# SUSTAINABLE STRATEGIES FOR GLOBAL LEADERS

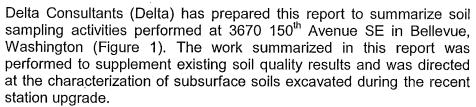
September 4, 2007

Mr. Jeff Goold Shell Oil Products US 20945 S. Wilmington Avenue Carson, California 90810-1039 Sent via FedEx Saver

SUBJ: Station Upgrade-Soil Sampling Report Shell Service Station 3670 150th Avenue SE Bellevue, Washington Delta Project No. ST367-0SG-T

Shell SAP No. 121172





#### **EXECUTIVE SUMMARY**

Delta has prepared this summary report to present the findings of the soil sampling event which was performed at the Shell Service station at 3670 150th Avenue SE in Bellevue, Washington on April 10 and 11, 2007. The work was performed at the request of Shell Oil Products US (Shell).

Delta personnel collected soil samples at the dispenser islands, product line trenches, and from the stockpiles generated during station upgrades at the site. TCM Northwest, Inc. of Hillsboro, Oregon was contracted directly by Shell to perform upgrades to the product lines and fueling dispensers at the facility. Soils were removed from under the four dispenser islands and the product line trenches in order to replace equipment and piping associated with the fueling distribution system. Excavated soils were stockpiled for analytical testing. On April 10 and 11, 2007 Delta personnel collected samples from the excavated areas and stockpiles. The samples were collected approximately six inches below the surface of the respective areas. Each sample was individually labeled, registered on a Chain-of-Custody form, and placed in a chilled cooler pending delivery to a certified analytical laboratory. A summary of soil analytical results is presented in Table 1.

Laboratory analysis of soil samples collected from the stockpile indicate that petroleum hydrocarbons were/not/detected above Washington State Model Toxic Control Act (MTCA) Method A cleanup levels in all soil samples submitted for analysis. The findings are consistent with and expand upon data collected during previous soil sampling conducted at the site.





Station Upgrade – Soil Sampling Report 3670 150<sup>th</sup> Ave SE Bellevue, Washington Page 2 of 3

#### **BACKGROUND**

Currently, the site is occupied by a convenience grocery store with a fueling facility. The gasoline distribution system consists of four fueling dispensers, product piping, vent lines, and underground storage tanks (USTs). Delta was directed to the site by Shell to perform compliance soil sampling of excavated areas and stockpiled soils during upgrades to the station's dispenser islands and product lines.

## SAMPLE COLLECTION AND ANALYSIS

#### SOIL SAMPLING

Soil samples collected from the excavated areas and stockpiles were selected from representative locations at approximately six inches below the exposed surfaces. Soil samples were obtained with a stainless steel hand auger. Sampling equipment was decontaminated with a phosphate-free cleaning detergent prior to and between each boring to prevent cross-contamination.

A total of 13 soil samples were collected and submitted for analysis. Each sample was individually labeled, registered on a Chain-of-Custody form, and placed in a chilled cooler pending delivery to a certified analytical laboratory.

#### LABORATORY ANALYSIS

Soil and groundwater samples were submitted to Test America Analytical Laboratories of Bothell, Washington for quantitative chemical analysis. The soil samples were analyzed for the following parameters:

- Total petroleum hydrocarbons in the gasoline range (TPH-G) using Washington Method NWTPH-Gx; and
- Benzene, toluene, ethylbenzene, and xylene (BTEX), and Methyl Tertiary Butyl Ether (MTBE), using USEPA Method 8260B;

#### **ANALYTICAL RESULTS**

#### SOIL

The analytical results for soil samples collected from the borings during the April 2007 sampling event indicate that concentrations of TPH-G, BTEX, and MTBE were not detected above MTCA Method A cleanup levels in all soil samples submitted for analysis. Soil analytical results are presented in Table 1 and on Figure 2. Soil analytical reports are included in Attachment A.

#### **WASTE MANAGEMENT**

Excavated soils generated during work activities were temporarily stockpiled on-site during station upgrade activities. Excavated areas were backfilled and compacted with the stockpiled soils upon receipt of soil analytical results.

#### CONCLUSIONS

Delta collected 13 soil samples from the dispenser islands, product line trenches and stockpiles during the product line/dispenser upgrades at the subject site in April 2007. Laboratory analysis of soil

Station Upgrade – Soil Sampling Report 3670 150<sup>th</sup> Ave SE Bellevue, Washington Page 3 of 3

samples collected indicate that petroleum hydrocarbons were not detected above MTCA Method A cleanup levels in all soil samples submitted for analysis.

The findings are consistent with and expand upon data collected during previous soil sampling conducted at the site. Please call Matthew Miller at (425) 498-7722 if you have any questions regarding the contents of this report.

#### **REMARKS**

The recommendations contained in this report represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. This report is based upon a specific scope of work requested by the client. The contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Delta's client and anyone else specifically listed on this report. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this report.

Sincerely,

**DELTA CONSULTANTS** 

َ Jamey Peterson ر Staff Scientist

Matthew Miller, L.G. Project Specialist

Attachments: Table 1 - Summary of Analytical Results - Soil

Figure 1 – Vicinity Map

Figure 2 – Site Plan with Sample Locations

Attachment A – Analytical Laboratory Reports and Chain-of-Custody Documentation

sed Geo

Matthew Miller

cc: John Wietfield, WA State Department of Ecology, 3190 160<sup>th</sup> Avenue SE Bellevue, Washington 98008-5452

# TABLE 1 SUMMARY OF ANALYTICAL RESULTS-SOIL SAP No.: 121172

3670 150th Aveneu SE Bellevue, Washington

Sample I.D.	Sample Date	Sample Location	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl- benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)
NWD-001	04/10/07	NW Dispenser	<10.5	<0.21	<0.21	<0.21	<0.63	<1.0
NWD-SK-001	04/10/07	stockpile	<8.43	<0.15	<0.15	<0.15	<0.44	<0.73
SWD-001	04/10/07	SW Dispenser	<7.76	<0.20	<0.20	<0.20	<0.60	<1.0
SWD-SK-001	04/10/07	stockpile	<7.10	<0.16	<0.16	<0.16	<0.49	<0.82
NED-001	04/10/07	NE Dispenser	<7.03	<0.14	<0.14	<0.14	<0.42	<0.70
NED-SK-001	04/10/07	stockpile	<4.94	<0.20	<0.20	<0.20	<0.59	<0.98
SED-001	04/10/07	SE Dispenser	<9.46	<0.15	<0.15	<0.15	<0.44	<0.73
SED-SK-001	04/10/07	stockpile	<9.55	<0.10	<0.10	<0.10	<0.29	<0.48
PLNW-001	04/11/07	NW Product line	<5.84	<0.12	0.16	<0.12	<0.35	<0.58
PLNE-001	04/11/07	NE Product line	<6.78	<0.13	<0.13	<0.13	<0.38	<0.64
PLSE-001	04/11/07	SE Product line	<8.76	<0.18	<0.18	<0.18	<0.53	<0.88
PLSW-001	04/11/07	SW Product line	<9.83	<0.20	<0.20	<0.20	<0.59	<0.98
PLW-M-001	04/11/07	Mid. W Product line	<11.9	<0.24	<0.24	<0.24	<0.71	<1.2
MTCA Method Level for Unre		-	30*	0.03	. 7	6	9	0.1

## NOTES:

mg/kg = milligrams per kilogram

ND = Below the laboratory reporting limit or the method detection limit

TPH-G = Total Petroleum Hydrocarbons in the Gasoline range

MTBE = Methyl tert-butyl ether

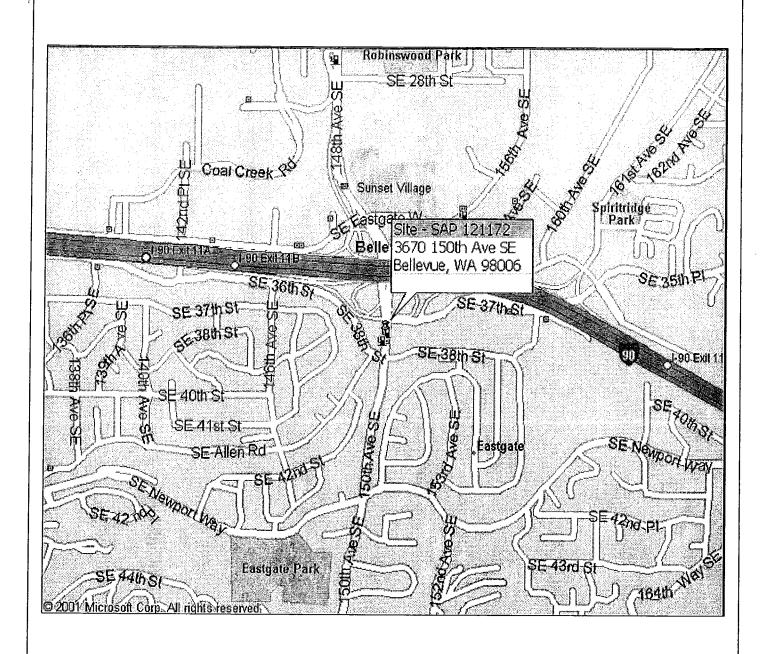
TPH-D and TPH-O quantified using Northwest Method NWTPH-Dx

TPH-G quantified using Northwest Method NWTPH-Gx

BTEX Compounds and MTBE analyzed using EPA Method 8260B

< = Not detected at concentration greater than the laboratory method reporting limit

\* MTCA Method A Cleanup Level for TPH-Gasoline is 100 mg/kg if benzene is not detected in soil.





NOT TO SCALE

GENERAL NOTES:
BASE MAP FROM MICROSOFT STREETS & TRIPS 2003

## FIGURE 1

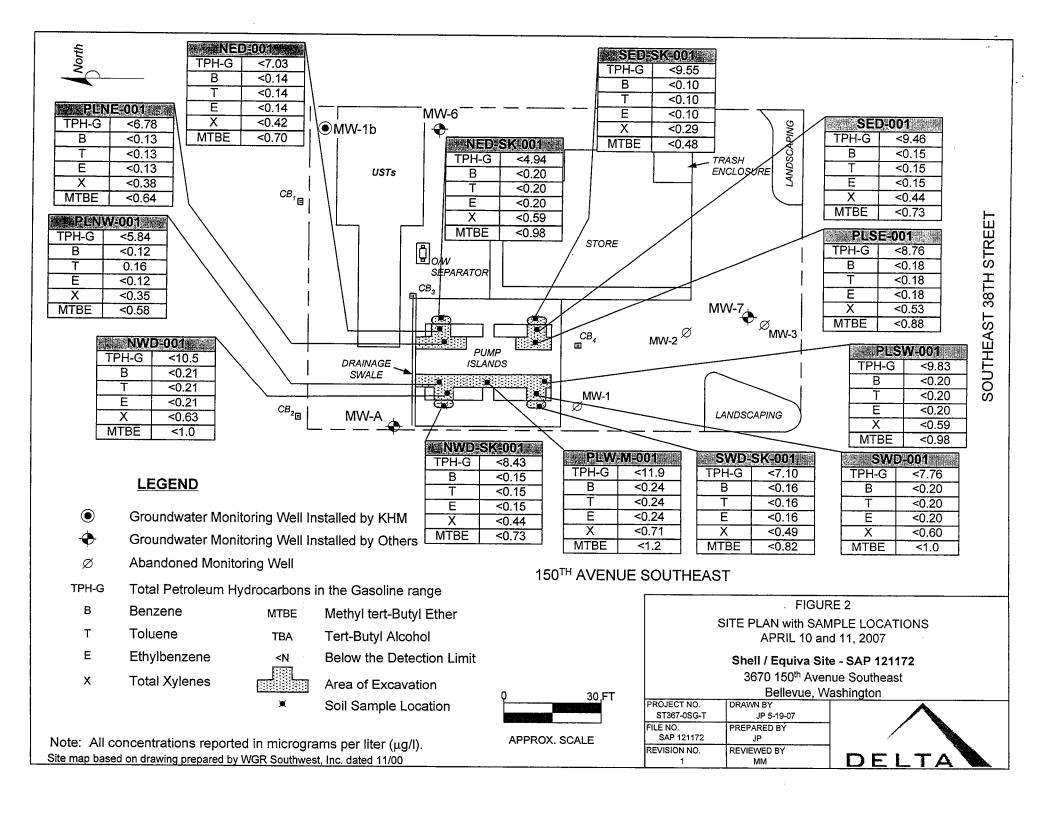
SITE LOCATION MAP

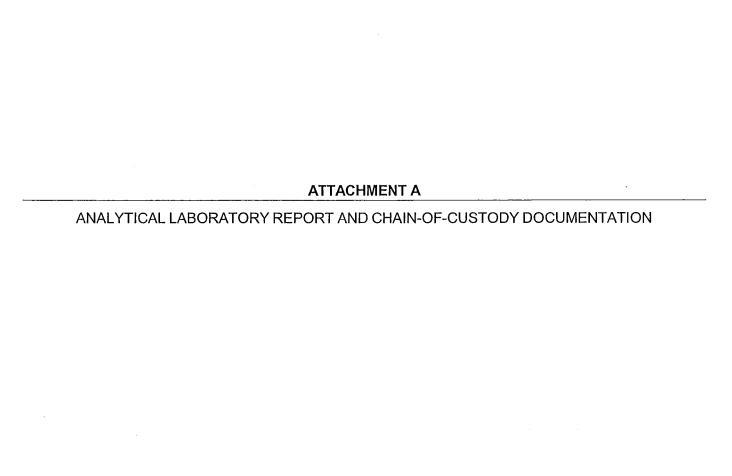
#### SHELL / EQUIVA SITE - SAP 121172

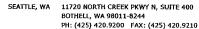
3670 150<sup>th</sup> Avenue Southeast Bellevue, Washington

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ST367-0SG-X	SB 11-06-03
FILE NO.	PREPARED BY
SAP 121172	SB
REVISION NO.	REVIEWED BY
1	l DL











April 11, 2007

Matthew Miller
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: Shell-3670 150th Ave SE, Bellevue

Enclosed are the results of analyses for samples received by the laboratory on 04/10/07 17:00. The following list is a summary of the Work Orders contained in this report, generated on 04/11/07 16:35.

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

Work Order	Project	<u>ProjectNumber</u>
BQD0152	Shell-3670 150th Ave SE, Bell	97420019

TestAmerica - Seattle, WA

Sandra Valamavich Project Manager



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11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**Delta Environmental** 

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE

Project Number:

97420019

Report Created:

Redmond, WA/USA 98052

Project Manager: M

Matthew Miller

04/11/07 16:35

	ANALYTICAL REPO	RT FOR SAM	PLES	
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
NWD-001	BQD0152-01	Soil	04/10/07 14:30	04/10/07 17:00
NWD-SK-001	BQD0152-02	Soil	04/10/07 14:40	04/10/07 17:00
SWD-001	BQD0152-03	Soil	04/10/07 15:20	04/10/07 17:00
SWD-SK-001	BQD0152-04	Soil	04/10/07 14:50	04/10/07 17:00
NED-001	BQD0152-05	Soil	04/10/07 16:10	04/10/07 17:00
NED-SK-001	BQD0152-06	Soil	04/10/07 16:20	04/10/07 17:00
SED-001	BQD0152-07	Soil	04/10/07 15:50	04/10/07 17:00
SED-SK-001	BQD0152-08	Soil	04/10/07 16:00	04/10/07 17:00

TestAmerica - Seattle, WA

Sundra Gavamerich

Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**Delta Environmental** 

4006 148th Ave NE Redmond, WA/USA 98052 Project Name:

Shell-3670 150th Ave SE, Bellevue

Project Number: Project Manager: 97420019 Matthew Miller Report Created: 04/11/07 16:35

Volatile Petroleum Products by NWTPH-Gx

TestAmerica - Seattle, WA

Analyte	Method	Result MDI	,* MRI	Units	Dil	Batch	Prepared	Analyzed	Notes
BQD0152-01 (NWD-001)		Soil		Samp	led: 04/	10/07 14:30			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	10.5	mg/kg dry	lx	7D10060	04/10/07 18:59	04/10/07 20:00	
Surrogate(s): 4-BFB (FID)		70.5%		50 - 150 %	"			и	
BQD0152-02 (NWD-SK-001)		Soil		Samp	led: 04/	10/07 14:40			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	8.43	mg/kg dry	lx	7D10060	04/10/07 18:59	04/10/07 21:30	
Surrogate(s): 4-BFB (FID)		86.6%		50 - 150 %	11			"	
BQD0152-03 (SWD-001)		Soil		Sampl	led: 04/	10/07 15:20			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	7.76	mg/kg dry	lx	7D10060	04/10/07 18:59	04/10/07 22:00	
Surrogate(s): 4-BFB (FID)		89.5%		50 - 150 %	"			u	
BQD0152-04 (SWD-SK-001)		Soil		Sampl	ed: 04/	10/07 14:50			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	7.10	mg/kg dry	lx	7D10060	04/10/07 18:59	04/10/07 22:30	
Surrogate(s): 4-BFB (FID)		86.4%		50 - 150 %	"			н	
BQD0152-05 (NED-001)		Soil		Sampl	ed: 04/1	0/07 16:10			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	7.03	mg/kg dry	lx	7D10060	04/10/07 18:59	04/10/07 23:00	
Surrogate(s): 4-BFB (FID)		86.5%		50 - 150 %	"			н	
BQD0152-06 (NED-SK-001)		Soil		Sampl	ed: 04/1	0/07 16:20			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	4.94	mg/kg dry	lx	7D10060	04/10/07 18:59	04/10/07 23:29	
Surrogate(s): 4-BFB (FID)		88.9%	-	50 - 150 %	"			lı	
BQD0152-07 (SED-001)		Soil		Sample	ed: 04/1	0/07 15:50			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	9.46	mg/kg dry	lx	7D10060	04/10/07 18:59	04/11/07 01:27	
Surrogate(s): 4-BFB (FID)		89.1%		50 - 150 %	"			н	
3QD0152-08 (SED-SK-001)		Soil		Sample	ed: 04/1	0/07 16:00			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	9.55	mg/kg dry	lx	7D10060	04/10/07 18:59	04/11/07 01:57	
Surrogate(s): 4-BFB (FID)		87.6%		50 - 150 %	"			"	

TestAmerica - Seattle, WA

Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

Delta Environmental

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE Redmond, WA/USA 98052 Project Number: Project Manager: 97420019 Matthew Miller Report Created: 04/11/07 16:35

# Physical Parameters by APHA/ASTM/EPA Methods

TestAmerica - Seattle, WA

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQD0152-01	(NWD-001)		Soil			Sam	pled: 04/3	0/07 14:30			· · · · - ·
Dry Weight		BSOPSPL003R0 8	97.8		1.00	%	lx	7D10065	04/10/07 20:26	04/11/07 00:00	_
BQD0152-02	(NWD-SK-001)		Soil	_		Sam	pled: 04/1	0/07 14:40			
Dry Weight		BSOPSPL003R0 8	90.0		1.00	%	lx	7D10065	04/10/07 20:26	04/11/07 00:00	
BQD0152-03	(SWD-001)		Soil			Sam	pled: 04/1	0/07 15:20			
Dry Weight		BSOPSPL003R0 8	90.0	**************************************	1.00	%	lx	7D10065	04/10/07 20:26	04/11/07 00:00	
BQD0152-04	(SWD-SK-001)		Soil			Sam	pled: 04/1	0/07 14:50			
Dry Weight	-	BSOPSPL003R0 8	92.8		1.00	%	lx	7D10065	04/10/07 20:26	04/11/07 00:00	
BQD0152-05	(NED-001)		Soil			Sam	pled: 04/1	0/07 16:10			
Dry Weight		BSOPSPL003R0 8	80.5		1.00	%	lx	7D10065	04/10/07 20:26	04/11/07 00:00	
BQD0152-06	(NED-SK-001)		Soil			Samj	pled: 04/1	0/07 16:20			
Dry Weight		BSOPSPL003R0 8	93.0		1.00	%	lx	7D10065	04/10/07 20:26	04/11/07 00:00	
BQD0152-07	(SED-001)		Soil			Samp	oled: 04/1	0/07 15:50			
Dry Weight		BSOPSPL003R0 8	95.9		1.00	%	lx	7D10065	04/10/07 20:26	04/11/07 00:00	
BQD0152-08	(SED-SK-001)		Soil			Samı	oled: 04/1	0/07 16:00			
Dry Weight		BSOPSPL003R0	95,9	. —	1.00	%	lx	7D10065	04/10/07 20:26	04/11/07 00:00	

TestAmerica - Seattle, WA

Sundra Garamevich

Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**Delta Environmental** 4006 148th Ave NE

Project Name:

Shell-3670 150th Ave SE, Bellevue

Project Number:

97420019

Report Created:

Redmond, WA/USA 98052

Project Manager:

Matthew Miller

04/11/07 16:35

# Oxygenates by EPA Method 8260B

TestAmerica - Seattle, WA

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQD0152-01	(NWD-001)		Soi	I		Sampl	led: 04/1	0/07 14:30			
tert-Amyl Methyl I	Ether	EPA 8260B	ND		1.0	mg/kg dry	lx	7D10061	04/10/07 17:00	04/10/07 18:26	
Berizene	,	н	ND		0.21	w .	"	**	•	•	
tert-Butyl Alcohol		"	ND		10	n	п	11	R		
1,2-Dibromoethane	(EDB)		ND		0.10		н	u			
1,2-Dichloroethane	(EDC)	,	ND		0.10	п			*	π	
Diisopropyl ether		"	ND		1.0			•	•	4	
Ethyl tert-butyl ethe	er	h	ND		0.1		*	4	P	н	
Ethanol		III	ND		42	1		"	*		
Ethylbenzene		*	ND		0.21	п	м	þ	n		
Methyl tert-butyl et	her	Hr.	ND		1.0		**	**			
Toluene		n	ND		0.21	ler .	"	w			
Xylenes (total)		n	ND	—	0.63	*		н	*	'n	
Surrogate(s):	1,2-DCA-d4			108%		75 - 125 %	"			"	
	Toluene-d8			106%		75 - 125 %	**			,,	
	4-BFB			100%		75 - 125 %	**			"	
BQD0152-02	(NWD-SK-001)		Soi	l		Sampl	ed: 04/1	0/07 14:40	•		
tert-Amyl Methyl E	ther	EPA 8260B	ND	-	0.73	mg/kg dry	lx	7D10061	04/10/07 17:00	04/10/07 18:58	
Велгене			ND		0.15	Ħ	ai .	и	**	u	
tert-Butyl Alcohol			ND		7.3		"				
1,2-Dibromoethane	(EDB)	ч	ND		0.07	н	Ħ	77	я	н	
1,2-Dichloroethane	(EDC)		ND		0.07	n	*	11		*	
Diisopropyl ether			ND	_	0.73	10	u	w	**		
Ethyl tert-butyl ethe	ιΓ	п	ND		0.73			. "	н		
Ethanol		*	ND		29	"		n	π	п	
Ethylbenzene		u	ND		0.15	n	w	×		P	
Methyl tert-butyl etl	ner	и	ND		0.73	*	"		"	•	
l'oluene		и	ND		0.15		•			"	
Xylenes (total)		ч	ND	*****	0.44		•	"	11	и	
Surrogate(s):	1,2-DCA-d4		-	108%	_	75 - 125 %	n			n	
	Toluene-d8			106%		75 - 125 %	"			*	
	4-BFB			99.7%		75 - 125 %	"				

TestAmerica - Seattle, WA

Sundra Gallameinch

Sandra Yakamavich, Project Manager





Delta Environmental

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE

Project Number:

97420019

Report Created:

Redmond, WA/USA 98052

Project Manager:

Matthew Miller

04/11/07 16:35

## Oxygenates by EPA Method 8260B

Test America - Seattle WA

Analyte	Method .	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQD0152-03 (SWD-001)		So	il		Sampl	ed: 04/1	10/07 15:20			
tert-Amyl Methyl Ether	EPA 8260B	ND		1.0	mg/kg dry	lx	7D10061	04/10/07 17:00	04/10/07 19:30	
Benzene	н	ND		0.20	н			**	n	
tert-Butyl Alcohol	u .	ND	*****	10		"	"	H	н	
1,2-Dibromoethane (EDB)	"	ND		0.10		**	#	н	11	
1,2-Dichloroethane (EDC)	*	ND		0.10	. "	*	•	n		
Diisopropyl ether		ND		1.0	pr .	' н		4	N	
Ethyl tert-butyl ether	ų	ND		1.0		*	π	н	Ħ	
Ethanol	n.	ND		40	ır	м	"	н	11	
Ethylbenzene		ND		0.20	m		н	18		
Methyl tert-butyl ether	n	ND		1.0	u	**	*		n	
Toluene	н	ND		0.20	и	"	11	"		
Xylenes (total)	н	ND		0.60	н			tr .	a	
Surrogate(s): 1,2-DCA-d4			110%		75 - 125 %	"			п	
Toluene-d8			106%		75 - 125 %	"			п	
4-BFB			100%		75 - 125 %	"			tr .	
BQD0152-04 (SWD-SK-001)		Soi	l		Sampl	ed: 04/1	0/07 14:50			
tert-Amyl Methyl Ether	EPA 8260B	ND		0.82	mg/kg dry	lx	7D10061	04/10/07 17:00	04/10/07 20:02	
Benzene	*	ND		0.16	•			n		
tert-Butyl Alcohol		ND		8.2	•	#	π	**	w	
1,2-Dibromoethane (EDB)	п	ND		0.08		"	н		*	
1,2-Dichloroethane (EDC)	н	ND		0.08		u	n	п		
Diisopropyl ether	н	ND	_	0.82	u	н	11	n		
Ethyl tert-butyl ether		ND		0.82		4		"	•	
Ethanol	*	ND		33	*			te .	m	
Ethylbenzene	и	ND		0.16	*			*	11	
Methyl tert-butyl ether		ND		0.82			ır	**		
Toluene .	Ħ	ND		0.16	"	*		,		
Xylenes (total)	•	ND		0.49	*		и	"	п	
Surrogate(s): 1,2-DCA-d4			110%		75 - 125 %	"			"	
Toluene-d8			105%		75 - 125 %	"			"	
4-BFB			102%		75 - 125 %	"			"	

TestAmerica - Seattle, WA

Sandra Yakamavich, Project Manager





Delta Environmental

SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

Shell-3670 150th Ave SE, Bellevue Project Name:

4006 148th Ave NE Project Number: Redmond, WA/USA 98052 Project Manager: 97420019 Matthew Miller

Report Created: 04/11/07 16:35

# Oxygenates by EPA Method 8260B

TestAmerica - Seattle, WA

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Note
BQD0152-05	(NED-001)		Soi	ı		Sampl	ed: 04/1	10/07 16:10	.,		
tert-Amyl Methyl	Ether	EPA 8260B	ND		0.70	mg/kg dry	lx	7D10061	04/10/07 17:00	04/10/07 20:34	•••
Benzene		#	ND		0.14	n		н	н	к	
tert-Butyl Alcohol		*	ND		7.0	N .	*	и	11	m .	
1,2-Dibromoethan	e (EDB)		ND		0.07	Ħ	**	tr	n	. "	
1,2-Dichloroethane	e (EDC)	ir	ND		0.07			н	н		
Diisopropyl ether		<b>H</b>	ND		0.70			H	н		
Ethyl tert-butyl eth	er	н	ND		0.70	-		и	н	и	
Ethanol		н	ND		28	P	*	Ħ	<b>H</b> .	n	
Ethylbenzene		"	ND		0.14			11		и	
Methyl tert-butyl e	ther	π	ND		0.70		n	u		н	
Toluene		er .	ND		0.14	n	*	u	н	и	
Xylenes (total)		н	ND		0.42		•		W	**	
Surrogate(s):	1,2-DCA-d4			108%		75 - 125 %	"			п	
	Toluene-d8			105%		75 - 125 %	"			и	
	4-BFB			100%		75 - 125 %	"			и	
BQD0152-06	(NED-SK-001)		Soi	, 		Sampl	ed: 04/1	0/07 16:20			
tert-Amyl Methyl I	Ether	EPA 8260B	ND		0.98	mg/kg dry	lx	7D10061	04/10/07 17:00	04/10/07 21:06	
Benzene			ND		0.20		le .		ır		
ert-Butyl Alcohol		ıı .	ND.		9.8	•	-				
1,2-Dibromoethane	(EDB)	**	ND		0.10	•	*	"	"	n	
,2-Dichloroethane	(EDC)		ND		0.10	11			H	•	
Diisopropyl ether	•		ND		0.98	v				и	
Ethyl tert-butyl ethe	er	π	ND		0.98	*	R			н	
Sthanol		н	ND		39	N	н	и			
Ethylbenzene		n .	ND		0.20	-	*	12		H	
Methyl tert-butyl et	her	W	ND		0.98				n	N	
		ar	ND		0.20			н	"	•	
oluene		n	ND		0.59	H	n	11		н	
			N.D								
	1,2-DCA-d4			109%		75 - 125 %	"	_		"	
Yylenes (total)  Surrogate(s):	1,2-DCA-d4 Toluene-d8			109% 105%		75 - 125 % 75 - 125 %	u u	_	· · · · · ·	"	

TestAmerica - Seattle, WA

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11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

Delta Environmental

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE Redmond, WA/USA 98052 Project Number:

97420019

Report Created:

Project Manager: Matthew Miller

04/11/07 16:35

## Oxygenates by EPA Method 8260B

TestAmerica - Seattle, WA

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQD0152-07	(SED-001)		Soi	l		Sampl	led: 04/1	0/07 15:50		_	
tert-Amyl Methyl E	Ether	EPA 8260B	ND		0.73	mg/kg dry	lx	7D10061	04/10/07 17:00	04/10/07 21:38	
Вепzеле			ND		0.15	ď	n	h	,,	N	
tert-Butyl Alcohol		и	ND		7.3		м	-		π	
1,2-Dibromoethane	•	4	ND		0.07				*	•	
1,2-Dichloroethane	(EDC)		ND		0.07	*		"	'n	*	
Diisopropyl ether		п	ND		0.73	**	*	ij			
Ethyl tert-butyl ethe	er	u	ND		0.73			#		U	
Ethanol		U	ND		29	**		4	**		
Ethylbenzene		*	ND	*****	0.15	*	n	"	•	•	
Methyl tert-butyl etl	her	er .	ND		0.73	٠,		**		•	
Toluene			ND		0.15			*			
Cylenes (total)		**	ND		0.44	*		п	H		
Surrogate(s):	1,2-DCA-d4			108%		75 - 125 %	"			u	
•	Toluene-d8			106%		75 - 125 %	n			μ	
	4-BFB			102%		75 - 125 %	Ħ	•		<b>"</b>	
BQD0152-08	(SED-SK-001)		Soi	I		Sampl	ed: 04/1	0/07 16:00			
ert-Amyl Methyl Et	ther	EPA 8260B	ND		0.48	mg/kg dry	lx	7D11033	04/11/07 08:29	04/11/07 13:55	
Benzene		и	ND		0.10	**	•		**	u	
rt-Butyl Alcohol		11	ND		4.8		**		u u	н	
,2-Dibromoethane	(EDB)		ND		0.05			#	н	н	
,2-Dichloroethane (	(EDC)	h	ND		0.05	*	*	u	H	•	
iisopropyl ether		it	ND		0.48	"		p.	. #		
thyl tert-butyl ether	r '	TT .	ND		0.48	н		п	**	,	
thanol		u	ND		19	*		11		н	
thylbenzene			ND		0.10	11	"	н		н	
lethyl tert-butyl eth	іег	п	ND		0.48		"			H .	
oluene			ND		01.0					n	
(ylenes (total)		H	ND		0.29	*	*		u		
Surrogate(s):	1,2-DCA-d4			100%		75 - 125 %	"			"	
	Toluene-d8			102%		75 - 125 %	"			tr	
	4-BFB			96.4%		75 - 125 %	u				

TestAmerica - Seattle, WA

Gendra Gaverneich

Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

Delta Environmental

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE Redmond, WA/USA 98052 Project Number: Project Manager: 97420019 Matthew Miller

Report Created: 04/11/07 16:35

Volatile Petroleum Products by NWTPH-Gx - Laboratory Quality Control Results

			Tes	tAmerica - Seattle, W	A						
QC Batch: 7D10060	Soil Pre	paration M	Aethod: EPA	5030B (P/T)		· ···········					
Analyte	Method	Result	MDL*	MRL Units	Dil	Source Result	Spike % Amt REC	(Limits) %	(Limits	i) Analyzed	Notes
Blank (7D10060-BLK1)							Extracted:	04/10/07 18:59			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND		5.00 mg/kg wet	lx					04/10/07 19:00	
Surrogate(s): 4-BFB (FID)		Recovery:	90.3%	Limits: 50-150%	p					04/10/07 19:00	
LCS (7D10060-BS1)							Extracted:	04/10/07 18:59	·		
Gasoline Range Hydrocarbons	NWTPH-Gx	50.2		5.00 mg/kg wet	1x		50.0 100%	(75-125)		04/10/07 19:30	
Surrogate(s): 4-BFB (FID)		Recovery:	100%	Limits: 50-150%	,,		-			04/10/07 19:30	
Duplicate (7D10060-DUP1)				QC Source: BQD0152-01			Extracted:	04/10/07 18:59			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND		10.5 mg/kg dry	lx	ND		27,49	6 (40)	04/10/07 21:00	R
Surrogate(s): 4-BFB (FID)		Recovery:	91.7%	Limits: 50-150%	μ					04/10/07 21:00	
Matrix Spike (7D10060-MS1)				QC Source: BQD0152-01	<u> </u>		Extracted:	04/10/07 18:59			
Gasoline Range Hydrocarbons	NWTPH-Gx	108		10.5 mg/kg dry	lx	4.10	105 99.0%	(42-125)		04/10/07 23:59	
Surrogate(s): 4-BFB (FID)		Recovery:	103%	Limits: 50-150%	"					04/10/07 23:59	

TestAmerica - Seattle, WA

Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

Extracted: 04/10/07 20:26

Delta Environmental 4006 148th Ave NE

QC Batch:

Blank (7D10065-BLK1)

Analyte

Dry Weight

Project Name:

Shell-3670 150th Ave SE, Bellevue

BSOPSPL00

Project Number:

97420019

Report Created:

Redmond, WA/USA 98052

Project Manager:

1.00

Matthew Miller

04/11/07 16:35

04/11/07 00:00

	Physical Para	meters by A	3. "阿拉克·西西克斯克斯克斯克斯克斯克斯克斯克斯克斯克斯克斯克斯克斯克斯克斯克斯克斯克斯	F-12	<b>Tethods</b> Seattle, W		ratory (	Quality	' Con	trol Res	ults			
7D10065	Soil Pro	eparation Met	hod: Dry \	Veight										
	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes

łx

TestAmerica - Seattle, WA

Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

Delta Environmental

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE

Project Number: Project Manager: 97420019 Matthew Miller Report Created:

Redmond, WA/USA 98052

04/11/07 16:35

<b>经验程</b> 等。1996年,1996年,1996年,1996年		No approach	1680	Amenca	- Seattle, WA	N		84. 1. <u>8</u>	1	A VALVA E				
QC Batch: 7D10061	. Soil Pro	paration N	lethod: EPA	5030B	МеОН]									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Note
Blank (7D10061-BLK1)								Extr	acted:	04/10/07 12	:30		···	
ert-Amyl Methyl Ether	EPA 8260B	ND		0.50	mg/kg wet	lx							04/10/07 14:30	
Benzene		ND		0.10									30	
ert-Butyl Alcohol	"	ND		5.0	u	п							н	
,2-Dibromoethane (EDB)	h	ND		0.05									u	
,2-Dichloroethane (EDC)	п	ND		0.05	п	**							v	
Diisopropyl ether	м	ND		0.50									17	
thyl tert-butyl ether		ND		0.50	*									
Ethanol	н	ND		20	и									
Ethylbenzene	ur .	ND		0.10	*		-						**	
Aethyl tert-butyl ether		ND		0.50	"	"							**	
oluene	u.	ND		0.10	W .									
-Xylene		ND		0.10	н	**			-				**	
n,p-Xylene		, ND		0.20	и	17							n .	
(ylenes (total)	н	, MD		0.30	U								н	
Surrogate(s): 1,2-DCA-d4		Recovery:	106%		inits: 75-125%	"							04/10/07 14:30	
Toluene-d8		•	106%		75-125%	"							п	
4-BFB			101%		75-125%	"							н	
LCS (7D10061-BS1)								Extra	acted:	04/10/07 12:	:30			
rt-Amyl Methyl Ether	EPA 8260B	1.8		0.50	mg/kg wet	lx		2.00	90.0%	(70-130)		(	04/10/07 12:50	
enzene	u .	2,0		0.10	"				100%	(75-125)			ч	
rt-Butyl Alcohol	n	10		5.0	н			10.0	100%	(70-130)			н	
2-Dibromoethane (EDB)	н	2.0		0.05	Ti .			2.00	100%				w	
2-Dichloroethane (EDC)	. "	2.0		0.05		н			100%				11	
iisopropyl ether	lr .	1.8		0.50	*	R			90.0%	11			u ,	
thyl tert-butyl ether	и	1.8		0.50	п	n		**	90.0%	er .			н	
hanol		42		20				40.0	105%				n	
hylbenzene	n	2.0		0.10	и			2.00	100%	(75-125)			11	
ethyl tert-butyl ether	"	1.8		0.50	•	*			90.0%	(71-127)				
bluene	"	2.0		0.10				н	100%	(75-125)				
Xylene	и	2.0		0.10	к				100%	N			11	
p-Xylene		4.0	***	0.20	N	11		4.00	100%					
ylenes (total)	ar .	6.0		0.30	**	н			100%	4		_		

TestAmerica - Seattle, WA

Sandra Garamerich

4-BFB

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75-125% "

101%



11720 NORTH CREEK PKWY N, SUITE 400

BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**Delta Environmental** 4006 148th Ave NE

Project Name:

Shell-3670 150th Ave SE, Bellevue

Project Number:

97420019

Report Created:

Redmond, WA/USA 98052

Project Manager:

Matthew Miller

04/11/07 16:35

## Oxygenates by EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Seattle, WA

QC Batch: 7D10061	Soil Pro	paration M	lethod: EPA	5030B [1	MeOHJ									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Änalyzed	Notes
LCS Dup_(7D10061-BSD1)								Ext	acted:	04/10/07 12	:30			
tert-Amyl Methyl Ether	EPA 8260B	1.7		0.50	mg/kg wet	lx		2.00	85.0%	(70-130)	5.71%	(40)	04/10/07 13:29	
Benzene	ч	1.9		0.10		я			95.0%	(75-125)	5.13%	(20)	n	
tert-Butyl Alcohol	"	11		5.0	v	•		10.0	110%	(70-130)	9.52%	(40)	н	
1,2-Dibromoethane (EDB)	4	1.9		0.05	-			2.00	95.0%	•	5.13%	*	н	
1,2-Dichloroethane (EDC)		2.0		0.05	#				100%		0.00%		**	
Diisopropyl ether	h	1.7		0.50	14				85.0%		5.71%		er er	
Ethyl tert-butyl ether	"	1.7		0.50	"	Ħ			85.0%	w	5.71%		и	
Ethanol	"	36		20				40.0	90.0%	•	15.4%		н	
Ethylbenzene	tr	1.9		0.10	n			2.00	95.0%	(75-125)	5.13%	(20)		
Methyl tert-butyl ether	н	1.7		0.50	,,		·		85.0%	(71-127)	5.71%		w .	
Toluene	II .	1.9		0.10	w				95.0%	(75-125)	5.13%	н	er .	
o-Xylene	R	1.9		0.10	н	*		11	95.0%	11	5.13%		**	
m,p-Xylene	н	3.9		0.20	n			4.00	97.5%		2.53%		H	
Xylenes (total)	u	5.8		0.30	w			6.00	96.7%	н	3.39%	ir .	ħ	
Surrogate(s): 1,2-DCA-d4		Recovery:	106%	Lii	nits: 75-125%	"						•	04/10/07 13:29	
Toluene-d8	4		106%		75-125%	"							,,	
4-BFB			100%		75-125%	n							u	

TestAmerica - Seattle, WA

Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**Delta Environmental** 

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE

Redmond, WA/USA 98052

Project Number: Project Manager: 97420019

Report Created:

\_\_\_\_

Matthew Miller

04/11/07 16:35

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

	<del></del>				<del></del>									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spik Amt	e % REC	(Limits)	% RPD	(Limits)	Analyzed	N
Blank_ (7D11033-BLK1)		_					·	Ext	racted:	04/11/07 08	3:29			
tert-Amyl Methyl Ether	EPA 8260B	ND		0.50	mg/kg wet	lx							04/11/07 13:29	
Benzene	ч	ND		0.10	ıt									
tert-Butyl Alcohol	и	ND		5.0									tr	
1,2-Dibromoethane (EDB)	h	ND		0.05	7									
1,2-Dichloroethane (EDC)	16	ND		0.05	tr	,								
Diisopropy! ether		ND		0.50	,	11								
Ethyl tert-butyl ether		ND		0.50	и								Ħ	
Ethanol	•	ND		20		n							•	
Ethylbenzene		ND		0.10	и .									
Methyl tert-butyl ether	ĸ	ND		0.50	n							**	,,	
Foluene -	n	ND		0.10	h	,,			_				11	
-Xylene		ND		0.10	11								11	
n,p-Xylene	n	ND		0.20									н	
Kylenes (total)	11	ND		0.30	н								**	
Surrogate(s): 1,2-DCA-d4		Recovery:	98.0%	Li	mits: 75-125%	.,							04/11/07 13:29	
Toluene-d8		, ,	106%		75-125%	"							"	
4-BFB			99.5%		75-125%	"							"	
LCS (7D11033-BS1)								Ext	racted:	04/11/07 08	:29			
ert-Amyl Methyl Ether	EPA 8260B	2.0		0.50	mg/kg wet	lx		2.00	100%	(70-130)		(	04/11/07 12:09	-
Benzene		1.9		0.10	, .				95.0%	(75-125)			11	
ert-Butyl Alcohol	n	9.7		5.0	п			10.0	97.0%	(70-130)				
,2-Dibromoethane (EDB)	н	1.9		0.05	u	**		2,00	95.0%	(.0 (20)				
,2-Dichloroethane (EDC)		1.8		0.05	. "			"	90.0%	**				
Diisopropyl ether		2,0		0.50	н			,,	100%				,,	
thyl tert-butyl ether	н	2.0		0.50					100%				,,	
ithanol	н	110		20		,,		100	110%				,	
Thylbenzene	H	1.9		0.10	br .			2.00	95.0%	(75-125)				
fethyl tert-butyl ether	п	1.9		0.10	4	"		2.00		. ,				
oluene		2.0	***	0.10					95.0%	(71-127)			q	
-Xylene	,	1.9			,				100%	(75-125)				
n,p-Xylene				0.10	"				95.0%	-			"	
n,p-xytene (ylenes (total)	н	3.8 5.7		0,20 0,30		,		4.00	95.0%					
								6.00	95.0% 	<del>-</del>			-	
Surrogate(s): 1,2-DCA-d4 Toluene-d8		Recovery:	97.0%	Liı	nits: 75-125%	"							04/11/07 12:09	
1 onicne-as 4-BFB			108%		75-125%								"	

TestAmerica - Seattle, WA

Sandra Garamerich

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11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

**Delta Environmental** 4006 148th Ave NE

Redmond, WA/USA 98052

Project Name:

Shell-3670 150th Ave SE, Bellevue

Project Number:

97420019

Report Created:

Project Manager: Matthew Miller

04/11/07 16:35

## Oxygenates by EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Seattle, WA

QC Batch: 7D11033	Soil Pro	paration N	lethod: EPA	5030B										
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% RÉC	(Limits)	% RPD	(Limits	) Analyzed	Notes
LCS Dup (7D11033-BSD1)								Ext	racted:	04/11/07 08	3:29			
tert-Amyl Methyl Ether	EPA 8260B	1.9		0.50	mg/kg wet	lx		2.00	95.0%	(70-130)	5.13%	(40)	04/11/07 12:35	
Benzene	**	2.0		0.10	"	,		н	100%	(75-125)	5.13%	(20)		
tert-Butyl Alcohol	er.	9.6		5.0		п		10.0	96.0%	(70-130)	1.04%	(40)		
1,2-Dibromoethane (EDB)	н	1.9		0.05	п	"		2.00	95.0%	•	0.00%	, "	11	
1,2-Dichloroethane (EDC)	π	1.9		0.05					95.0%		5.41%	. *		
Diisopropyl ether	н	· 1.9		0.50	R	"			95.0%	•	5.13%		n	
Ethyl tert-butyl ether		1.8		0.50	**				90.0%		10.5%	ıı	17	
Ethanol	. #	100		20		н		100	100%		9.52%		ч	
Ethylbenzene	n n	2.0		0.10				2.00	100%	(75-125)	5.13%	(20)		
Methyl tert-butyl ether		1.9	·	0.50	-	•			95.0%	(71-127)	0.00%	n	**	
Toluene	11	2.0		0.10	*			w	100%	(75-125)	0.00%		n	
o-Xylene	"	1.9		0.10		н			95.0%	π	0.00%			
m,p-Xylene	**	4.0		0.20		tr		4.00	100%		5.13%	**		
Xylenes (total)	"	5.9	•••	0.30	ur			6.00	98.3%	¥	3.45%		u	
Surrogate(s): 1,2-DCA-d4		Recovery:	99.0%	Li	mits: 75-125%	17				-			04/11/07 12:35	
Toluene-d8			105%		75-125%	"							ır	
4-BFB			102%		75-125%	"								

TestAmerica - Seattle, WA

Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

Delta Environmental

Redmond, WA/USA 98052

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE

Project Number: Project Manager: 97420019

Matthew Miller

Report Created:

04/11/07 16:35

#### Notes and Definitions

#### Report Specific Notes:

R4 -

Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.

#### **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 - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

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.

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Electronic

Signature

Sandra Jaccamerich

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April 26, 2007

Dawna Leong Delta Environmental 4006 148th Ave NE Redmond, WA/USA 98052

RE: Shell-3670 150th Ave SE, Bellevue

Enclosed are the results of analyses for samples received by the laboratory on 04/12/07 15:15. The following list is a summary of the Work Orders contained in this report, generated on 04/26/07 16:38.

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

Work Order	Project	<u>ProjectNumber</u>
BQD0195	Shell-3670 150th Ave SE, Bell	97420019

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Sandra Yakamavich, Project Manager





**Delta Environmental** 

Shell-3670 150th Ave SE, Bellevue

Project Name: 4006 148th Ave NE Report Created: Project Number: 97420019 Redmond, WA/USA 98052 Project Manager: 04/26/07 16:38 Dawna Leong

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PLNW-001	BQD0195-01	Soil	04/11/07 10:40	04/12/07 15:15
PLNE-001	BQD0195-02	Soil	04/11/07 11:00	04/12/07 15:15
PLSE-001	BQD0195-03	Soil	04/11/07 11:20	04/12/07 15:15
PLSW-001	BQD0195-04	Soil	04/11/07 12:10	04/12/07 15:15
PLW-M-001	BQD0195-05	Soil	04/11/07 11:50	04/12/07 15:15

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Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

Delta Environmental

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE

Redmond, WA/USA 98052

Project Number:

97420019

Report Created:

Project Manager:

nager: Dawna Leong

04/26/07 16:38

## Volatile Petroleum Products by NWTPH-Gx

TestAmerica - Seattle, WA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQD0195-01 (PLNW-001)		Soi	il		Sampl	ed: 04/	11/07 10:40			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND		5.84	mg/kg dry	lx	7D17023	04/17/07 10:08	04/17/07 12:47	BQ
Surrogate(s): 4-BFB (FID)			84.9%		50 - 150 %	"			"	
BQD0195-01RE1 (PLNW-001)		Soi	il		Sampl	ed: 04/	11/07 10:40			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND		5.84	mg/kg dry	lx	7D18018	04/18/07 09:35	04/18/07 18:13	
Surrogate(s): 4-BFB (FID)	•		88.9%		50 - 150 %	n			u	
BQD0195-02 (PLNE-001)		Soi	i .		Sample	ed: 04/1	11/07 11:00			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND		6.78	mg/kg dry	lx	7D17023	04/17/07 10:08	04/17/07 14:54	
Surrogate(s): 4-BFB (FID)			89.9%	700.00.00	50 - 150 %	"			tı	
BQD0195-03 (PLSE-001)		Soi	I		Sample	ed: 04/1	1/07 11:20			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND		8.76	mg/kg dry	lx	7D17023	04/17/07 10:08	04/17/07 15:25	
Surrogate(s): 4-BFB (FID)			96.0%		50 - 150 %	"			н	
BQD0195-04 (PLSW-001)		Soil	1		Sample	ed: 04/1	1/07 12:10			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND		9.83	mg/kg dry	lx	7D17023	04/17/07 10:08	04/17/07 15:56	
Surrogate(s): 4-BFB (FID)			87.6%		50 - 150 %	"			"	
BQD0195-05 (PLW-M-001)		Soil			Sample	ed: 04/1	1/07 11:50			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND		11.9	mg/kg dry	lx	7D17023	04/17/07 10:08	04/17/07 18:07	
Surrogate(s): 4-BFB (FID)			82.1%		50 - 150 %	"		-	и	

TestAmerica - Seattle, WA

Sundra Germerich

Sandra Yakamavich, Project Manager





**Delta Environmental** 

4006 148th Ave NE Redmond, WA/USA 98052 Project Name:

Shell-3670 150th Ave SE, Bellevue

Project Number: Project Manager:

97420019 Dawna Leong Report Created:

04/26/07 16:38

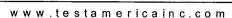
## Physical Parameters by APHA/ASTM/EPA Methods

TestAmerica - Seattle WA

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
BQD0195-01	(PLNW-001)		Soil	1		Sam	pled: 04/1	11/07 10:40	· · · · · · · · · · · · · · · · · · ·		
Dry Weight		BSOPSPL003R0 8	91.7		1.00	%	lx	7D19070	04/19/07 19:16	04/20/07 00:00	
BQD0195-02	(PLNE-001)		Soil	Į		Samj	pled; 04/1	11/07 11:00	,		
Dry Weight		BSOPSPL003R0 8	89.3		1.00	%	lx	7D19070	04/19/07 19:16	04/20/07 00:00	
BQD0195-03	(PLSE-001)		Soil	<u> </u>		Samı	pled: 04/1	1/07 11:20			
Dry Weight		BSOPSPL003R0	84.1	<del></del>	1.00	%	lx	7D19070	04/19/07 19:16	04/20/07 00:00	
BQD0195-04	(PLSW-001)		Soil			Samp	oled: 04/1	1/07 12:10			
Dry Weight		BSOPSPL003R0 8	75.5	*****	1.00	%	lx	7D19070	04/19/07 19:16	04/20/07 00:00	
BQD0195-05	(PLW-M-001)		Soil			Samp	oled: 04/1	1/07 11:50			
Dry Weight		BSOPSPL003R0 8	75.6		1.00	%	lx	7D19070	04/19/07 19:16	04/20/07 00:00	

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Sandra Yakamavich, Project Manager







Delta Environmental

4006 148th Ave NE Redmond, WA/USA 98052 Project Name:

Shell-3670 150th Ave SE, Bellevue

Project Number: Project Manager:

97420019 Dawna Leong

Report Created: 04/26/07 16:38

# Oxygenates by EPA Method 8260B

TestAmerica - Seattle, WA

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Note
BQD0195-01	(PLNW-001)		So	il		Samp	led: 04/	11/07 10:40		· · .	
Benzenė		EPA 8260B	ND		0.12	mg/kg dry	lx	7D13032	04/13/07 14:41	04/13/07 15:36	**
Ethylbenzene		п	ND		0.12	•		п			
Methyl tert-butyl e	ether	•	ND		0.58	u				•	
Toluene		"	0.16		0.12	*	**	*	7	a	
o-Xylene			ND		0.12			, H		*	
m,p-Xylene		и	ND	****	0.23	u		и	*		
Xylenes (total)		н	ND		0.35	п	**	ĸ	н	#	
Surrogate(s):	1,2-DCA-d4			111%		75 - 125 %	,,			п	
	Toluene-d8			100%		75 - 125 %	"			"	
	4-BFB			100%		75 - 125 %	"			ч	
BQD0195-02	(PLNE-001)		Soi	1		Sampl	ed: 04/	11/07 11:00			
Benzene		EPA 8260B	ND		0.13	mg/kg dry	lx	7D13032	04/13/07 14:41	04/13/07 16:08	
Ethylbenzene		ij	ND		0,13	*	•	. *	*	н	
Aethyl tert-butyl e	ther	п	ND		0.64		*			Ħ	
l'oluene		н	ND	*****	0.13	er .	14	"	•	n	
-Xylene		н	ND		0.13	11	н	*	ч	n	
n,p-Xylene		"	ND	-	0.26	н	u				
Kylenes (total)		H	ND		0.38	п		"	n	"	
Surrogate(s):	1,2-DCA-d4			109%		75 - 125 %	н			11	
	Toluene-d8			100%		75 - 125 %	**			"	
	4-BFB			100%		75 - 125 %	"			r	
QD0195-03	(PLSE-001)		Soi	t		Sample	ed: 04/1	1/07 11:20			
enzene		EPA 8260B	ND		0.18	mg/kg dry	lx	7D13032	04/13/07 14:41	04/13/07 16:40	
thylbenzene		и	ND		0.18	•		ĸ	w		
lethyl tert-butyl et	ther		ND		0.88		•		ti.	**	
oluene		Ħ	ND		0.18	n	u		μ	•	
-Xylene		ч	ND		0.18	н	H	*	*	н	
,p-Xylene		п	ND		0.35		•	н	•	п	
(ylenes (total)			ND		0.53	b			n	44	
Surrogate(s):	1,2-DCA-d4			110%		75 - 125 %	**			"	
	Toluene-d8			100%		75 - 125 %	"			и	
	-4-BFB			101%		75 - 125 %	p			"	

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Delta Environmental

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE Redmond, WA/USA 98052 Project Number: Project Manager: 97420019

Dawna Leong

Report Created:

04/26/07 16:38

## Oxygenates by EPA Method 8260B

TestAmerica - Seattle, WA

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes				
BQD0195-04	(PLSW-001)		Soi	l		Sampl	ed: 04/	11/07 12:10							
Benzene		EPA 8260B	ND		0.20	mg/kg dry	lx	7D13032	04/13/07 14:41	04/13/07 17:12					
Ethylbenzene			ND		0.20		π-	*		*					
Methyl tert-butyl et	her	H.	ND		0.98	"	п	*	"	. "					
Toluene			ND		0.20	"	4	**	n						
o-Xylene		п	ND		0.20		er .		•	H					
m,p-Xylene		н	ND		0.39	**		"	π	rt					
Xylenes (total)			ND		0.59	π		**	tr	st.					
Surrogate(s):	1,2-DCA-d4			110%		75 - 125 %	"			π					
• .,	Toluene-d8			99.7%		75 - 125 %	"			н					
	4-BFB			101%		75 - 125 %	u			. н					
BQD0195-05	(PLW-M-001)		Soi	1		Sampl	ed: 04/1	11/07 11:50		**  **  **  **  **  **  **  **  **  **					
Benzene		EPA 8260B	ND		0.24	mg/kg dry	lx	7D13032	04/13/07 14:41	04/13/07 17:44					
Ethylbenzene		"	ND		0.24		**			*					
Methyl tert-butyl et	her	ir .	ND		1.2				u	•					
Toluene		**	ND		0.24		**	h	"	π					
o-Xylene		п	ND		0.24		*	W		*					
m,p-Xylene		ut .	ND		0.48		*	н	н	н					
Xylenes (total)		"	ND		0.71		ij.	w	и	п					
Surrogate(s):	1,2-DCA-d4			109%		75 - 125 %	"			"					
	Toluene-d8			99.6%		75 - 125 %	"			"					
	4-BFB			101%		75 - 125 %	"			"					

TestAmerica - Seattle, WA

Sandra Yakamavich, Project Manager





Delta Environmental

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE

Project Number:

97420019

Report Created:

Redmond, WA/USA 98052

Project Manager:

Dawna Leong

04/26/07 16:38

QC Batch: 7D17023	Soil Pr	eparation N	Method:	EPA	5030B (	P/T)									
Analyte	Method	Result	1	MDL*	MRL	Units	Dil	Source Resulf	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
Blank (7D17023-BLK1)									Exti	acted:	04/17/07 10	0:08			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND	-		5.00	mg/kg wet	lx							04/17/07 11:43	
Surrogate(s): 4-BFB (FID)		Recovery:	96.0%	-	Li	imits: 50-150%	н		-					04/17/07 11:43	
LCS (7D17023-BS1)									Exti	acted:	04/17/07 10	0:08			
Gasoline Range Hydrocarbons	NWTPH-Gx	47.4			5,00	mg/kg wet	lx		50.0	94.8%	(75-125)			04/17/07 12:14	
Surrogate(s): 4-BFB (FID)		Recovery:	92.3%		Li	mits: 50-150%	"							04/17/07 12:14	
Duplicate (7D17023-DUP1)					QC Source	: BQD0195-01			Exte	acted:	04/17/07 10	0:08			
Gasoline Range Hydrocarbons	NWTPH-Gx	5.92			5.84	mg/kg dry	lx	ND				3.96%	6 (40)	04/17/07 13:19	
Surrogate(s): 4-BFB (FID)		Recovery:	88.0%		Li	mits: 50-150%	и							04/17/07 13:19	
Duplicate (7D17023-DUP2)					QC Source	: BQD0264-01			Extr	acted;	04/17/07 10	80;0			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND			11.9	mg/kg dry	lx	ND				0.910	% (40)	04/17/07 14:22	F
Surrogate(s): 4-BFB (FID)		Recovery:	91.7%		Li	mits: 50-150%	и							04/17/07 14:22	
Matrix Spike (7D17023-MS1)					QC Source	: BQD0195-01			Extr	acted:	04/17/07 10	:08			
Gasoline Range Hydrocarbons	NWTPH-Gx	69.9			5.84	mg/kg dry	lx	5.69	58.4	110%	(42-125)			04/17/07 16:32	
Surrogate(s): 4-BFB (FID)		Recovery:	102%		Li	mits: 50-150%	"	,						04/17/07 16:32	
QC Batch: 7D18018	Soil Pre	paration M	1ethod:	EPA	5030B (I	P/T)		·							
Analyte	Method	Result	N	ADL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7D18018-BLK1)									Extr	acted:	04/18/07 09	;35			-
Gasoline Range Hydrocarbons	NWTPH-Gx	ND			5,00	mg/kg wet	lx							04/18/07 [1:11	
Surrogate(s): 4-BFB (FID)		Recovery:	88.3%		Lii	nits: 50-150%	"		_					04/18/07 11:11	
LCS (7D18018-BS1)									Extra	acted:	04/18/07 09	:35			
Gasoline Range Hydrocarbons	NWTPH-Gx	50.0			5.00	mg/kg wet	lx		50.0	100%	(75-125)			04/18/07 11:41	
Surrogate(s): 4-BFB (FID)		Recovery:	103%		Lir	nits: 50-150%	"							04/18/07 11:41	
Duplicate (7D18018-DUP1)					QC Source:	BQD0284-21			Extra	icted:	04/18/07 09	:35			
Gasoline Range Hydrocarbons	NWTPH-Gx	ND			9.88	mg/kg dry	lx	ND					(40)	04/18/07 12:42	R
Surrogate(s): 4-BFB (FID)		Recovery:	88.0%		Lin	nits: 50-150%	"			-				04/18/07 12:42	
Matrix Spike (7D18018-MS1)					QC Source:	BQD0284-21			Extra	icted:	04/18/07 09:	:35			
Gasoline Range Hydrocarbons	NWTPH-Gx	95.4	-		9.88	mg/kg dry	lx	ND	98.8	96.6%	(42-125)			04/18/07 16:42	
Surrogate(s): 4-BFB (FID)															

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**Delta Environmental** 

Project Name:

Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE

Redmond, WA/USA 98052

Project Number: Project Manager: 97420019 Dawna Leong

Report Created: 04/26/07 16:38

Volatile Petroleum Products by NWTPH-Gx - Laboratory Quality Control Results

TestAmerica - Seattle, WA

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**Delta Environmental** 4006 148th Ave NE

Project Name:

Shell-3670 150th Ave SE, Bellevue

Project Number:

97420019

Report Created:

Redmond, WA/USA 98052

Project Manager:

Dawna Leong

04/26/07 16:38

)	Physical Parar	neters by A	Test	America -	Seattle, W	/A								
QC Batch: 7D19070	Soil Prej	paration Met		Veight	<u>- A Cros Tengel</u>	<u> </u>	_ 144-180 ( t.)-		··· ·	<u>. برمیدونتر برد</u>	<u> - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2</u>		<u> </u>	Starries.
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (7D19070-BLK1)							-	Extra	acted:	04/19/07 19	:16			
Dry Weight	BSOPSPL00 3R08	100		1.00	%	lx							04/20/07 00:00	

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Sandra Yakamavich, Project Manager





11720 NORTH CREEK PKWY N, SUITE 400 BOTHELL, WA 98011-8244 PH: (425) 420.9200 FAX: (425) 420.9210

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Shell-3670 150th Ave SE, Bellevue

4006 148th Ave NE

Project Number: Project Manager: 97420019

Report Created:

Redmond, WA/USA 98052

Project Manager: Dawna Leong

04/26/07 16:38

# Oxygenates by EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Seattle, WA

QC Batch: 7D13032	Soil Pr	eparation N	Method: EPA	5030B []	MeOHJ									
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Note
Blank (7D13032-BLK1)								Exti	acted:	04/13/07 10	:41			
tert-Amyl Methyl Ether	EPA 8260B	ND		0.50	mg/kg wet	lx							04/13/07 15:04	
Benzene		ND		0.10	11	H							78	
tert-Butyl Alcohol	н	ND		5.0	n	11							н	
1,2-Dibromoethane (EDB)	p	ND	•	0.05	p p	и							и	
1,2-Dichloroethane (EDC)		ND		0.05	**									
Diisopropyl ether	**	ND		0.50		,,							**	
Ethyl tert-butyl ether	**	ND		0.50	Ħ	н								
Ethanol		ND		20										
Ethylbenzene	11	ND		0.10	ш	**								
Methyl tert-butyl ether	н	ND		0.50				•-					17	
l'oluene		ND		0.10	*		••						н	
o-Xylene	"	ND		0.10	Ir								n	
n,p-Xylene	11	ND		0,20		н							n	
Kylenes (total)	**	ND		0.30	и.								п	
Surrogate(s): 1,2-DCA-d4	<del></del>	Recovery:	108%	Lii	nits: 75-125%	"							04/13/07 15:04	
Toluene-d8			100%		75-125%								"	
4-BFB			100%		75-125%	<i>"</i>							#	
LCS (7D13032-BS1)								Extr	acted:	04/13/07 10:	41			
ert-Amyl Methyl Ether	EPA 8260B	1.9		0.50	mg/kg wet	lx		2.00	95.0%	(70-130)			04/13/07 13:21	
Benzene	н	2.0		0.10	"	и .		н	100%	(75-125)			18	
ert-Butyl Alcohol	н	12		5.0	π	•		10.0	120%	(70-130)			n	
,2-Dibromoethane (EDB)		2.0		0.05	11	r		2.00	100%				u	
,2-Dichloroethane (EDC)	+	2.1		0.05	н	•		n	105%				и	
Diisopropyl ether	и	1.9		0.50	п			н	95.0%					
thyl tert-butyl ether		1.9		0.50	н				95.0%	h			н	
thanol	**	42		20				40.0	105%	4				
thylbenzene		1.9		01.0		•			95.0%	(75-125)				
lethyl tert-butyl ether	n	1.9		0.50	*				95.0%	(71-127)			*	
oluene		1.9		0.10					95.0%	(75-125)			н	
-Xylene		1.9		0.10					95.0%	,/				
ı,p-Xylene	*	3.9	***	0.20	н				97.5%	to				
(ylenes (total)	II.	5.8		0.30	я				96.7%				а	
Surrogate(s): 1,2-DCA-d4	7011-1-11-10	Recovery:	108%		uits: 75-125%	и							04:13:07:13:21	
Toluene-d8			99.5%	LIII	75-125% 75-125%								"	
1-BFB			100%		75-125%								"	

TestAmerica - Seattle, WA

Sundra Governeich

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Delta Environmental

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4006 148th Ave NE

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97420019

Report Created:

Redmond, WA/USA 98052

Project Manager:

Dawna Leong

04/26/07 16:38

## Oxygenates by EPA Method 8260B - Laboratory Quality Control Results

	Охуд	enates by	EPA Metho Tes	the second second	- Laborat - Seattle, W		Quality C	ontrol	Resu	lts				
QC Batch: 7D13032	Soil Pre													
Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits	) Analyzed	Notes
LCS Dup (7D13032-BSD1)								Extr	acted:	04/13/07 10	:41			
tert-Amyl Methyl Ether	EPA 8260B	1.8		0.50	mg/kg wet	ix		2.00	90.0%	(70-130)	5.41%	(40)	04/13/07 14:03	
Benzene		1.9		0.10		*			95.0%	(75-125)	5.13%	(20)	w	
tert-Butyl Alcohol		11		5.0				10.0	110%	(70-130)	8.70%	(40)	в .	
1,2-Dibromoethane (EDB)	"	1.9		0.05	"			2.00	95.0%		5.13%	. "		
1,2-Dichloroethane (EDC)		2.1		0.05	"				105%		0.00%		•	
Diisopropyl ether	. "	1.8		0.50	п			•	90.0%	hr	5.41%			
Ethyl tert-butyl ether	н	1.8		0.50		ĸ			90.0%	•	5.41%			
Ethanol	м	38		20	n	h		40.0	95.0%	15	10.0%		11	
Ethylbenzene	tr	1.8		0.10	н	•		2.00	90.0%	(75-125)	5.41%	(20)	u	
Methyl tert-butyl ether	10	1.9		0.50	и			w	95.0%	(71-127)	0.00%		n	
Toluene		1.8		0.10	w	m			90.0%	(75-125)	5.41%	**	n	
o-Xylene		1.8		0.10	*	n		ņ	90.0%	*	5.41%	n	w	
m,p-Xylene	4	3.7		0.20	**			4.00	92.5%		5.26%	*		
Xylenes (total)		5,6		0.30	r.	kr		6.00	93.3%		3.51%	*	n	
Surrogate(s): 1,2-DCA-d4		Recovery:	108%	Li	mits: 75-125%	"							04/13/07 14:03	
Toluene-d8		•	100%		75-125%	"							"	
4-BFB			100%		75-125%	"							"	

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Redmond, WA/USA 98052

Project Number: Project Manager: 97420019 Dawna Leong Report Created:

04/26/07 16:38

#### Notes and Definitions

#### Report Specific Notes:

BQC

Reported for batch QC purposes only. See re-analysis (RE) for final result.

R4

Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.

#### **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

đгу

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

Sandra Geremevich

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## **TEST AMERICA**



# Shell Oil Products US Chain Of Custody Record

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