

10/25/11



Tank 50

- 1 0.0
- 2 0.0
- 3 0.0
- 4 0.0
- 5 0.0
- 6 0.0
- 7 0.0
- 8 0.0
- 9 0.0
- 10 0.0

Transfer Pump

Sand Berm

4/2' ← →

← 7/8' →

Access Road

Area Impacted By Release

Sand Berm at Culvert

Dike Road

← 4/8' →

Temp

Sand Berm

SS-1 2:15pm

SS-2 2:30pm

SS-3 2:45pm

SS-4 2:55pm

SS-5 3:05pm

SS-6 3:15pm

SS-7 3:28pm

SS-8 3:45pm

SS-9 4:05pm

SS-10 4:15pm

deepish area

4/1'

Twin Ports Testing

1301 North 3rd Street
Superior, WI 54880

Billing information:

Attn: Sherry
1301 North 3rd Street
Superior, WI 54880

Report to: **Jon Hinkel**

Email: **Jon.Hinkel@twinportstesting**

Project Description: **Murphy Oil Crude Oil Release Site**

City/State Collected: **Superior, Wisconsin**

Phone: (715) 392-7114
FAX:

Client Project #: **11e-195**
Lab Project #: **TWINPORWI-CRUDEOIL**

Collected by (print): **Jon Hinkel**

Site/Facility ID#: **SUPERIOR, WI**
P.O.#: **6281**

Collected by (signature): *[Signature]*

Rush? (Lab MUST Be Notified)

Same Day 200%
Next Day 100%
Two Day 50%
Three Day 25%

Date Results Needed

Email? No Yes
FAX? No Yes

Sample ID

Comp/Grab

Matrix*

Date

Time

No. of Cntrs

55-10

Grab

SS

10/25/11

4:05

6

X

X

X

X

X

X

Analysis/Container/Preservative

PVOCGRO 60mlAmb/MeOH/Syr
TS 20zClr-NoPres

PVOCGRO Screen 20zClr-NoPres

DROWM 60mlAmb/MeCl/Syr

TS 20zClr-NoPres

Chain of Custody
Page 2 of 2



L.A.B S.C.I.E.N.C.E.S
12065 Lebanon Road
Mt. Juliet, TN 37122

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

Account: **TWINPORWI** (lab use only)
Template/Prelogin: **T74799 P372197**
Cooler #: **0810120**

Shipped Via: **FedEX Ground**

Remarks/Contaminant: **L5213785**

Sample # (lab only): **PID = 0.0 - 10**

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

Remarks:

- Shipped - Fed Ex
- Include Naphthalene in analyses

pH _____ Temp _____

Flow _____ Other _____

Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Condition:	(lab use only)
<i>[Signature]</i>	10/26/11	10:00	<i>[Signature]</i>	60	
Relinquished by (Signature)	Date:	Time:	Received by (Signature)	Temp	
<i>[Signature]</i>			<i>[Signature]</i>	2.4	
Relinquished by (Signature)	Date:	Time:	Received for lab by (Signature)	Bottles Received	
<i>[Signature]</i>			<i>[Signature]</i>	60x17B	
	Date:	Time:		Date	
				10/27/11	
				0900	
				COC Seal Intact	Y N NA
				pH Checked	NCF



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Est. 1970

Jon Hinkel
Twin Ports Testing
1301 North 3rd Street
Superior, WI 54880

Report Summary

Thursday November 03, 2011

Report Number: L543785

Samples Received: 10/27/11

Client Project: 11E-195

Description: Murphy Oil Crude Oil Release

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

Entire Report Reviewed By:

John Hawkins , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Jon Hinkel
 Twin Ports Testing
 1301 North 3rd Street
 Superior, WI 54880

November 03, 2011

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Release
 Sample ID : SS-1
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 14:15

ESC Sample # : L543785-01
 Site ID : SUPERIOR, WI
 Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	85.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.025	0.0052	0.050	mg/kg	J	8021	10/28/11	85
Toluene	0.038	0.011	0.50	mg/kg	J	8021	10/28/11	85
Ethylbenzene	0.021	0.0052	0.050	mg/kg	J	8021	10/28/11	85
m&p-Xylene	0.070	0.016	0.10	mg/kg	J	8021	10/28/11	85
o-Xylene	0.032	0.0074	0.050	mg/kg	J	8021	10/28/11	85
methyl tert-butyl ether	U	0.014	0.050	mg/kg		8021	10/28/11	85
Naphthalene	0.13	0.018	0.50	mg/kg	J	8021	10/28/11	85
1,3,5-Trimethylbenzene	0.015	0.0060	0.10	mg/kg	J	8021	10/28/11	85
1,2,4-Trimethylbenzene	0.039	0.011	0.10	mg/kg	J	8021	10/28/11	85
Gasoline (C6-C10)	U	2.5	10.	mg/kg		8015	10/28/11	85
Surrogate recovery-% a,a,a-Trifluorotoluene (PID)	106.			% Rec.		8021	10/28/11	85
TPH (GC/FID) High Fraction Surrogate recovery(%) Triacontane	U 102.	0.77	9.4	mg/kg % Rec.		DROWM/80 DROWM/80	11/01/11 11/01/11	1 1

Results listed are dry weight basis.

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REPORT OF ANALYSIS

Jon Hinkel
 Twin Ports Testing
 1301 North 3rd Street
 Superior, WI 54880

November 03, 2011

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Release
 Sample ID : SS-2
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 14:30

ESC Sample # : L543785-02
 Site ID : SUPERIOR, WI
 Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	70.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.031	0.0054	0.064	mg/kg	J	8021	10/28/11	89
Toluene	0.049	0.011	0.64	mg/kg	J	8021	10/28/11	89
Ethylbenzene	0.020	0.0054	0.064	mg/kg	J	8021	10/28/11	89
m&p-Xylene	0.093	0.017	0.13	mg/kg	J	8021	10/28/11	89
o-Xylene	0.056	0.0078	0.064	mg/kg	J	8021	10/28/11	89
methyl tert-butyl ether	U	0.014	0.064	mg/kg		8021	10/28/11	89
Naphthalene	0.49	0.019	0.64	mg/kg	J	8021	10/28/11	89
1,3,5-Trimethylbenzene	0.030	0.0062	0.13	mg/kg	J	8021	10/28/11	89
1,2,4-Trimethylbenzene	0.080	0.012	0.13	mg/kg	J	8021	10/28/11	89
Gasoline (C6-C10)	9.0	2.6	13.	mg/kg	J	8015	10/28/11	89
Surrogate recovery-% a,a,a-Trifluorotoluene(PID)	107.			% Rec.		8021	10/28/11	89
TPH (GC/FID) High Fraction Surrogate recovery(%) Triacontane	U 101.	0.77	11.	mg/kg % Rec.		DROWM/80 DROWM/80	11/01/11 11/01/11	1 1

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REPORT OF ANALYSIS

Jon Hinkel
 Twin Ports Testing
 1301 North 3rd Street
 Superior, WI 54880

November 03, 2011

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Release
 Sample ID : SS-3
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 14:45

ESC Sample # : L543785-03
 Site ID : SUPERIOR, WI
 Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	59.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.020	0.0039	0.054	mg/kg	J	8021	10/28/11	63.5
Toluene	0.030	0.0081	0.54	mg/kg	J	8021	10/28/11	63.5
Ethylbenzene	0.054	0.0039	0.054	mg/kg	J	8021	10/28/11	63.5
m&p-Xylene	0.20	0.012	0.11	mg/kg		8021	10/28/11	63.5
o-Xylene	0.085	0.0056	0.054	mg/kg		8021	10/28/11	63.5
methyl tert-butyl ether	U	0.010	0.054	mg/kg		8021	10/28/11	63.5
Naphthalene	0.14	0.014	0.54	mg/kg	J	8021	10/28/11	63.5
1,3,5-Trimethylbenzene	0.020	0.0045	0.11	mg/kg	J	8021	10/28/11	63.5
1,2,4-Trimethylbenzene	0.052	0.0084	0.11	mg/kg	J	8021	10/28/11	63.5
Gasoline (C6-C10)	U	1.9	11.	mg/kg		8015	10/28/11	63.5
Surrogate recovery-% a,a,a-Trifluorotoluene (PID)	107.			% Rec.		8021	10/28/11	63.5
TPH (GC/FID) High Fraction Surrogate recovery(%) Triacontane	42. 77.2	0.92	16.	mg/kg % Rec.		DROWM/80 DROWM/80	11/02/11 11/02/11	1.2 1.2

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 1301 North 3rd Street
 Superior, WI 54880

November 03, 2011

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Release
 Sample ID : SS-4
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 14:55

ESC Sample # : L543785-04
 Site ID : SUPERIOR, WI
 Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	63.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.035	0.0047	0.060	mg/kg	J	8021	10/28/11	76.5
Toluene	0.044	0.0097	0.60	mg/kg	J	8021	10/28/11	76.5
Ethylbenzene	0.027	0.0047	0.060	mg/kg	J	8021	10/28/11	76.5
m&p-Xylene	0.10	0.014	0.12	mg/kg	J	8021	10/28/11	76.5
o-Xylene	0.042	0.0067	0.060	mg/kg	J	8021	10/28/11	76.5
methyl tert-butyl ether	U	0.012	0.060	mg/kg		8021	10/28/11	76.5
Naphthalene	0.30	0.017	0.60	mg/kg	J	8021	10/28/11	76.5
1,3,5-Trimethylbenzene	0.019	0.0054	0.12	mg/kg	J	8021	10/28/11	76.5
1,2,4-Trimethylbenzene	0.049	0.010	0.12	mg/kg	J	8021	10/28/11	76.5
Gasoline (C6-C10)	4.6	2.2	12.	mg/kg	J	8015	10/28/11	76.5
Surrogate recovery-% a, a, a-Trifluorotoluene (PID)	104.			% Rec.		8021	10/28/11	76.5
TPH (GC/FID) High Fraction Surrogate recovery(%)	72.	1.2	19.	mg/kg		DROWM/80	11/02/11	1.54
Triacontane	80.8			% Rec.		DROWM/80	11/02/11	1.54

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REPORT OF ANALYSIS

Jon Hinkel
 Twin Ports Testing
 1301 North 3rd Street
 Superior, WI 54880

November 03, 2011

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Release
 Sample ID : SS-5
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 15:05

ESC Sample # : L543785-05
 Site ID : SUPERIOR, WI
 Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	59.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.029	0.0042	0.059	mg/kg	J	8021	10/28/11	69
Toluene	0.046	0.0088	0.59	mg/kg	J	8021	10/28/11	69
Ethylbenzene	0.016	0.0042	0.059	mg/kg	J	8021	10/28/11	69
m&p-Xylene	0.068	0.013	0.12	mg/kg	J	8021	10/28/11	69
o-Xylene	0.049	0.0060	0.059	mg/kg	J	8021	10/28/11	69
methyl tert-butyl ether	U	0.011	0.059	mg/kg		8021	10/28/11	69
Naphthalene	0.48	0.015	0.59	mg/kg	J	8021	10/28/11	69
1,3,5-Trimethylbenzene	0.053	0.0048	0.12	mg/kg	J	8021	10/28/11	69
1,2,4-Trimethylbenzene	0.070	0.0091	0.12	mg/kg	J	8021	10/28/11	69
Gasoline (C6-C10)	16.	2.0	12.	mg/kg		8015	10/28/11	69
Surrogate recovery-% a,a,a-Trifluorotoluene (PID)	106.			% Rec.		8021	10/28/11	69
TPH (GC/FID) High Fraction Surrogate recovery(%)	61.	1.0	18.	mg/kg		DROWM/80	11/02/11	1.36
Triacontane	99.1			% Rec.		DROWM/80	11/02/11	1.36

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November 03, 2011

Jon Hinkel
 Twin Ports Testing
 1301 North 3rd Street
 Superior, WI 54880

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Release
 Sample ID : SS-6
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 15:15

ESC Sample # : L543785-06
 Site ID : SUPERIOR, WI
 Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	63.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.030	0.0045	0.058	mg/kg	J	8021	10/28/11	73.5
Toluene	0.035	0.0093	0.58	mg/kg	J	8021	10/28/11	73.5
Ethylbenzene	0.022	0.0045	0.058	mg/kg	J	8021	10/28/11	73.5
m&p-Xylene	0.074	0.014	0.12	mg/kg	J	8021	10/28/11	73.5
o-Xylene	0.030	0.0064	0.058	mg/kg	J	8021	10/28/11	73.5
methyl tert-butyl ether	U	0.012	0.058	mg/kg		8021	10/28/11	73.5
Naphthalene	0.096	0.016	0.58	mg/kg	J	8021	10/28/11	73.5
1,3,5-Trimethylbenzene	0.024	0.0052	0.12	mg/kg	J	8021	10/28/11	73.5
1,2,4-Trimethylbenzene	0.052	0.0097	0.12	mg/kg	J	8021	10/28/11	73.5
Gasoline (C6-C10)	U	2.2	12.	mg/kg		8015	10/28/11	73.5
Surrogate recovery-% a,a,a-Trifluorotoluene (PID)	105.			% Rec.		8021	10/28/11	73.5
TPH (GC/FID) High Fraction Surrogate recovery(%) Triacotane	U 104.	1.1	18.	mg/kg % Rec.		DROWM/80 DROWM/80	11/01/11 11/01/11	1.41 1.41

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REPORT OF ANALYSIS

Jon Hinkel
 Twin Ports Testing
 1301 North 3rd Street
 Superior, WI 54880

November 03, 2011

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Relaease
 Sample ID : SS-7
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 15:28

ESC Sample # : L543785-07

Site ID : SUPERIOR, WI

Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	56.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.030	0.0045	0.066	mg/kg	J	8021	10/28/11	73.5
Toluene	0.050	0.0093	0.66	mg/kg	J	8021	10/28/11	73.5
Ethylbenzene	0.020	0.0045	0.066	mg/kg	J	8021	10/28/11	73.5
m&p-Xylene	0.072	0.014	0.13	mg/kg	J	8021	10/28/11	73.5
o-Xylene	0.036	0.0064	0.066	mg/kg	J	8021	10/28/11	73.5
methyl tert-butyl ether	U	0.012	0.066	mg/kg		8021	10/28/11	73.5
Naphthalene	0.093	0.016	0.66	mg/kg	J	8021	10/28/11	73.5
1,3,5-Trimethylbenzene	0.018	0.0052	0.13	mg/kg	J	8021	10/28/11	73.5
1,2,4-Trimethylbenzene	0.043	0.0097	0.13	mg/kg	J	8021	10/28/11	73.5
Gasoline (C6-C10)	U	2.2	13.	mg/kg		8015	10/28/11	73.5
Surrogate recovery-% a,a,a-Trifluorotoluene (PID)	106.			% Rec.		8021	10/28/11	73.5
TPH (GC/FID) High Fraction Surrogate recovery(%) Triacontane	U 105.	0.91	17.	mg/kg % Rec.		DROWM/80 DROWM/80	11/01/11 11/01/11	1.18 1.18

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REPORT OF ANALYSIS

Jon Hinkel
 Twin Ports Testing
 1301 North 3rd Street
 Superior, WI 54880

November 03, 2011

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Release
 Sample ID : SS-8
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 15:45

ESC Sample # : L543785-08
 Site ID : SUPERIOR, WI
 Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	67.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.026	0.0042	0.052	mg/kg	J	8021	10/28/11	69.5
Toluene	0.028	0.0088	0.52	mg/kg	J	8021	10/28/11	69.5
Ethylbenzene	0.018	0.0042	0.052	mg/kg	J	8021	10/28/11	69.5
m&p-Xylene	0.057	0.013	0.10	mg/kg	J	8021	10/28/11	69.5
o-Xylene	0.026	0.0061	0.052	mg/kg	J	8021	10/28/11	69.5
methyl tert-butyl ether	U	0.011	0.052	mg/kg		8021	10/28/11	69.5
Naphthalene	0.096	0.015	0.52	mg/kg	J	8021	10/28/11	69.5
1,3,5-Trimethylbenzene	0.010	0.0049	0.10	mg/kg	J	8021	10/28/11	69.5
1,2,4-Trimethylbenzene	0.027	0.0092	0.10	mg/kg	J	8021	10/28/11	69.5
Gasoline (C6-C10)	U	2.0	10.	mg/kg		8015	10/28/11	69.5
Surrogate recovery-% a,a,a-Trifluorotoluene (PID)	106.			% Rec.		8021	10/28/11	69.5
TPH (GC/FID) High Fraction Surrogate recovery(%) Triacontane	U 106.	1.0	16.	mg/kg % Rec.		DROWM/80 DROWM/80	11/01/11 11/01/11	1.31 1.31

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

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Reported: 11/03/11 11:45 Revised: 11/03/11 16:16



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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Jon Hinkel
 Twin Ports Testing
 1301 North 3rd Street
 Superior, WI 54880

November 03, 2011

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Release
 Sample ID : SS-9
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 15:55

ESC Sample # : L543785-09
 Site ID : SUPERIOR, WI
 Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	74.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.028	0.0049	0.055	mg/kg	J	8021	10/28/11	81
Toluene	0.033	0.010	0.55	mg/kg	J	8021	10/28/11	81
Ethylbenzene	0.019	0.0049	0.055	mg/kg	J	8021	10/28/11	81
m&p-Xylene	0.052	0.015	0.11	mg/kg	J	8021	10/28/11	81
o-Xylene	0.026	0.0071	0.055	mg/kg	J	8021	10/28/11	81
methyl tert-butyl ether	U	0.013	0.055	mg/kg		8021	10/28/11	81
Naphthalene	0.11	0.018	0.55	mg/kg	J	8021	10/28/11	81
1,3,5-Trimethylbenzene	0.012	0.0057	0.11	mg/kg	J	8021	10/28/11	81
1,2,4-Trimethylbenzene	0.033	0.011	0.11	mg/kg	J	8021	10/28/11	81
Gasoline (C6-C10)	U	2.4	11.	mg/kg		8015	10/28/11	81
Surrogate recovery-% a,a,a-Trifluorotoluene (PID)	104.			% Rec.		8021	10/28/11	81
TPH (GC/FID) High Fraction Surrogate recovery(%) Triacontane	U 97.8	0.77	11.	mg/kg % Rec.		DROWM/80 DROWM/80	11/02/11 11/02/11	1 1

Results listed are dry weight basis.

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REPORT OF ANALYSIS

Jon Hinkel
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 1301 North 3rd Street
 Superior, WI 54880

November 03, 2011

Date Received : October 27, 2011
 Description : Murphy Oil Crude Oil Release
 Sample ID : SS-10
 Collected By : Jon Hinkel
 Collection Date : 10/25/11 16:05

ESC Sample # : L543785-10
 Site ID : SUPERIOR, WI
 Project # : 11E-195

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	73.			%		2540G	11/03/11	1
PVOCGRO								
Benzene	0.023	0.0043	0.048	mg/kg	J	8021	10/28/11	70.5
Toluene	0.025	0.0090	0.48	mg/kg	J	8021	10/28/11	70.5
Ethylbenzene	0.015	0.0043	0.048	mg/kg	J	8021	10/28/11	70.5
m&p-Xylene	0.046	0.013	0.096	mg/kg	J	8021	10/28/11	70.5
o-Xylene	0.022	0.0062	0.048	mg/kg	J	8021	10/28/11	70.5
methyl tert-butyl ether	U	0.011	0.048	mg/kg		8021	10/28/11	70.5
Naphthalene	0.066	0.015	0.48	mg/kg	J	8021	10/28/11	70.5
1,3,5-Trimethylbenzene	0.0086	0.0050	0.096	mg/kg	J	8021	10/28/11	70.5
1,2,4-Trimethylbenzene	0.025	0.0093	0.096	mg/kg	J	8021	10/28/11	70.5
Gasoline (C6-C10)	U	2.1	9.6	mg/kg		8015	10/28/11	70.5
Surrogate recovery-% a,a,a-Trifluorotoluene(PID)	104.			% Rec.		8021	10/28/11	70.5
TPH (GC/FID) High Fraction	U	0.77	11.	mg/kg		DROWM/80	11/02/11	1
Surrogate recovery(%) Triacontane	99.7			% Rec.		DROWM/80	11/02/11	1

Results listed are dry weight basis.

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L543785-01	WG562848	SAMP	Benzene	R1916994	J
	WG562848	SAMP	Toluene	R1916994	J
	WG562848	SAMP	Ethylbenzene	R1916994	J
	WG562848	SAMP	m&p-Xylene	R1916994	J
	WG562848	SAMP	o-Xylene	R1916994	J
	WG562848	SAMP	Naphthalene	R1916994	J
	WG562848	SAMP	1,3,5-Trimethylbenzene	R1916994	J
	WG562848	SAMP	1,2,4-Trimethylbenzene	R1916994	J
	L543785-02	WG562848	SAMP	Benzene	R1916994
WG562848		SAMP	Toluene	R1916994	J
WG562848		SAMP	Ethylbenzene	R1916994	J
WG562848		SAMP	m&p-Xylene	R1916994	J
WG562848		SAMP	o-Xylene	R1916994	J
WG562848		SAMP	Naphthalene	R1916994	J
WG562848		SAMP	1,3,5-Trimethylbenzene	R1916994	J
WG562848		SAMP	1,2,4-Trimethylbenzene	R1916994	J
L543785-03		WG562848	SAMP	Gasoline (C6-C10)	R1916994
	WG562848	SAMP	Benzene	R1916994	J
	WG562848	SAMP	Toluene	R1916994	J
	WG562848	SAMP	Ethylbenzene	R1916994	J
	WG562848	SAMP	Naphthalene	R1916994	J
	WG562848	SAMP	1,3,5-Trimethylbenzene	R1916994	J
	WG562848	SAMP	1,2,4-Trimethylbenzene	R1916994	J
	WG562848	SAMP	Gasoline (C6-C10)	R1916994	J
	L543785-04	WG562848	SAMP	Benzene	R1916994
WG562848		SAMP	Toluene	R1916994	J
WG562848		SAMP	Ethylbenzene	R1916994	J
WG562848		SAMP	m&p-Xylene	R1916994	J
WG562848		SAMP	o-Xylene	R1916994	J
WG562848		SAMP	Naphthalene	R1916994	J
WG562848		SAMP	1,3,5-Trimethylbenzene	R1916994	J
WG562848		SAMP	1,2,4-Trimethylbenzene	R1916994	J
L543785-05		WG562848	SAMP	Gasoline (C6-C10)	R1916994
	WG562848	SAMP	Benzene	R1916994	J
	WG562848	SAMP	Toluene	R1916994	J
	WG562848	SAMP	Ethylbenzene	R1916994	J
	WG562848	SAMP	m&p-Xylene	R1916994	J
	WG562848	SAMP	o-Xylene	R1916994	J
	WG562848	SAMP	Naphthalene	R1916994	J
	WG562848	SAMP	1,3,5-Trimethylbenzene	R1916994	J
	WG562848	SAMP	1,2,4-Trimethylbenzene	R1916994	J
L543785-06	WG562848	SAMP	Gasoline (C6-C10)	R1916994	J
	WG562848	SAMP	Benzene	R1916994	J
	WG562848	SAMP	Toluene	R1916994	J
	WG562848	SAMP	Ethylbenzene	R1916994	J
	WG562848	SAMP	m&p-Xylene	R1916994	J
	WG562848	SAMP	o-Xylene	R1916994	J
	WG562848	SAMP	Naphthalene	R1916994	J
	WG562848	SAMP	1,3,5-Trimethylbenzene	R1916994	J
	WG562848	SAMP	1,2,4-Trimethylbenzene	R1916994	J
L543785-07	WG562848	SAMP	Benzene	R1916994	J
	WG562848	SAMP	Toluene	R1916994	J
	WG562848	SAMP	Ethylbenzene	R1916994	J
	WG562848	SAMP	m&p-Xylene	R1916994	J
	WG562848	SAMP	o-Xylene	R1916994	J
	WG562848	SAMP	Naphthalene	R1916994	J
	WG562848	SAMP	1,3,5-Trimethylbenzene	R1916994	J
	WG562848	SAMP	1,2,4-Trimethylbenzene	R1916994	J
	L543785-08	WG562848	SAMP	Benzene	R1916994
WG562848		SAMP	Toluene	R1916994	J
WG562848		SAMP	Ethylbenzene	R1916994	J
WG562848		SAMP	m&p-Xylene	R1916994	J
WG562848		SAMP	o-Xylene	R1916994	J
WG562848		SAMP	Naphthalene	R1916994	J
WG562848		SAMP	1,3,5-Trimethylbenzene	R1916994	J
WG562848		SAMP	1,2,4-Trimethylbenzene	R1916994	J
L543785-09		WG562848	SAMP	Benzene	R1916994
	WG562848	SAMP	Toluene	R1916994	J
	WG562848	SAMP	Ethylbenzene	R1916994	J
	WG562848	SAMP	m&p-Xylene	R1916994	J
	WG562848	SAMP	o-Xylene	R1916994	J

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L543785-10	WG562848	SAMP	Naphthalene	R1916994	J
	WG562848	SAMP	1,3,5-Trimethylbenzene	R1916994	J
	WG562848	SAMP	1,2,4-Trimethylbenzene	R1916994	J
	WG562848	SAMP	Benzene	R1916994	J
	WG562848	SAMP	Toluene	R1916994	J
	WG562848	SAMP	Ethylbenzene	R1916994	J
	WG562848	SAMP	m&p-Xylene	R1916994	J
	WG562848	SAMP	o-Xylene	R1916994	J
	WG562848	SAMP	Naphthalene	R1916994	J
	WG562848	SAMP	1,3,5-Trimethylbenzene	R1916994	J
	WG562848	SAMP	1,2,4-Trimethylbenzene	R1916994	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

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

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
1,2,4-Trimethylbenzene	< .001	mg/kg			WG562848	10/28/11 15:34
1,3,5-Trimethylbenzene	< .001	mg/kg			WG562848	10/28/11 15:34
Benzene	< .0005	mg/kg			WG562848	10/28/11 15:34
Ethylbenzene	< .0005	mg/kg			WG562848	10/28/11 15:34
Gasoline (C6-C10)	< .1	mg/kg			WG562848	10/28/11 15:34
m&p-Xylene	< .001	mg/kg			WG562848	10/28/11 15:34
methyl tert-butyl ether	< .001	mg/kg			WG562848	10/28/11 15:34
Naphthalene	< .005	mg/kg			WG562848	10/28/11 15:34
o-Xylene	< .0005	mg/kg			WG562848	10/28/11 15:34
Toluene	< .005	mg/kg			WG562848	10/28/11 15:34
a,a,a-Trifluorotoluene (PID)		% Rec.	108.1	80-120	WG562848	10/28/11 15:34
TPH (GC/FID) High Fraction	< 4	ppm			WG563058	11/01/11 22:29
Triacontane		% Rec.	108.4	50-150	WG563058	11/01/11 22:29
Total Solids	< .1	%			WG563673	11/03/11 10:19

Analyte	Units	Duplicate			Limit	Ref Samp	Batch
		Result	Duplicate	RPD			
Total Solids	%	73.0	73.1	0.502	5	L543785-10	WG563673

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,2,4-Trimethylbenzene	mg/kg	.05	0.0463	92.6	80-120	WG562848
1,3,5-Trimethylbenzene	mg/kg	.05	0.0461	92.2	80-120	WG562848
Benzene	mg/kg	.05	0.0486	97.3	76-113	WG562848
Ethylbenzene	mg/kg	.05	0.0460	92.0	78-115	WG562848
Gasoline (C6-C10)	mg/kg	.5	0.495	99.0	80-120	WG562848
m&p-Xylene	mg/kg	.1	0.0942	94.2	81-120	WG562848
methyl tert-butyl ether	mg/kg	.05	0.0500	99.9	37-145	WG562848
Naphthalene	mg/kg	.05	0.0537	107.	80-120	WG562848
o-Xylene	mg/kg	.05	0.0481	96.3	79-115	WG562848
Toluene	mg/kg	.05	0.0473	94.7	76-114	WG562848
a,a,a-Trifluorotoluene (PID)				111.2	80-120	WG562848
TPH (GC/FID) High Fraction	mg/kg	40	33.2	83.1	70-120	WG563058
Triacontane				97.36	50-150	WG563058
Total Solids	%	50	50.0	100.	85-155	WG563673

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
1,2,4-Trimethylbenzene	mg/kg	0.0498	0.0463	100.	80-120	7.35	20	WG562848
1,3,5-Trimethylbenzene	mg/kg	0.0502	0.0461	100.	80-120	8.47	20	WG562848
Benzene	mg/kg	0.0477	0.0486	95.0	76-113	1.96	20	WG562848
Ethylbenzene	mg/kg	0.0489	0.0460	98.0	78-115	6.03	20	WG562848
Gasoline (C6-C10)	mg/kg	0.513	0.495	103.	80-120	3.60	20	WG562848
m&p-Xylene	mg/kg	0.0994	0.0942	99.0	81-120	5.44	20	WG562848
methyl tert-butyl ether	mg/kg	0.0478	0.0500	96.0	37-145	4.35	24	WG562848
Naphthalene	mg/kg	0.0514	0.0537	103.	80-120	4.49	20	WG562848
o-Xylene	mg/kg	0.0504	0.0481	101.	79-115	4.53	20	WG562848
Toluene	mg/kg	0.0480	0.0473	96.0	76-114	1.30	20	WG562848

* Performance of this Analyte is outside of established criteria.
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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
a, a, a-Trifluorotoluene (PID)				106.3	80-120			
TPH (GC/FID) High Fraction	mg/kg	37.6	33.2	94.0	70-120	12.4	20	
Triacontane				116.0	50-150		WG563058	

Analyte	Units	MS Res	Matrix Spike			Limit	Ref Samp	Batch
			Ref Res	TV	% Rec			
1,2,4-Trimethylbenzene	mg/kg	3.20	0.0310	.05	99.8	80-120	L543785-03	WG562848
1,3,5-Trimethylbenzene	mg/kg	3.19	0.0120	.05	100.	80-120	L543785-03	WG562848
Benzene	mg/kg	3.05	0.0120	.05	95.8	32-137	L543785-03	WG562848
Ethylbenzene	mg/kg	3.07	0.0320	.05	95.6	10-150	L543785-03	WG562848
Gasoline (C6-C10)	mg/kg	34.6	0	.5	109.	80-120	L543785-03	WG562848
m&p-Xylene	mg/kg	6.34	0.120	.1	98.0	14-141	L543785-03	WG562848
methyl tert-butyl ether	mg/kg	2.84	0	.05	89.4	24-151	L543785-03	WG562848
Naphthalene	mg/kg	3.24	0.0830	.05	99.3	80-120	L543785-03	WG562848
o-Xylene	mg/kg	3.15	0.0500	.05	97.7	10-157	L543785-03	WG562848
Toluene	mg/kg	3.05	0.0180	.05	95.5	20-142	L543785-03	WG562848
a, a, a-Trifluorotoluene (PID)					106.1	80-120		WG562848

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
1,2,4-Trimethylbenzene	mg/kg	3.26	3.20	102.	80-120	1.92	20	L543785-03	WG562848
1,3,5-Trimethylbenzene	mg/kg	3.25	3.19	102.	80-120	1.90	20	L543785-03	WG562848
Benzene	mg/kg	3.12	3.05	97.7	32-137	2.01	39	L543785-03	WG562848
Ethylbenzene	mg/kg	3.13	3.07	97.6	10-150	2.00	44	L543785-03	WG562848
Gasoline (C6-C10)	mg/kg	36.9	34.6	116.	80-120	6.20	20	L543785-03	WG562848
m&p-Xylene	mg/kg	6.45	6.34	99.8	14-141	1.78	44	L543785-03	WG562848
methyl tert-butyl ether	mg/kg	2.96	2.84	93.2	24-151	4.24	37	L543785-03	WG562848
Naphthalene	mg/kg	3.47	3.24	107.	80-120	6.99	20	L543785-03	WG562848
o-Xylene	mg/kg	3.22	3.15	99.7	10-157	2.00	44	L543785-03	WG562848
Toluene	mg/kg	3.10	3.05	97.2	20-142	1.72	42	L543785-03	WG562848
a, a, a-Trifluorotoluene (PID)				106.0	80-120				WG562848

Batch number /Run number / Sample number cross reference

WG562848: R1916994: L543785-01 02 03 04 05 06 07 08 09 10
 WG563058: R1917912: L543785-01 02 03 04 05 06 07 08 09 10
 WG563673: R1919855: L543785-01 02 03 04 05 06 07 08 09 10

* * Calculations are performed prior to rounding of reported values.
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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.