



**CONESTOGA-ROVERS
& ASSOCIATES**

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RELEASE # 324012
MINIT WISE # 1102

June 27, 2007

Lynnwood
WA 98036

Mr. John Bails
Washington State Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, Washington 98008-5452

Re: **Groundwater Monitoring Report – First Quarter 2007**
Former Jiffy Lube No. 2068 - ? - 1102
6808 196th Street SW
Lynnwood, Washington ✓
SAP Code 171152
Incident No. 97605410
Ecology ID No. 27496218

RECEIVED

JUL 03 2007


DEPT. OF ECOLOGY


Dear Mr. Bails:

Conestoga-Rovers & Associates, Inc. (CRA) prepared this report on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell).

If you have questions regarding this report, please contact Justin Foslien at (425) 212-5111.

Sincerely,
Conestoga-Rovers & Associates, Inc.


Justin Foslien, LG
Project Manager


Christopher Martin, L.H.
Hydrogeologist



Christopher Martin

2/5/07

Enclosure: Groundwater Monitoring Report – First Quarter 2007

cc: Ms. Carol Campagna, Shell Oil Products US, 20945 S. Wilmington Ave., Carson, CA 90810
Mr. Rick Megenity, Strickland Corporation, P.O. Box 1004, Everett, WA 98206

Equal
Employment
Opportunity Employer



GROUNDWATER MONITORING REPORT – FIRST QUARTER 2007

Site Address	<u>6808 196th Street SW, Lynnwood</u>
Site Use	<u>Former Jiffy Lube No. 2068</u>
Shell Project Manager	<u>Carol Campagna</u>
Consultant and Contact Person	<u>CRA, Justin Foslien</u>
Lead Agency and Contact	<u>WDOE, John Bails</u>
Ecology ID No.	<u>27496218</u>
Shell SAP Code	<u>171152</u>
Shell Incident No.	<u>97605410</u>
Date of Most Recent Agency Correspondence	<u>May 31, 2007</u>

Current Quarter's Activities

1. Blaine Tech Services, Inc. (Blaine) gauged and sampled wells according to the established monitoring program for this site.
2. CRA prepared a vicinity map (Figure 1) and a groundwater contour and chemical concentration map (Figure 2). CRA also prepared two tables (Tables 1 and 2) summarizing groundwater monitoring data and analytical results. The Blaine field notes and the analytical data are included in Attachment A and B, respectively.

Current Quarter's Findings

Groundwater Flow Direction	<u>Southwest</u>
Hydraulic Gradient	<u>0.02 feet/foot</u>
Depth to Water	<u>8.03 to 10.10 feet below top of well casing</u>

Proposed Activities

1. Blaine will gauge and sample wells during the first month of the quarter, according to the established monitoring program for this site.
2. CRA will prepare a work plan for additional subsurface investigation to define the extent of impacted soil and groundwater at the site.



Discussion

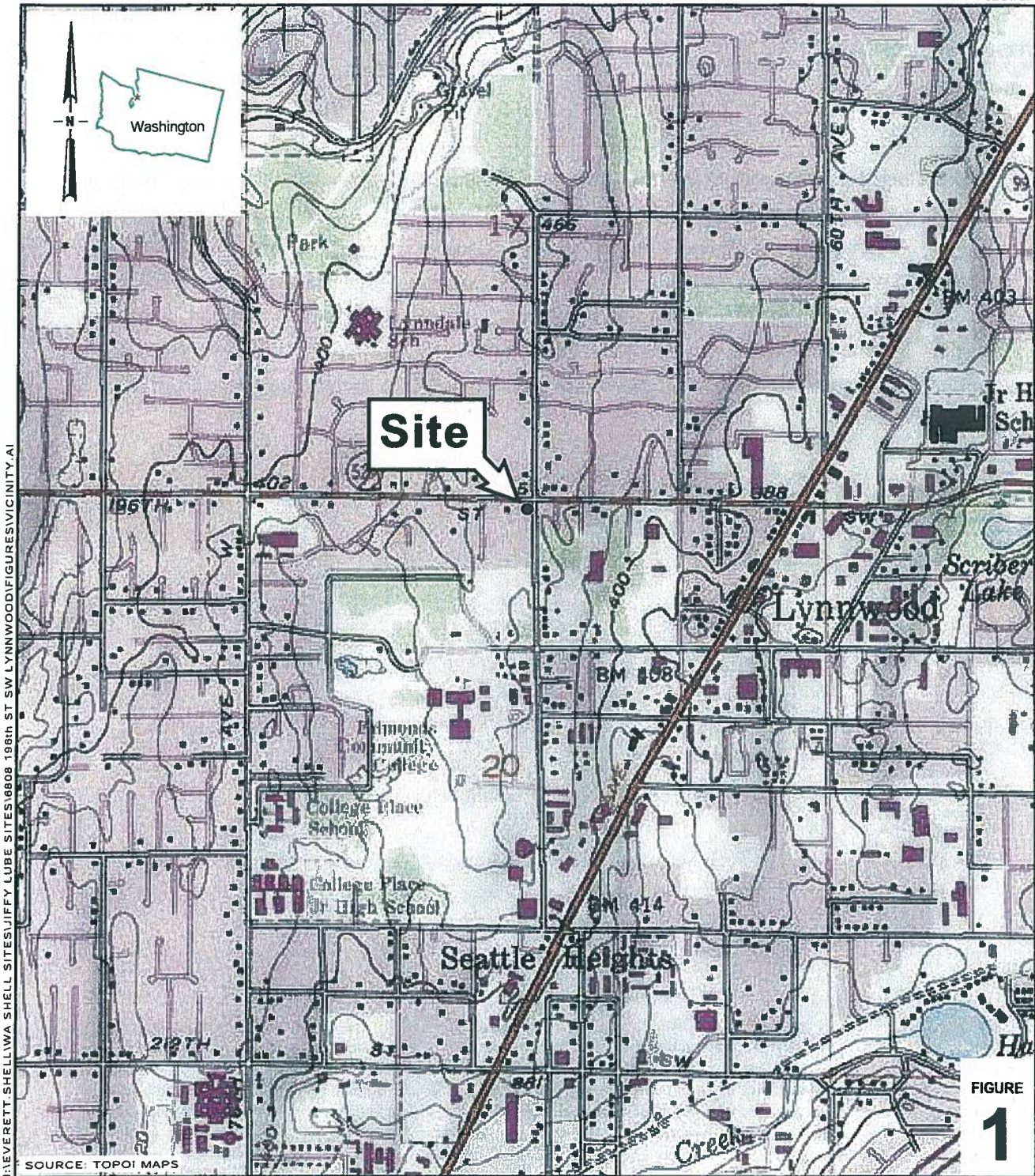
Blaine gauged and sampled MW-1 through MW-5 for the first quarter sampling event. Multiple constituents were detected above the Washington State Model Toxics Control Act (MTCA) Method A cleanup level all wells except MW-2. Groundwater samples from MW-1, MW-3 through MW-5 contained concentrations of benzene, toluene, ethylbenzene, total xylenes, total petroleum hydrocarbons as gasoline range organics (TPH-G) above MTCA Method A cleanup levels. Total petroleum hydrocarbons as diesel range organics (TPH-D) were detected at concentrations greater than MTCA Method A cleanup levels in samples collected from MW-3 through MW-5.

Attachments

- Figures: 1 - Vicinity Map
 2 - Groundwater Contour and Chemical Concentration Map
- Tables: 1 - Summary of Groundwater Monitoring Data – BETX, MTBE, and Petroleum Hydrocarbons
 2 - Summary of Groundwater Monitoring Data – Oxygenates
- Attachments: A - Blaine Tech Services, Inc. - Field Forms
 B - Laboratory Analysis Report

Conestoga Rovers & Associates, Inc. (CRA) prepared this document for use by our client and appropriate regulatory agencies. It is based partially on information available to CRA from outside sources and/or in the public domain, and partially on information supplied by CRA and its subcontractors. CRA makes no warranty or guarantee, expressed or implied, included or intended in this document, with respect to the accuracy of information obtained from these outside sources or the public domain, or any conclusions or recommendations based on information that was not independently verified by CRA. This document represents the best professional judgment of CRA. None of the work performed hereunder constitutes or shall be represented as a legal opinion of any kind or nature.

I:\Everett.Shell\WA Shell Sites\Jiffy Lube Sites\6808 196th Street SW Lynnwood\QMRS\Reports\1q07\1q07qm Final.doc



I:\EVERETT.SHELL\WA_SHELL_SITES\JIFFY_LUBE_SITES\16808_196th_ST_SW_LYNNWOOD\FIGURES\VICINITY.A1

FIGURE 1

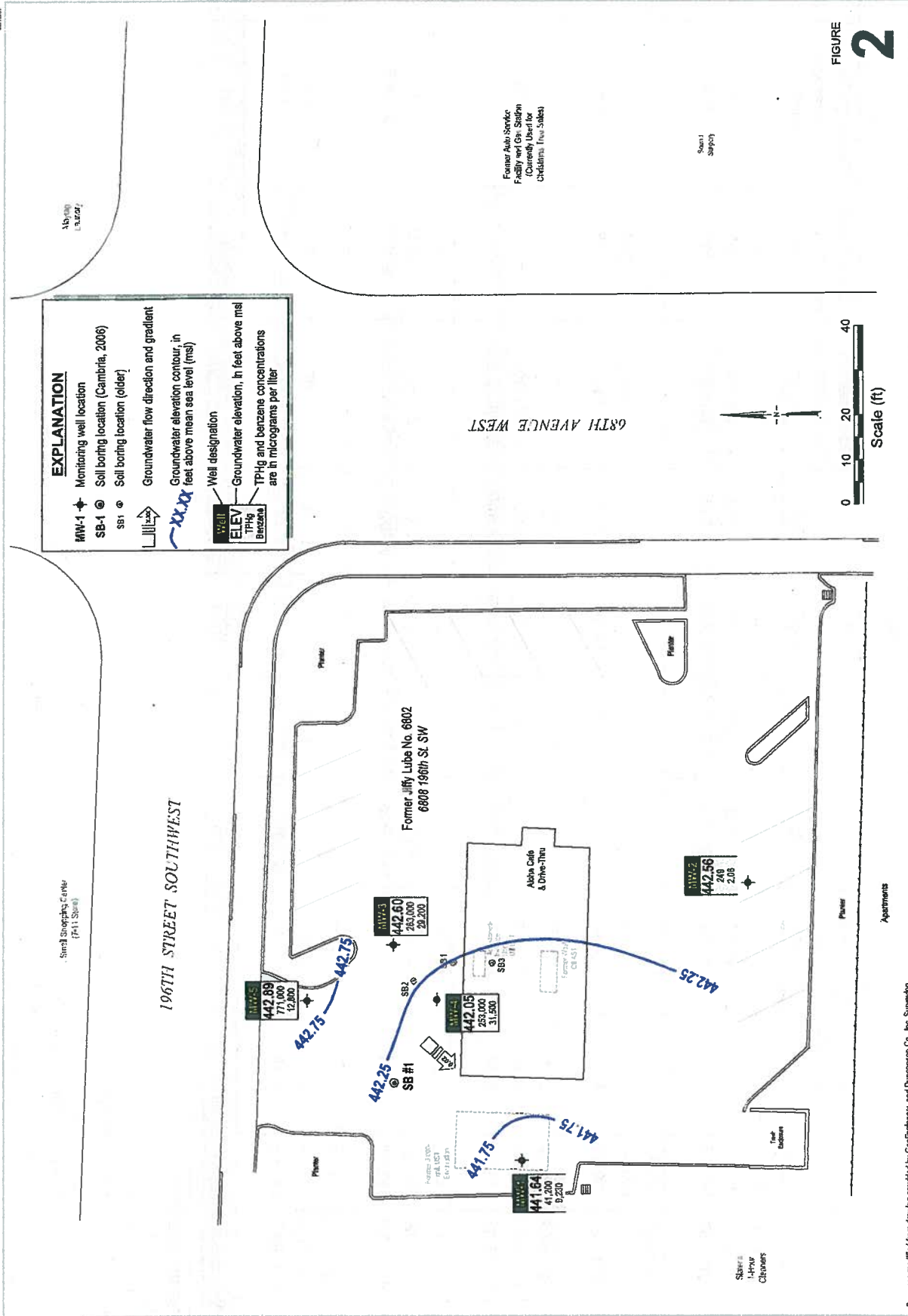
Jiffy Lube No. 2069
 6808 196th Street Southwest
 Lynnwood, Washington



**CONESTOGA-ROVERS
 & ASSOCIATES**

Vicinity Map

FIGURE
2



Basemap modified from drawing provided by GeoEngineers and Dimension Co., Inc. Surveying

TABLE 1
SUMMARY OF GROUNDWATER MONITORING DATA
BETX, MTBE, AND PETROLEUM HYDROCARBONS

6808 196TH SW

LYNNWOOD, WASHINGTON

Well Number	Date	TOC (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	B (µg/L)	E (µg/L)	T (µg/L)	X (µg/L)	Gasoline-range Hydrocarbons (µg/L)	Diesel Range Hydrocarbons (µg/L)	Heavy Oil Range Hydrocarbons (µg/L)	MTBE (µg/L)
MW-1	12/28/06	451.74	9.75	441.99	---	---	---	---	---	---	---	---
MW-1	12/29/06	451.74	9.57	442.17	9,190	1,090	2,140	4,100	42,100	<255	<510	---
MW-1	02/15/07	451.74	10.10	441.64	9,230	938	1,840	3,710	41,200	<269	<538	<5.00
MW-2	12/28/06	450.59	7.26	443.33	---	---	---	---	---	---	---	---
MW-2	12/29/06	450.59	7.35	443.24	21.7	55.1	6.75	9.91	2,640	<253	<505	---
MW-2	02/15/07	450.59	8.03	442.56	2.06	4.36	<0.500	<1.00	249	<278	<556	<5.00
MW-3	12/28/06	451.69	8.45	443.24	---	---	---	---	---	---	---	---
MW-3	12/29/06	451.69	8.51	443.18	28,500	2,950	29,200	15,900	171,000	608	<510	---
MW-3	02/15/07	451.69	9.09	442.60	29,200	3,140	37,400	18,600	263,000 a, b	2,580 c	<2,750	<500
MW-4	12/28/06	452.01	9.41	442.60	---	---	---	---	---	---	---	---
MW-4	12/29/06	452.01	9.36	442.65	32,400	3,200	39,700	18,800	207,000	1,810	<510	---
MW-4	02/15/07	452.01	9.96	442.05	31,500 a, b	2,990 a, b	40,500 a, b	18,100 a, b	253,000 a, b	72,100 c	<50,000	<500
MW-5	12/28/06	451.38	8.11	443.27	---	---	---	---	---	---	---	---
MW-5	12/29/06	451.38	8.17	443.21	7,220	2,280	24,400	13,200	122,000	603	<515	---
MW-5	02/15/07	451.38	8.49	442.89	12,800 a, b	6,000 a, b	43,600 a, b	40,700 a, b	771,000 a, b	49,200 c	<5,000	<500
MTCA Method A Cleanup Level					5	700	1,000	1,000	800	500	500	20

Abbreviations and Notes:

Well locations are shown in Figure 2.

TOC = Top of Casing.

Depth to water from top of well casing.

B = benzene, E = ethylbenzene, T = toluene, X = total xylenes. Analyzed using EPA Method 8021B.

Gasoline-range hydrocarbons analyzed using NWTPH-Gx.

Diesel and heavy-oil range hydrocarbons analyzed using NWTPH-Dx with acid/silica gel clean-up

MTBE = Methyl Tertiary butyl ether. By Method 8260B.

µg/L = micrograms per liter

MTCA = Model Toxics Control Act

TABLE 1

**SUMMARY OF GROUNDWATER MONITORING DATA
BETX, MTBE, AND PETROLEUM HYDROCARBONS**

6808 196TH SW

LYNNWOOD, WASHINGTON

a = Due to multiple re-shots required for re-analysis, the aliquot of sample analyzed on the instrument was taken from a VOA vial containing headspace.

b = Sample container contained headspace.

c = Results in the diesel organics range are primarily due to overlap from a gasoline-range product.

TABLE 2
SUMMARY OF GROUNDWATER MONITORING DATA
OXYGENATES
6808 196TH SW
LYNNWOOD, WASHINGTON

Well Number	Date	TAME (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)
MW-1	02/15/07	<1.00	54.6	<1.00	<1.00
MW-2	02/15/07	<1.00	<50.0	<1.00	<1.00
MW-3	02/15/07	<100	<5,000	<100	<100
MW-4	02/15/07	<100	<5,000	<100	<100
MW-5	02/15/07	<100	<5,000	<100	<100

Abbreviations and Notes:

Well locations are shown in Figure 2.

TAME = Tertiary-amyl methyl ether analyzed by EPA Method 8260B

TBA = Tertiary-butanol analyzed by EPA Method 8260B

DIPE = Di-isopropyl ether analyzed by EPA Method 8260B

ETBE = Ethyl tertiary-butyl ether analyzed by EPA Method 8260B

µg/L = micrograms per liter

Attachment A

Blaine Tech Services, Inc.

Field Forms

- LAB: TA - Seattle, Washington
 TA - Portland, Oregon
 TA - Sacramento, California
 TA - Nashville, Tennessee
 Caselence
 Other



SHELL Chain of Custody Record

NAME OF PERSON TO BILL: Carol Campagna

ENVIRONMENTAL SERVICES
 NETWORK DEV / FE
 COMPLIANCE

BILL CONSULTANT
 RMT/PORT

INCIDENT # (EPA-DEL-7) 9 7 6 0 5 4 1 0

DATE: 2/15/07
 PAGE: 1 of 1

CHECK BOX TO VERIFY IF NO INCIDENT # APPLIES

BLAINE TECH SERVICES
 1680 ROGERS AVENUE, SAN JOSE, CA 95112
 TEL: 916-925-2813 x102 FAX: 916-925-2891 EMAIL: brown@blainetech.com

BLAINE TECH SERVICES
 6808 196th Street SW, Lynnwood, WA NA
 TEL: (425) 353-6870 x.111 FAX: (425) 353-6870 x.111 EMAIL: jfoellen@centric-srv.com

PROJECT: 070215.PCZ

CLIENT: Justin Foellen, Cambria, Seattle

ANALYST: D. Koskela

LAB CODE: _____

LAB CONTACT: _____

LAB ADDRESS: Street and City _____

STATE: WA

ZIP: 98088

PHONE: (425) 353-6870 x.111

EMAIL: jfoellen@centric-srv.com

PROJECT: 070215.PCZ

CLIENT: Justin Foellen, Cambria, Seattle

ANALYST: D. Koskela

REQUESTED ANALYSIS

Field Sample Identification	SAMPLING DATE	TIME	MATRIX	NO. OF CONT.	NV TPH-DX	NV TPH-GX	5 Organics (2209)	MTB (2208)	TBA (2208)	DPE (2208)	TAME (2208)	ETBE (2208)	1,2 DCA (2208)	EDB (2011)	Benzol (2208)	Ethanol+Methanol (2108)	BPH	VPH	TEMPERATURE ON RECEIPT °C
MW-1	2/15/07	1000	W	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-2	2/15/07	1010	W	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-3	2/15/07	1020	W	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-4	2/15/07	1030	W	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-5	2/15/07	1040	W	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

FIELD NOTES:
 Certificate/Preservative or FID Readings or Laboratory Notes

RECEIVED BY (Signature): *D. Koskela*
 RECEIVED BY (Signature): *Athy Campbell*
 RECEIVED BY (Signature): _____

DATE: 2/15/07
 TIME: 13:15

SHELL WELL MONITORING DATA SHEET

BTS #: <u>070215. DK2</u>	Site: <u>97405410</u>
Sampler: <u>P. Koskela</u>	Date: <u>2/15/07</u>
Well I.D.: <u>MW-1</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth (TD): <u>24.85</u>	Depth to Water (DTW): <u>10.10</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible
 Water Peristaltic Extraction Pump Other _____
 Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: _____

$\text{--- (Gals.)} \times \text{---} = \text{--- Gals.}$ I Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F)	pH	Cond. (mS or μ S)	Turbidity (NTUs)	Gals. Removed	Observations
959	58.2	6.16	488	2	—	

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Date: 2/15/07 Sampling Time: 1000 Depth to Water: _____

Sample I.D.: MW-1 Laboratory: STL SPL Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other: _____

EB I.D. (if applicable): @ _____ Time Duplicate I.D. (if applicable): _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

SHELL WELL MONITORING DATA SHEET

BTS #: <u>070215. DK 2</u>	Site: <u>97405410</u>
Sampler: <u>P. Koskela</u>	Date: <u>2/15/07</u>
Well I.D.: <u>MW-2</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth (TD): <u>17.40</u>	Depth to Water (DTW): <u>8.03</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible

Water Peristaltic Extraction Pump Other _____

Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: _____

_____ (Gals.) X _____ = _____ Gals. 1 Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F)	pH	Cond. (mS or μ S)	Turbidity (NTUs)	Gals. Removed	Observations
1009	55.7	6.6	261	4	—	

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Date: 2/15/07 Sampling Time: 1010 Depth to Water: _____

Sample I.D.: MW-2 Laboratory: STL SPL Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other: _____

EB I.D. (if applicable): _____ @ _____ Time Duplicate I.D. (if applicable): _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other: _____

D.O. (if req'd): Pre-purge: _____ mg/L Post-purge: _____ mg/L

O.R.P. (if req'd): Pre-purge: _____ mV Post-purge: _____ mV

SHELL WELL MONITORING DATA SHEET

BTS #: <u>070215. DK 2</u>	Site: <u>97605410</u>
Sampler: <u>P. Koskela</u>	Date: <u>2/15/07</u>
Well I.D.: <u>MW-3</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth (TD): <u>17.35</u>	Depth to Water (DTW): <u>9.09</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible
 Water Peristaltic Extraction Pump Other
 Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other:

$\frac{\text{--- (Gals.)} \times \text{---}}{\text{Specified Volumes}} = \text{--- Gals.}$ Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
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1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F)	pH	Cond. (mS or μ S)	Turbidity (NTUs)	Gals. Removed	Observations
1019	55.1	6.5	713	15	—	

Did well dewater? Yes No Gallons actually evacuated: —

Sampling Date: 2/15/07 Sampling Time: 1020 Depth to Water: —

Sample I.D.: MW-3 Laboratory: STL SPL Other

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

SHELL WELL MONITORING DATA SHEET

BTS #: <u>070215, DK 2</u>	Site: <u>97605410</u>
Sampler: <u>P. Koskela</u>	Date: <u>2/15/07</u>
Well I.D.: <u>MW-4</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth (TD): <u>17.40</u>	Depth to Water (DTW): <u>9.96</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible
 Water Peristaltic Extraction Pump Other
 Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other:

$\text{--- (Gals.)} \times \text{---} = \text{--- Gals.}$ Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
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1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F)	pH	Cond. (mS or μ S)	Turbidity (NTUs)	Gals. Removed	Observations
1029	57.5	6.6	821	3	—	

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: 2/15/07 Sampling Time: 1030 Depth to Water:

Sample I.D.: MW-4 Laboratory: STL SPL Other

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other:

D.O. (if req'd): Pre-purge: <u> </u> mg/L	Post-purge: <u> </u> mg/L
O.R.P. (if req'd): Pre-purge: <u> </u> mV	Post-purge: <u> </u> mV

SHELL WELL MONITORING DATA SHEET

BTS #: <u>070215. DK2</u>	Site: <u>97405410</u>
Sampler: <u>P. Koskela</u>	Date: <u>2/15/07</u>
Well I.D.: <u>MW-5</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth (TD): <u>17.38</u>	Depth to Water (DTW): <u>8.49</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Water/ Peristaltic Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer <input checked="" type="checkbox"/> Extraction Port Dedicated Tubing Other: _____
--	---	---

_____ (Gals.) X _____ = _____ Gals. 1 Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F)	pH	Cond. (mS or <u>uS</u>)	Turbidity (NTUs)	Gals. Removed	Observations
1039	57.7	6.5	1140	3	—	

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Date: 2/15/07 Sampling Time: 1040 Depth to Water: _____

Sample I.D.: MW-5 Laboratory: STL SPL Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other: _____

EB I.D. (if applicable): _____ @ _____ Time Duplicate I.D. (if applicable): _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxy's 1,2-DCA EDB Other: _____

D.O. (if req'd): Pre-purge: _____ mg/L Post-purge: _____ mg/L

O.R.P. (if req'd): Pre-purge: _____ mV Post-purge: _____ mV

Attachment B

Laboratory Analysis Report

March 06, 2007

Justin Foslien
Cambria - Seattle
8620 Holly Drive, Suite 210
Everett, WA 98208

RE: Shell - 6808 196th Street SW, Lynnwood

Enclosed are the results of analyses for samples received by the laboratory on 02/15/07 13:05.
The following list is a summary of the Work Orders contained in this report, generated on 03/06/07
17:51.

If you have any questions concerning this report, please feel free to contact me.

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BQB0308	Shell - 6808 196th Street SW,	070215.DU2

TestAmerica - Seattle, WA

Kate Haney

Kate Haney, Project Manager

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Cambria - Seattle 8620 Holly Drive, Suite 210 Everett, WA 98208	Project Name: Shell - 6808 196th Street SW, Lynnwood Project Number: 070215.DU2 Project Manager: Justin Foslien	Report Created: 03/06/07 17:51
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	BQB0308-01	Water	02/15/07 10:00	02/15/07 13:05
MW-2	BQB0308-02	Water	02/15/07 10:10	02/15/07 13:05
MW-3	BQB0308-03	Water	02/15/07 10:20	02/15/07 13:05
MW-4	BQB0308-04	Water	02/15/07 10:30	02/15/07 13:05
MW-5	BQB0308-05	Water	02/15/07 10:40	02/15/07 13:05

TestAmerica - Seattle, WA

Kate Haney

Kate Haney, Project Manager

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Cambria - Seattle
 8620 Holly Drive, Suite 210
 Everett, WA 98208

Project Name: **Shell - 6808 196th Street SW, Lynnwood**
 Project Number: 070215.DU2
 Project Manager: Justin Foslien

Report Created:
 03/06/07 17:51

Volatile Petroleum Products by NWTPH-Gx
 TestAmerica - Seattle, WA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes	
BQB0308-01RE1 (MW-1)		Water		Sampled: 02/15/07 10:00							
Gasoline Range Hydrocarbons	NWTPH-Gx	41200	---	10000	ug/l	200x	7B21025	02/21/07 10:44	02/22/07 04:01		
Surrogate(s): 4-BFB (FID)		94.0%		58 - 144 %	1x					"	
BQB0308-02RE1 (MW-2)		Water		Sampled: 02/15/07 10:10							
Gasoline Range Hydrocarbons	NWTPH-Gx	249	---	50.0	ug/l	1x	7B21025	02/21/07 10:44	02/22/07 03:28		
Surrogate(s): 4-BFB (FID)		102%		58 - 144 %						"	
BQB0308-03RE1 (MW-3)		Water		Sampled: 02/15/07 10:20							A-01, P-HS
Gasoline Range Hydrocarbons	NWTPH-Gx	263000	---	50000	ug/l	1000x	7B21025	02/21/07 10:44	02/22/07 05:05		
Surrogate(s): 4-BFB (FID)		94.7%		58 - 144 %	1x					"	
BQB0308-04RE1 (MW-4)		Water		Sampled: 02/15/07 10:30							A-01, P-HS
Gasoline Range Hydrocarbons	NWTPH-Gx	253000	---	50000	ug/l	1000x	7B21025	02/21/07 10:44	02/22/07 05:37		
Surrogate(s): 4-BFB (FID)		93.8%		58 - 144 %	1x					"	
BQB0308-05RE1 (MW-5)		Water		Sampled: 02/15/07 10:40							A-01, P-HS
Gasoline Range Hydrocarbons	NWTPH-Gx	771000	---	25000	ug/l	500x	7B21025	02/21/07 10:44	02/22/07 04:33		
Surrogate(s): 4-BFB (FID)		104%		58 - 144 %	1x					"	

TestAmerica - Seattle, WA

Kate Haney

Kate Haney, Project Manager

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Cambria - Seattle 8620 Holly Drive, Suite 210 Everett, WA 98208	Project Name: Shell - 6808 196th Street SW, Lynnwood Project Number: 070215.DU2 Project Manager: Justin Foslien	Report Created: 03/06/07 17:51
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Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up
 TestAmerica - Seattle, WA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQB0308-01 (MW-1)		Water			Sampled: 02/15/07 10:00					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	269	ug/l	1x	7B20023	02/20/07 10:49	02/22/07 09:19	
Lube Oil Range Hydrocarbons	"	ND	---	538	"	"	"	"	"	
Surrogate(s): 2-FBP			81.8%		53 - 125 %	"				
Octacosane			106%		68 - 125 %	"				
BQB0308-02 (MW-2)		Water			Sampled: 02/15/07 10:10					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	278	ug/l	1x	7B20023	02/20/07 10:49	02/22/07 09:45	
Lube Oil Range Hydrocarbons	"	ND	---	556	"	"	"	"	"	
Surrogate(s): 2-FBP			86.0%		53 - 125 %	"				
Octacosane			111%		68 - 125 %	"				
BQB0308-03 (MW-3)		Water			Sampled: 02/15/07 10:20					
Diesel Range Hydrocarbons	NWTPH-Dx	2580	---	1370	ug/l	5x	7B20021	02/20/07 10:42	03/01/07 17:43	Q5
Lube Oil Range Hydrocarbons	"	ND	---	2750	"	"	"	"	"	
Surrogate(s): 2-FBP			88.0%		53 - 125 %	"				
Octacosane			81.5%		68 - 125 %	"				
BQB0308-04 (MW-4)		Water			Sampled: 02/15/07 10:30					
Diesel Range Hydrocarbons	NWTPH-Dx	72100	---	25000	ug/l	50x	7B20023	02/20/07 10:49	02/22/07 10:38	Q5
Lube Oil Range Hydrocarbons	"	ND	---	50000	"	"	"	"	"	
Surrogate(s): 2-FBP			184%		53 - 125 %	"				ZX
Octacosane			80.8%		68 - 125 %	"				
BQB0308-05 (MW-5)		Water			Sampled: 02/15/07 10:40					
Diesel Range Hydrocarbons	NWTPH-Dx	49200	---	2500	ug/l	10x	7B20023	02/20/07 10:49	02/22/07 11:03	Q5
Lube Oil Range Hydrocarbons	"	ND	---	5000	"	"	"	"	"	
Surrogate(s): 2-FBP			140%		53 - 125 %	"				ZX
Octacosane			105%		68 - 125 %	"				

TestAmerica - Seattle, WA

Kate Haney

Kate Haney, Project Manager

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Cambria - Seattle 8620 Holly Drive, Suite 210 Everett, WA 98208	Project Name: Shell - 6808 196th Street SW, Lynnwood Project Number: 070215.DU2 Project Manager: Justin Foslien	Report Created: 03/06/07 17:51
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BTEX by EPA Method 8021B
TestAmerica - Seattle, WA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQB0308-01RE1 (MW-1)		Water			Sampled: 02/15/07 10:00					
Benzene	EPA 8021B	9230	---	100	ug/l	200x	7B21025	02/21/07 10:44	02/22/07 04:01	
Toluene	"	1840	---	100	"	"	"	"	"	
Ethylbenzene	"	938	---	100	"	"	"	"	"	
Xylenes (total)	"	3710	---	200	"	"	"	"	"	
<i>Surrogate(s): 4-BFB (PID)</i>			100%		68 - 140 %	1x				

BQB0308-02RE1 (MW-2)		Water			Sampled: 02/15/07 10:10					
Benzene	EPA 8021B	2.06	---	0.500	ug/l	1x	7B21025	02/21/07 10:44	02/22/07 03:28	
Toluene	"	ND	---	0.500	"	"	"	"	"	
Ethylbenzene	"	4.36	---	0.500	"	"	"	"	"	
Xylenes (total)	"	ND	---	1.00	"	"	"	"	"	
<i>Surrogate(s): 4-BFB (PID)</i>			107%		68 - 140 %	"				

BQB0308-03RE1 (MW-3)		Water			Sampled: 02/15/07 10:20						A-01, P-HS
Benzene	EPA 8021B	29200	---	500	ug/l	1000x	7B21025	02/21/07 10:44	02/22/07 05:05		
Toluene	"	37400	---	500	"	"	"	"	"		
Ethylbenzene	"	3140	---	500	"	"	"	"	"		
Xylenes (total)	"	18600	---	1000	"	"	"	"	"		
<i>Surrogate(s): 4-BFB (PID)</i>			98.5%		68 - 140 %	1x					

BQB0308-04RE1 (MW-4)		Water			Sampled: 02/15/07 10:30						A-01, P-HS
Benzene	EPA 8021B	31500	---	500	ug/l	1000x	7B21025	02/21/07 10:44	02/22/07 05:37		
Toluene	"	40500	---	500	"	"	"	"	"		
Ethylbenzene	"	2990	---	500	"	"	"	"	"		
Xylenes (total)	"	18100	---	1000	"	"	"	"	"		
<i>Surrogate(s): 4-BFB (PID)</i>			98.5%		68 - 140 %	1x					

BQB0308-05RE1 (MW-5)		Water			Sampled: 02/15/07 10:40						A-01, P-HS
Benzene	EPA 8021B	12800	---	250	ug/l	500x	7B21025	02/21/07 10:44	02/22/07 04:33		
Toluene	"	43600	---	250	"	"	"	"	"		
Ethylbenzene	"	6000	---	250	"	"	"	"	"		
Xylenes (total)	"	40700	---	500	"	"	"	"	"		
<i>Surrogate(s): 4-BFB (PID)</i>			106%		68 - 140 %	1x					

TestAmerica - Seattle, WA

Kate Haney

Kate Haney, Project Manager

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Cambria - Seattle	Project Name: Shell - 6808 196th Street SW, Lynnwood	Report Created:
8620 Holly Drive, Suite 210	Project Number: 070215.DU2	03/06/07 17:51
Everett, WA 98208	Project Manager: Justin Foslien	

Oxygenates by EPA Method 8260B
 TestAmerica - Seattle, WA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQB0308-01 (MW-1)		Water			Sampled: 02/15/07 10:00					
tert-Amyl Methyl Ether	EPA 8260B	ND	---	1.00	ug/l	1x	7B16033	02/16/07 12:10	02/16/07 14:38	
tert-Butyl Alcohol	"	54.6	---	50.0	"	"	"	"	"	
Diisopropyl ether	"	ND	---	1.00	"	"	"	"	"	
Ethyl tert-butyl ether	"	ND	---	1.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	---	5.00	"	"	"	"	"	

<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>128%</i>	<i>70 - 130 %</i>	"	"	"	"	"	"
	<i>Toluene-d8</i>	<i>104%</i>	<i>75 - 125 %</i>	"	"	"	"	"	"
	<i>4-BFB</i>	<i>97.5%</i>	<i>75 - 125 %</i>	"	"	"	"	"	"

BQB0308-02 (MW-2)		Water			Sampled: 02/15/07 10:10					
tert-Amyl Methyl Ether	EPA 8260B	ND	---	1.00	ug/l	1x	7B16033	02/16/07 12:10	02/16/07 15:01	
tert-Butyl Alcohol	"	ND	---	50.0	"	"	"	"	"	
Diisopropyl ether	"	ND	---	1.00	"	"	"	"	"	
Ethyl tert-butyl ether	"	ND	---	1.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	---	5.00	"	"	"	"	"	

<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>106%</i>	<i>70 - 130 %</i>	"	"	"	"	"	"
	<i>Toluene-d8</i>	<i>100%</i>	<i>75 - 125 %</i>	"	"	"	"	"	"
	<i>4-BFB</i>	<i>98.0%</i>	<i>75 - 125 %</i>	"	"	"	"	"	"

BQB0308-03RE1 (MW-3)		Water			Sampled: 02/15/07 10:20					
tert-Amyl Methyl Ether	EPA 8260B	ND	---	100	ug/l	100x	7B19052	02/19/07 18:36	02/20/07 01:22	
tert-Butyl Alcohol	"	ND	---	5000	"	"	"	"	"	
Diisopropyl ether	"	ND	---	100	"	"	"	"	"	
Ethyl tert-butyl ether	"	ND	---	100	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	---	500	"	"	"	"	"	

<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>102%</i>	<i>70 - 130 %</i>	<i>1x</i>	"	"	"	"	"
	<i>Toluene-d8</i>	<i>99.5%</i>	<i>75 - 125 %</i>	"	"	"	"	"	"
	<i>4-BFB</i>	<i>98.5%</i>	<i>75 - 125 %</i>	"	"	"	"	"	"

BQB0308-04RE1 (MW-4)		Water			Sampled: 02/15/07 10:30					
tert-Amyl Methyl Ether	EPA 8260B	ND	---	100	ug/l	100x	7B19052	02/19/07 18:36	02/20/07 02:07	
tert-Butyl Alcohol	"	ND	---	5000	"	"	"	"	"	
Diisopropyl ether	"	ND	---	100	"	"	"	"	"	
Ethyl tert-butyl ether	"	ND	---	100	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	---	500	"	"	"	"	"	

<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>103%</i>	<i>70 - 130 %</i>	<i>1x</i>	"	"	"	"	"
	<i>Toluene-d8</i>	<i>100%</i>	<i>75 - 125 %</i>	"	"	"	"	"	"
	<i>4-BFB</i>	<i>97.5%</i>	<i>75 - 125 %</i>	"	"	"	"	"	"

TestAmerica - Seattle, WA

Kate Haney

Kate Haney, Project Manager

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Cambria - Seattle 8620 Holly Drive, Suite 210 Everett, WA 98208	Project Name: Shell - 6808 196th Street SW, Lynnwood Project Number: 070215.DU2 Project Manager: Justin Foslien	Report Created: 03/06/07 17:51
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Oxygenates by EPA Method 8260B
TestAmerica - Seattle, WA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQB0308-05RE1 (MW-5)		Water		Sampled: 02/15/07 10:40						
tert-Amyl Methyl Ether	EPA 8260B	ND	—	100	ug/l	100x	7B19052	02/19/07 18:36	02/20/07 02:36	
tert-Butyl Alcohol	"	ND	—	5000	"	"	"	"	"	
Diisopropyl ether	"	ND	—	100	"	"	"	"	"	
Ethyl tert-butyl ether	"	ND	—	100	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	—	500	"	"	"	"	"	
<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>		<i>103%</i>		<i>70 - 130 %</i>	<i>1x</i>				
	<i>Toluene-d8</i>		<i>99.5%</i>		<i>75 - 125 %</i>					
	<i>4-BFB</i>		<i>98.0%</i>		<i>75 - 125 %</i>					

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Cambria - Seattle 8620 Holly Drive, Suite 210 Everett, WA 98208	Project Name: Shell - 6808 196th Street SW, Lynnwood Project Number: 070215.DU2 Project Manager: Justin Foslien	Report Created: 03/06/07 17:51
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Volatile Petroleum Products by NWTPH-Gx - Laboratory Quality Control Results
 TestAmerica - Seattle, WA

QC Batch: 7B20016	Water Preparation Method: EPA 5030B (P/T)
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Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RFD	(Limits)	Analyzed	Notes		
Blank (7B20016-BLK1)													Extracted: 02/20/07 10:01			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	---	50.0	ug/l	1x	--	--	--	--	--	--	02/20/07 11:24			
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 93.8%</i>		<i>Limits: 58-144%</i>								02/20/07 11:24				
LCS (7B20016-BS1)													Extracted: 02/20/07 10:01			
Gasoline Range Hydrocarbons	NWTPH-Gx	1170	---	50.0	ug/l	1x	--	1000	117%	(80-120)	--	--	02/20/07 12:47			
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 105%</i>		<i>Limits: 58-144%</i>								02/20/07 12:47				
Duplicate (7B20016-DUP1)													QC Source: BQB0285-01		Extracted: 02/20/07 10:01	
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	---	50.0	ug/l	1x	ND	--	--	--	27.2%	(25)	02/20/07 14:23	R4		
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 94.0%</i>		<i>Limits: 58-144%</i>								02/20/07 14:23				
Duplicate (7B20016-DUP2)													QC Source: BQB0285-02		Extracted: 02/20/07 10:01	
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	---	50.0	ug/l	1x	ND	--	--	--	NR	(25)	02/20/07 15:26			
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 94.3%</i>		<i>Limits: 58-144%</i>								02/20/07 15:26				
Matrix Spike (7B20016-MS1)													QC Source: BQB0285-01		Extracted: 02/20/07 10:01	
Gasoline Range Hydrocarbons	NWTPH-Gx	1190	---	50.0	ug/l	1x	26.7	1000	116%	(75-131)	--	--	02/20/07 15:58			
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 106%</i>		<i>Limits: 58-144%</i>								02/20/07 15:58				

QC Batch: 7B21025	Water Preparation Method: EPA 5030B (P/T)
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Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RFD	(Limits)	Analyzed	Notes		
Blank (7B21025-BLK1)													Extracted: 02/21/07 10:44			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	---	50.0	ug/l	1x	--	--	--	--	--	--	02/21/07 11:51			
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 94.2%</i>		<i>Limits: 58-144%</i>								02/21/07 11:51				
LCS (7B21025-BS1)													Extracted: 02/21/07 10:44			
Gasoline Range Hydrocarbons	NWTPH-Gx	1000	---	50.0	ug/l	1x	--	1000	100%	(80-120)	--	--	02/21/07 12:23			
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 99.3%</i>		<i>Limits: 58-144%</i>								02/21/07 12:23				
Duplicate (7B21025-DUP1)													QC Source: BQB0322-06		Extracted: 02/21/07 10:44	
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	---	50.0	ug/l	1x	ND	--	--	--	NR	(25)	02/21/07 13:59			
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 92.8%</i>		<i>Limits: 58-144%</i>								02/21/07 13:59				
Duplicate (7B21025-DUP2)													QC Source: BQB0322-11		Extracted: 02/21/07 10:44	
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	---	50.0	ug/l	1x	ND	--	--	--	NR	(25)	02/22/07 02:25			
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 94.7%</i>		<i>Limits: 58-144%</i>								02/22/07 02:25				

TestAmerica - Seattle, WA

Kate Haney

Kate Haney, Project Manager

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Cambria - Seattle 8620 Holly Drive, Suite 210 Everett, WA 98208	Project Name: Shell - 6808 196th Street SW, Lynnwood Project Number: 070215.DU2 Project Manager: Justin Foslien	Report Created: 03/06/07 17:51
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Volatile Petroleum Products by NWTPH-Gx - Laboratory Quality Control Results
 TestAmerica - Seattle, WA

QC Batch: 7B21025 Water Preparation Method: EPA 5030B (P/T)

Analyte	Method	Result	MDL*	MRL	Units	DII	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (7B21025-MS1)				QC Source: EQB0322-06				Extracted: 02/21/07 10:44						
Gasoline Range Hydrocarbons	NWTPH-Gx	1070	—	50.0	ug/l	1x	ND	1000	107%	(75-131)	—	—	02/21/07 15:04	
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 102%</i>		<i>Limits: 58-144% "</i>				<i>02/21/07 15:04</i>						
Matrix Spike Dup (7B21025-MSD1)				QC Source: EQB0322-06				Extracted: 02/21/07 10:44						
Gasoline Range Hydrocarbons	NWTPH-Gx	1000	—	50.0	ug/l	1x	ND	1000	100%	(75-131)	6.76%	(25)	02/21/07 15:37	
<i>Surrogate(s): 4-BFB (FID)</i>		<i>Recovery: 101%</i>		<i>Limits: 58-144% "</i>				<i>02/21/07 15:37</i>						

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Kate Haney

Kate Haney, Project Manager

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Cambria - Seattle 8620 Holly Drive, Suite 210 Everett, WA 98208	Project Name: Shell - 6808 196th Street SW, Lynnwood Project Number: 070215.DU2 Project Manager: Justin Foslien	Report Created: 03/06/07 17:51
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Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results
 TestAmerica - Seattle, WA

QC Batch: 7B20021	Water Preparation Method: EPA 3520C
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Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7B20021-BLK1)													Extracted: 02/20/07 10:42	
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	250	ug/l	1x	--	--	--	--	--	--	03/01/07 16:25	
Lube Oil Range Hydrocarbons	"	ND	---	500	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 70.0%</i>		<i>Limits: 53-125%</i>		"							03/01/07 16:25	
<i>Octacosane</i>		<i>83.6%</i>		<i>68-125%</i>		"							"	

LCS (7B20021-BS1)													Extracted: 02/20/07 10:42	
Diesel Range Hydrocarbons	NWTPH-Dx	1430	---	250	ug/l	1x	--	2000	71.5%	(61-132)	--	--	03/01/07 16:51	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 74.8%</i>		<i>Limits: 53-125%</i>		"							03/01/07 16:51	
<i>Octacosane</i>		<i>79.6%</i>		<i>68-125%</i>		"							"	

LCS Dup (7B20021-BS1)													Extracted: 02/20/07 10:42	
Diesel Range Hydrocarbons	NWTPH-Dx	1550	---	250	ug/l	1x	--	2000	77.5%	(61-132)	8.05%	(35)	03/01/07 17:17	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 78.4%</i>		<i>Limits: 53-125%</i>		"							03/01/07 17:17	
<i>Octacosane</i>		<i>83.6%</i>		<i>68-125%</i>		"							"	

QC Batch: 7B20023	Water Preparation Method: EPA 3520C
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Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7B20023-BLK1)													Extracted: 02/20/07 10:49	
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	250	ug/l	1x	--	--	--	--	--	--	02/22/07 04:59	
Lube Oil Range Hydrocarbons	"	ND	---	500	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 80.0%</i>		<i>Limits: 53-125%</i>		"							02/22/07 04:59	
<i>Octacosane</i>		<i>107%</i>		<i>68-125%</i>		"							"	

LCS (7B20023-BS1)													Extracted: 02/20/07 10:49	
Diesel Range Hydrocarbons	NWTPH-Dx	1620	---	250	ug/l	1x	--	2000	81.0%	(61-132)	--	--	02/22/07 05:25	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 84.4%</i>		<i>Limits: 53-125%</i>		"							02/22/07 05:25	
<i>Octacosane</i>		<i>99.6%</i>		<i>68-125%</i>		"							"	

LCS Dup (7B20023-BS1)													Extracted: 02/20/07 10:49	
Diesel Range Hydrocarbons	NWTPH-Dx	1780	---	250	ug/l	1x	--	2000	89.0%	(61-132)	9.41%	(35)	02/22/07 05:51	
<i>Surrogate(s): 2-FBP</i>		<i>Recovery: 95.6%</i>		<i>Limits: 53-125%</i>		"							02/22/07 05:51	
<i>Octacosane</i>		<i>108%</i>		<i>68-125%</i>		"							"	

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Kate Haney

Kate Haney, Project Manager

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BTEX by EPA Method 8021B - Laboratory Quality Control Results
 TestAmerica - Seattle, WA

QC Batch: **7B20016** Water Preparation Method: **EPA 5030B (P/T)**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

Blank (7B20016-BLK1) Extracted: 02/20/07 10:01

Benzene	EPA 8021B	ND	---	0.500	ug/l	1x	--	--	--	--	--	--	02/20/07 11:24	
Toluene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Ethylbenzene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Xylenes (total)	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s): 4-BFB (PID)</i>		<i>Recovery: 102%</i>		<i>Limits: 68-140%</i>										<i>02/20/07 11:24</i>

LCS (7B20016-BS2) Extracted: 02/20/07 10:01

Benzene	EPA 8021B	29.0	---	0.500	ug/l	1x	--	30.0	96.7%	(80-120)	--	--	02/20/07 13:19	
Toluene	"	28.6	---	0.500	"	"	--	"	95.3%	"	--	--	"	
Ethylbenzene	"	28.8	---	0.500	"	"	--	"	96.0%	"	--	--	"	
Xylenes (total)	"	86.9	---	1.00	"	"	--	90.0	96.6%	"	--	--	"	
<i>Surrogate(s): 4-BFB (PID)</i>		<i>Recovery: 99.8%</i>		<i>Limits: 68-140%</i>										<i>02/20/07 13:19</i>

Duplicate (7B20016-DUP1) QC Source: BQB0285-01 Extracted: 02/20/07 10:01

Benzene	EPA 8021B	ND	---	0.500	ug/l	1x	ND	--	--	--	NR (25)	--	02/20/07 14:23	
Toluene	"	ND	---	0.500	"	"	ND	--	--	--	28.0%	"	"	R4
Ethylbenzene	"	ND	---	0.500	"	"	ND	--	--	--	NR	"	"	
Xylenes (total)	"	ND	---	1.00	"	"	ND	--	--	--	NR	"	"	
<i>Surrogate(s): 4-BFB (PID)</i>		<i>Recovery: 103%</i>		<i>Limits: 68-140%</i>										<i>02/20/07 14:23</i>

Duplicate (7B20016-DUP2) QC Source: BQB0285-02 Extracted: 02/20/07 10:01

Benzene	EPA 8021B	ND	---	0.500	ug/l	1x	ND	--	--	--	NR (25)	--	02/20/07 15:26	
Toluene	"	ND	---	0.500	"	"	ND	--	--	--	NR	"	"	
Ethylbenzene	"	ND	---	0.500	"	"	ND	--	--	--	NR	"	"	
Xylenes (total)	"	ND	---	1.00	"	"	ND	--	--	--	NR	"	"	
<i>Surrogate(s): 4-BFB (PID)</i>		<i>Recovery: 101%</i>		<i>Limits: 68-140%</i>										<i>02/20/07 15:26</i>

Matrix Spike (7B20016-MS2) QC Source: BQB0285-02 Extracted: 02/20/07 10:01

Benzene	EPA 8021B	31.4	---	0.500	ug/l	1x	ND	30.0	105%	(46-130)	--	--	02/20/07 16:30	
Toluene	"	30.7	---	0.500	"	"	ND	"	102%	(60-124)	--	--	"	
Ethylbenzene	"	31.1	---	0.500	"	"	ND	"	104%	(56-141)	--	--	"	
Xylenes (total)	"	92.4	---	1.00	"	"	ND	90.0	103%	(66-132)	--	--	"	
<i>Surrogate(s): 4-BFB (PID)</i>		<i>Recovery: 100%</i>		<i>Limits: 68-140%</i>										<i>02/20/07 16:30</i>

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Kate Haney

Kate Haney, Project Manager

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BTEX by EPA Method 8021B - Laboratory Quality Control Results
 TestAmerica - Seattle, WA

QC Batch: **7B21025** Water Preparation Method: **EPA 5030B (P/T)**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes		
Blank (7B21025-BLK1)													Extracted: 02/21/07 10:44			
Benzene	EPA 8021B	ND	---	0.500	ug/l	1x	--	--	--	--	--	--	02/21/07 11:51			
Toluene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"			
Ethylbenzene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"			
Xylenes (total)	"	ND	---	1.00	"	"	--	--	--	--	--	--	"			
Surrogate(s): 4-BFB (PID)		Recovery: 99.5%		Limits: 68-140%										02/21/07 11:51		
LCS (7B21025-BS2)													Extracted: 02/21/07 10:44			
Benzene	EPA 8021B	30.7	---	0.500	ug/l	1x	--	30.0	102%	(80-120)	--	--	02/21/07 12:54			
Toluene	"	28.8	---	0.500	"	"	--	"	96.0%	"	--	--	"			
Ethylbenzene	"	29.0	---	0.500	"	"	--	"	96.7%	"	--	--	"			
Xylenes (total)	"	86.0	---	1.00	"	"	--	90.0	95.6%	"	--	--	"			
Surrogate(s): 4-BFB (PID)		Recovery: 97.7%		Limits: 68-140%										02/21/07 12:54		
Duplicate (7B21025-DUP1)													QC Source: BQB0322-06		Extracted: 02/21/07 10:44	
Benzene	EPA 8021B	ND	---	0.500	ug/l	1x	ND	--	--	--	NR (25)	NR	02/21/07 13:59			
Toluene	"	ND	---	0.500	"	"	ND	--	--	--	NR	NR	"			
Ethylbenzene	"	ND	---	0.500	"	"	ND	--	--	--	NR	NR	"			
Xylenes (total)	"	ND	---	1.00	"	"	ND	--	--	--	NR	NR	"			
Surrogate(s): 4-BFB (PID)		Recovery: 99.8%		Limits: 68-140%										02/21/07 13:59		
Duplicate (7B21025-DUP2)													QC Source: BQB0322-11		Extracted: 02/21/07 10:44	
Benzene	EPA 8021B	ND	---	0.500	ug/l	1x	ND	--	--	--	NR (25)	NR	02/22/07 02:25			
Toluene	"	ND	---	0.500	"	"	ND	--	--	--	NR	NR	"			
Ethylbenzene	"	ND	---	0.500	"	"	ND	--	--	--	NR	NR	"			
Xylenes (total)	"	ND	---	1.00	"	"	ND	--	--	--	NR	NR	"			
Surrogate(s): 4-BFB (PID)		Recovery: 101%		Limits: 68-140%										02/22/07 02:25		
Matrix Spike (7B21025-MS2)													QC Source: BQB0322-06		Extracted: 02/21/07 10:44	
Benzene	EPA 8021B	34.0	---	0.500	ug/l	1x	ND	30.0	113%	(46-130)	--	--	02/21/07 16:09			
Toluene	"	31.8	---	0.500	"	"	ND	"	106%	(60-124)	--	--	"			
Ethylbenzene	"	32.1	---	0.500	"	"	ND	"	107%	(56-141)	--	--	"			
Xylenes (total)	"	95.2	---	1.00	"	"	ND	90.0	106%	(66-132)	--	--	"			
Surrogate(s): 4-BFB (PID)		Recovery: 99.3%		Limits: 68-140%										02/21/07 16:09		

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BTEX by EPA Method 8021B - Laboratory Quality Control Results
 TestAmerica - Seattle, WA

QC Batch: **7B21025** Water Preparation Method: **EPA 5030B (P/T)**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (7B21025-MSD2)		QC Source: BQB0322-06				Extracted: 02/21/07 10:44								
Benzene	EPA 8021B	33.7	—	0.500	ug/l	1x	ND	30.0	112%	(46-130)	0.886%	(40)	02/21/07 16:41	
Toluene	"	31.4	—	0.500	"	"	ND	"	105%	(60-124)	1.27%	"	"	
Ethylbenzene	"	31.6	—	0.500	"	"	ND	"	105%	(56-141)	1.57%	"	"	
Xylenes (total)	"	93.9	—	1.00	"	"	ND	90.0	104%	(66-132)	1.37%	"	"	
<i>Surrogate(s): 4-BFB (PID)</i>		<i>Recovery: 100%</i>		<i>Limits: 68-140%</i>		<i>"</i>								<i>02/21/07 16:41</i>

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Oxygenates by EPA Method 8260B - Laboratory Quality Control Results
 TestAmerica - Seattle, WA

QC Batch: **7B16033** Water Preparation Method: **EPA 5030B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7B16033-BLK1)													Extracted: 02/16/07 10:10	
tert-Amyl Methyl Ether	EPA 8260B	ND	---	1.00	ug/l	1x	--	--	--	--	--	--	02/16/07 12:34	
tert-Butyl Alcohol	"	ND	---	50.0	"	"	--	--	--	--	--	--	"	
Diisopropyl ether	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Ethyl tert-butyl ether	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Methyl tert-butyl ether	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>Recovery:</i>	<i>105%</i>	<i>Limits:</i>	<i>70-130%</i>	"							02/16/07 12:34	
	<i>Toluene-d8</i>		<i>99.5%</i>		<i>75-125%</i>	"							"	
	<i>4-BFB</i>		<i>97.5%</i>		<i>75-125%</i>	"							"	

LCS (7B16033-BS1)													Extracted: 02/16/07 10:10	
tert-Amyl Methyl Ether	EPA 8260B	18.9	---	1.00	ug/l	1x	--	20.0	94.5%	(75-125)	--	--	02/16/07 11:08	
tert-Butyl Alcohol	"	94.6	---	50.0	"	"	--	100	94.6%	"	--	--	"	
Diisopropyl ether	"	17.5	---	1.00	"	"	--	20.0	87.5%	"	--	--	"	
Ethyl tert-butyl ether	"	18.6	---	1.00	"	"	--	"	93.0%	"	--	--	"	
Methyl tert-butyl ether	"	19.0	---	5.00	"	"	--	"	95.0%	(75-126)	--	--	"	
<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>Recovery:</i>	<i>103%</i>	<i>Limits:</i>	<i>70-130%</i>	"							02/16/07 11:08	
	<i>Toluene-d8</i>		<i>98.0%</i>		<i>75-125%</i>	"							"	
	<i>4-BFB</i>		<i>97.5%</i>		<i>75-125%</i>	"							"	

LCS Dup (7B16033-BSD1)													Extracted: 02/16/07 10:10	
tert-Amyl Methyl Ether	EPA 8260B	18.9	---	1.00	ug/l	1x	--	20.0	94.5%	(75-125)	0.00%	(25)	02/16/07 11:44	
tert-Butyl Alcohol	"	89.4	---	50.0	"	"	--	100	89.4%	"	5.65%	"	"	
Diisopropyl ether	"	18.3	---	1.00	"	"	--	20.0	91.5%	"	4.47%	"	"	
Ethyl tert-butyl ether	"	19.0	---	1.00	"	"	--	"	95.0%	"	2.13%	"	"	
Methyl tert-butyl ether	"	18.9	---	5.00	"	"	--	"	94.5%	(75-126)	0.528%	(20)	"	
<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>Recovery:</i>	<i>102%</i>	<i>Limits:</i>	<i>70-130%</i>	"							02/16/07 11:44	
	<i>Toluene-d8</i>		<i>99.0%</i>		<i>75-125%</i>	"							"	
	<i>4-BFB</i>		<i>98.5%</i>		<i>75-125%</i>	"							"	

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Oxygenates by EPA Method 8260B - Laboratory Quality Control Results
 TestAmerica - Seattle, WA

QC Batch: **7B19052** Water Preparation Method: **EPA 5030B**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7B19052-BLK1)													Extracted: 02/19/07 17:36	
tert-Amyl Methyl Ether	EPA 8260B	ND	---	1.00	ug/l	1x	--	--	--	--	--	--	02/19/07 20:24	
tert-Butyl Alcohol	"	ND	---	50.0	"	"	--	--	--	--	--	--	"	
Diisopropyl ether	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Ethyl tert-butyl ether	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Methyl tert-butyl ether	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	

<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>Recovery: 100%</i>	<i>Limits: 70-130%</i>	"									02/19/07 20:24	
	<i>Toluene-d8</i>	<i>100%</i>	<i>75-125%</i>	"									"	
	<i>4-BFB</i>	<i>98.5%</i>	<i>75-125%</i>	"									"	

LCS (7B19052-BS1)													Extracted: 02/19/07 17:36	
tert-Amyl Methyl Ether	EPA 8260B	19.8	---	1.00	ug/l	1x	--	20.0	99.0%	(75-125)	--	--	02/19/07 19:08	
tert-Butyl Alcohol	"	94.4	---	50.0	"	"	--	100	94.4%	"	--	--	"	
Diisopropyl ether	"	18.2	---	1.00	"	"	--	20.0	91.0%	"	--	--	"	
Ethyl tert-butyl ether	"	19.0	---	1.00	"	"	--	"	95.0%	"	--	--	"	
Methyl tert-butyl ether	"	19.4	---	5.00	"	"	--	"	97.0%	(75-126)	--	--	"	

<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>Recovery: 100%</i>	<i>Limits: 70-130%</i>	"									02/19/07 19:08	
	<i>Toluene-d8</i>	<i>100%</i>	<i>75-125%</i>	"									"	
	<i>4-BFB</i>	<i>97.0%</i>	<i>75-125%</i>	"									"	

LCS Dup (7B19052-BSD1)													Extracted: 02/19/07 17:36	
tert-Amyl Methyl Ether	EPA 8260B	19.4	---	1.00	ug/l	1x	--	20.0	97.0%	(75-125)	2.04%	(25)	02/19/07 19:40	
tert-Butyl Alcohol	"	95.5	---	50.0	"	"	--	100	95.5%	"	1.16%	"	"	
Diisopropyl ether	"	17.3	---	1.00	"	"	--	20.0	86.5%	"	5.07%	"	"	
Ethyl tert-butyl ether	"	18.7	---	1.00	"	"	--	"	93.5%	"	1.59%	"	"	
Methyl tert-butyl ether	"	19.1	---	5.00	"	"	--	"	95.5%	(75-126)	1.56%	(20)	"	

<i>Surrogate(s):</i>	<i>1,2-DCA-d4</i>	<i>Recovery: 102%</i>	<i>Limits: 70-130%</i>	"									02/19/07 19:40	
	<i>Toluene-d8</i>	<i>102%</i>	<i>75-125%</i>	"									"	
	<i>4-BFB</i>	<i>97.0%</i>	<i>75-125%</i>	"									"	

TestAmerica - Seattle, WA

Kate Haney

Kate Haney, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.



Cambria - Seattle

8620 Holly Drive, Suite 210
Everett, WA 98208

Project Name: **Shell - 6808 196th Street SW, Lynnwood**

Project Number: 070215.DU2

Project Manager: Justin Foslien

Report Created:

03/06/07 17:51

Notes and Definitions

Report Specific Notes:

- A-01 - Due to multiple re-shots required for analysis, the aliquot of sample analyzed on the instrument was taken from a VOA vial containing headspace.
- P-HS - Sample container contained headspace.
- Q5 - Results in the diesel organics range are primarily due to overlap from a gasoline range product.
- R4 - Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
- ZX - Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.

Laboratory Reporting Conventions:

- DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
- ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
- NR/NA - Not Reported / Not Available
- dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
- wet - Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
- RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
- MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
- Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
- Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica - Seattle, WA



Kate Haney, Project Manager

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