing of benzene vapor has been associated with the development of chromosomal damage in experimental animals and various blood diseases in humans ranging from aplastic anemia to leukemia (a form of cancer). All of these diseases can be fatal. In some individuals, benzene exposure can sensitize cardiac tissue to epinephrine which may precipitate fatal ventricular fibrillation.

REPRODUCTIVE/DEVELOPMENTAL TOXICITY: No birth defects have been shown to occur in pregnant laboratory animals exposed to doses not toxic to the mother. However, some evidence of fetal toxicity such as delayed physical development has been seen at such levels. The available information on the effects of benzene on human pregnancies is inadequate but it has been established that benzene can cross the human placenta.

OCCUPATIONAL: The OSHA Benzene Standard (29 CFR 1910.1028) contains detailed requirements for training, exposure monitoring, respiratory protection and medical surveillance triggered by the exposure level. Refer to the OSHA Standard before using this product.

This product contains toluene.

GENERAL TOXICITY: The primary effects of exposure to toluene in animals and humans are on the central nervous system. Solvent abusers, who typically inhale high concentrations (thousands of ppm) for brief periods of time, in addition to experiencing respiratory tract irritation, often suffer permanent central nervous system effects that include tremors, staggered gait, impaired speech, hearing and vision loss, and changes in brain tissue. Death in some solvent abusers has been attributed to cardiac arrhythmias, which appear to have been triggered by epinephrine acting on solvent sensitized cardiac tissue. Although liver and kidney effects have been seen in some solvent abusers, results of animal testing with toluene do not support these as primary target organs.

HEARING: Humans who were occupationally exposed to concentrations of toluene as low as 100 ppm for long periods of time have experienced hearing deficits. Hearing loss, as demonstrated using behavioral and electrophysiological testing as well as by observation of structural damage to cochlear hair cells, occurred in experimental animals exposed to toluene. It also appears that toluene exposure and noise may interact to produce hearing deficits.

COLOR VISION: In a single study of workers exposed to toluene at levels under 50 ppm, small decreases in the ability to discriminate colors in the blue-yellow range have been reported for female workers. This effect, which should be investigated further, is very subtle and would not likely have been noticed by the people tested.

REPRODUCTIVE/DEVELOPMENTAL TOXICITY: Toluene may also cause mental and/or growth retardation in the children of female solvent abusers who directly inhale toluene (usually at thousands of ppm) when they are pregnant. Toluene caused growth retardation in rats and rabbits when administered at doses that were toxic to the mothers. In rats, concentrations of up to 5000 ppm did not cause birth defects. No effects were observed in the offspring at doses that did not intoxicate the pregnant animals. The exposure level at which no effects were seen (No Observed Effect Level, NOEL) is 750 ppm in the rat and 500 ppm in the rabbit.

This product contains xylene.

ACUTE TOXICITY: The primary effects of exposure to xylene in animals and humans are on the central nervous system. In addition, in some individuals, xylene exposure can sensitize cardiac tissue to epinephrine which may precipitate fatal ventricular fibrillation.

DEVELOPMENTAL TOXICITY: Xylene has been reported to cause developmental toxicity in rats and mice exposed by inhalation during pregnancy. The effects noted consisted of delayed development and minor skeletal variations. In addition, when pregnant mice were exposed by ingestion to a level that killed nearly one-third of the test group, lethality (resorptions) and malformations (primarily cleft palate) occurred. Since xylene can cross the placenta, it may be appropriate to prevent exposure during pregnancy.

Product Name: PARAMOUNT of OREGON Naphtha
Product Code(s): PARP 11601, 11610, 11617, 11619

GENETIC TOXICITY/CARCINOGENICITY: Xylene was not genotoxic in several mutagenicity testing assays including the Ames test. In a cancer study sponsored by the National Toxicology Program (NTP), technical grade xylene gave no evidence of carcinogenicity in rats or mice dosed daily for two years.

HEARING: Mixed xylenes have been shown to cause measurable hearing loss in rats exposed to 800 ppm in the air for 14 hours per day for six weeks. Exposure to 1450 ppm xylene for 8 hours caused hearing loss while exposure to 1700 ppm for 4 hours did not. Although no information is available for lower concentrations, other chemicals that cause hearing loss in rats at relatively high concentrations do not cause hearing loss in rats at low concentrations. Worker exposure to xylenes at the permissible exposure limit (100 ppm, time-weighted average) is not expected to cause hearing loss.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: This material is expected to be toxic to aquatic organisms. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

Environmental Fate: This material is expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

SECTION 13: DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by USEPA under RCRA (40CFR261) or other state and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14: TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Proper Shipping Name / Technical Name: PETROLEUM DISTILLATES, N.O.S. (Naphtha)

Hazard Class or Division: 3

ID #: UN1268

Packing Group: II

Note:

SECTION 15: REGULATORY INFORMATION

EPCRA 311/312:

Acute: Yes

Chronic: Yes

Fire: Yes

Pressure: No

Reactive: No

Warning: This material contains chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of **California Proposition 65** (CA Health & Safety Code Section 25249.5):

EPA (CERCLA) Reportable Quantity:

Benzene: 10 lbs. (Component RQ), 200 lbs (Product RQ)

Product Name: PARAMOUNT of OREGON Naphtha
Product Code(s): PARP 11601, 11610, 11617, 11619

Toluene (methylbenzene): 1,000 lbs . (Component RQ), 16,667 lbs (Product RQ)
Xylene*: .100 lbs (Component RQ), 2,500 lbs (Product RQ)
*(contains o-, m-, & p- xylene isomers in varying amounts)

SECTION 16:	OTHER INFORMATION
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Issue Date: 3/07/05
Previous Issue Date:

The information in this document is believed to be correct as of the date issued. **HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE.** This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof.



Oregon

John A. Kitzhaber, MD, Governor

Department of Environmental Quality

Northwest Region
2020 SW 4th Avenue, # 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-5471

August 4, 2011

David Broderick
Paramount Petroleum
5501 NW Front Avenue
Portland, OR 97210

Re: Naphtha Spill
OERS No. 11-1718

Dear Mr. Broderick:

On July 19, 2011 the Department of Environmental Quality (DEQ) received a report of a spill or release of naphtha from a pipe at your bulk terminal facility in Portland, Oregon. You are requested to take and/or continue all containment and cleanup actions possible to prevent the spread of the spill to public waters, groundwater or soils beyond the original spill site.

In accordance with Oregon Administrative Rules (OAR) 340-142-0090 (copy attached), you are required to submit a written report describing the spill and subsequent clean-up efforts. Enclosed is a spill report outline as a guideline so that all information that is necessary for the documentation and review of your spill report is received. In this case, given on-going remedial activities, it is permissible to detail initial discovery, response and evaluation measures in the form of a letter report instead and simply use the spill report form as a guide for what kind of information to include. We ask you to submit this information no later than September 5, 2011. Please submit the report to:

Mike Greenburg, DEQ, 2020 SW 4th Ave., Portland, Oregon, 97201-4987.

Responsible parties are required to pay costs incurred by DEQ for oversight of the investigation and cleanup of the spill or release (Oregon Revised Statutes 465.255). DEQ oversight costs include direct and indirect costs. Direct costs include site-specific expenses and legal costs. Indirect costs are those general management and support costs of the DEQ allocable to oversee this cleanup and not charged as direct, site-specific costs.

If you have any questions about this request, please contact Mike Greenburg at (503) 229-5153.

Enclosures: OAR 340-142
Spill Report Outline

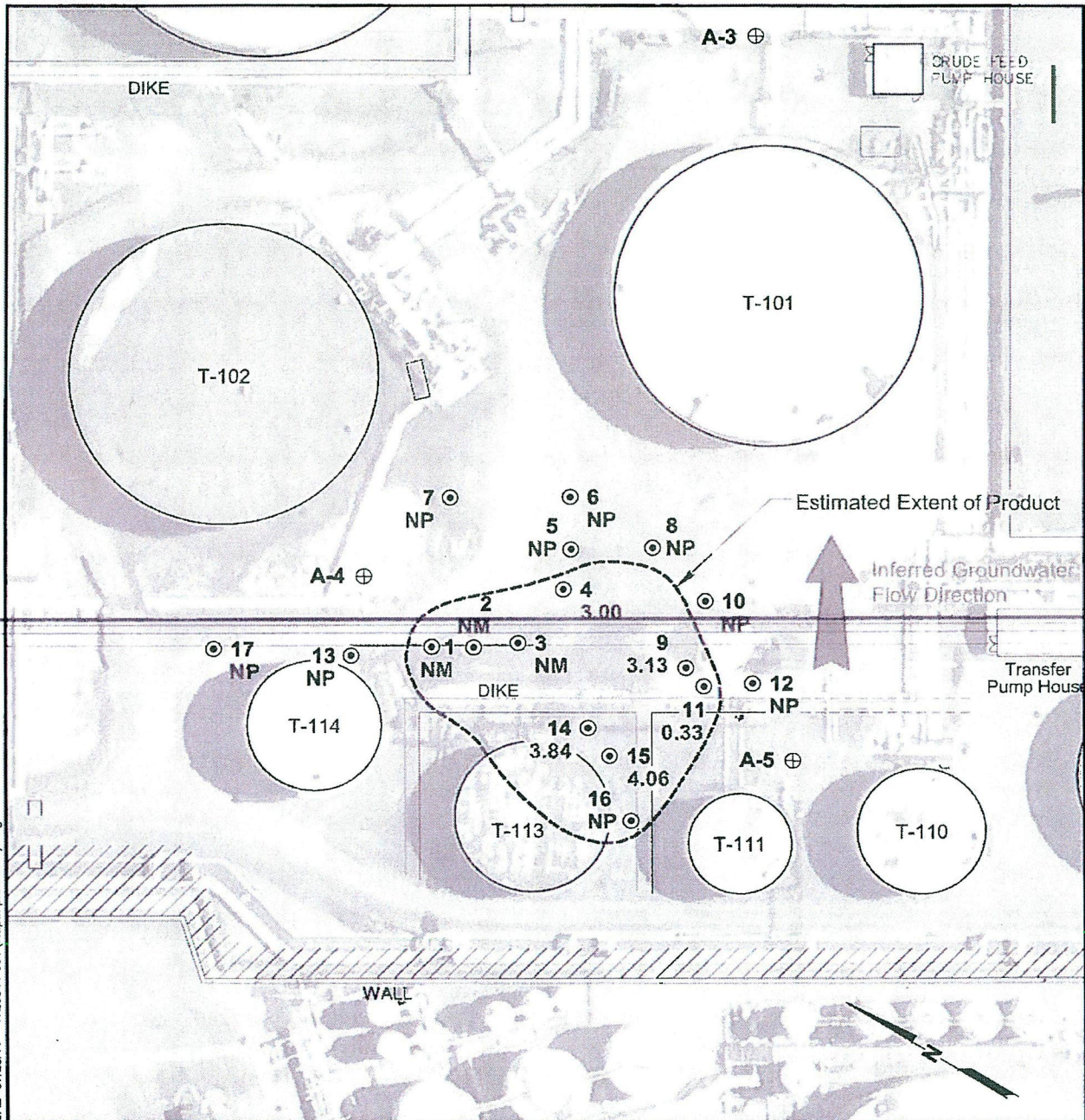
1281

Spill Con

Paramount
Petroleum

Naphtha Spill

Naphtha Release Area and Product Thicknesses: July 22, 2011
Paramount Willbridge Asphalt Plant
Portland, Oregon



JAB 07/28/11 1720344-001 (Naphtha-prod-thick).dwg

Source: Base map prepared from a Paramount Petroleum, Inc. Site Plan, dated 9/24/99.

A-3 ⊕ Groundwater Monitoring Well Location and Number

1 ⊙ Probe Location and Number

3.00 Product Thickness in Feet (Measured 7/22/11)

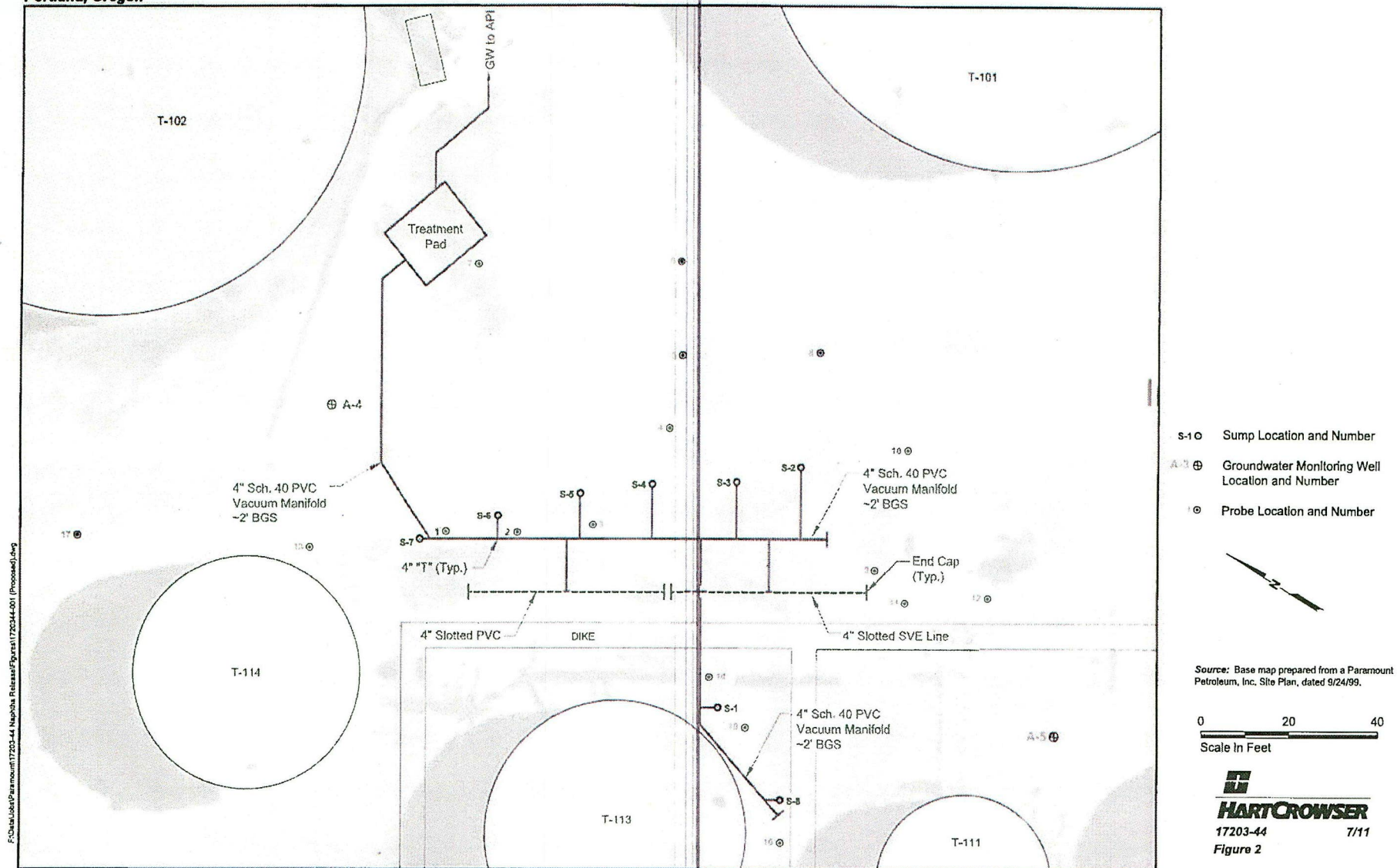
NP Not Present

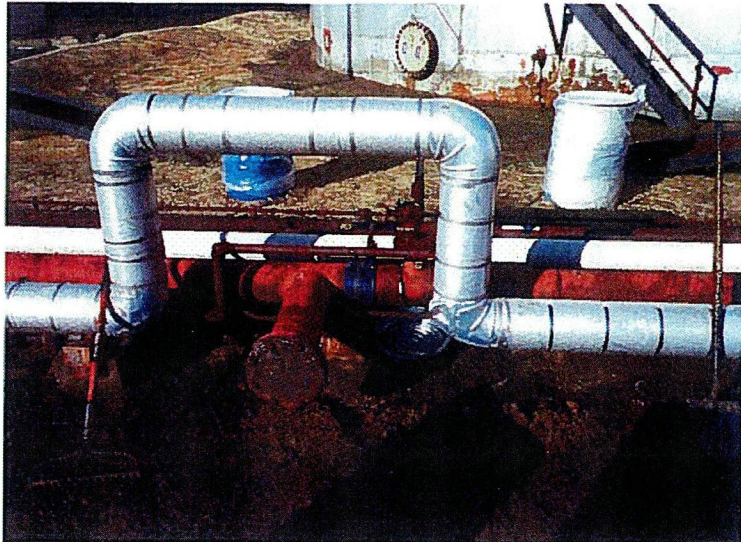
NM Not Measured (Soil Exploration Only)

0 60 120
 Scale in Feet

HARTCROWSER
 17203-44 7/11
 Figure 1

**Proposed Treatment System
Paramount Willbridge Asphalt Plant
Portland, Oregon**





Patch 7/18/11



Initial cleanup 7/18/11



Hot Zone Test Hole 7/21/11



Geo Probes (17 total) 7/22/11



Geo Probes 7/22/11



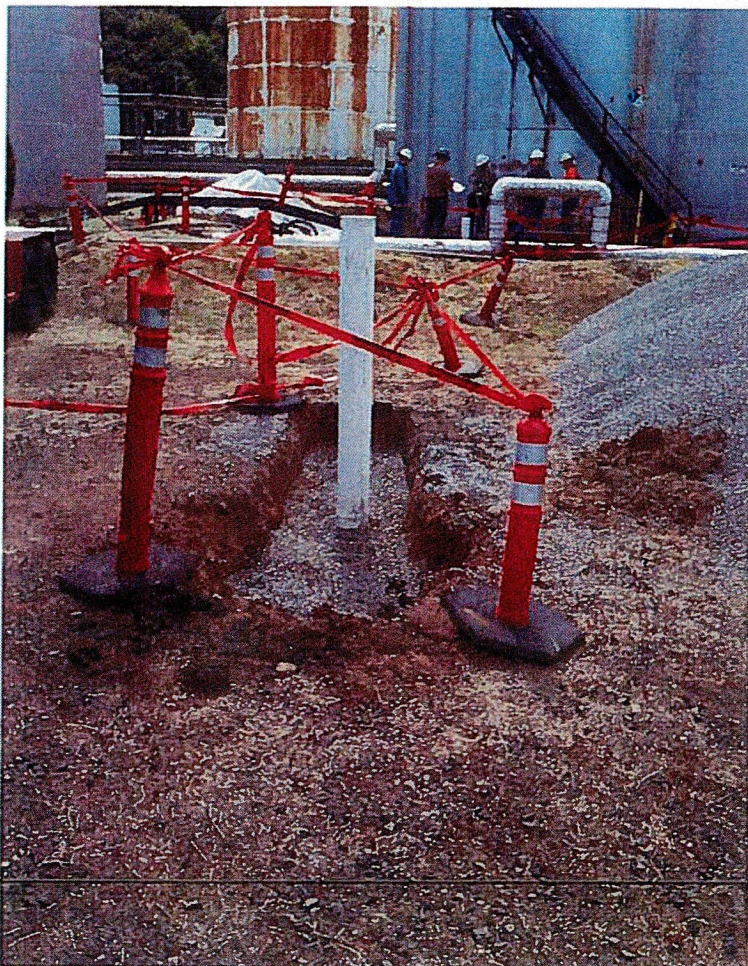
Recovery Wells (8 total) 7/26/11



Recovery Wells 7/26/11



Recovery Wells 7/26/11



Recovery Wells 7/26/11



Recovering from Wells 7/27/11



SVE trench inside of recovery wells 7/27/11



Dirt collection area 7/26/11



Dirt collection area 7/28/11