

1/5/2011

John Sager  
Division of Air and Waste  
Remediation and Redevelopment  
Wisconsin Dept. of Natural Resources  
107 Sutliff Avenue  
Rhineland WI 54501

**Re: Murphy Oil - 11/24/2010 Slop Oil Release Request for Closure**

Dear Mr. Sager,

I am sending this letter as a request for closure for the slop oil release which occurred at 23:50 on 11/24/2010 and was reported at 03:00 on 11/25/2010 to the WDNR Hazardous Spills Reporting Line by Mark Darby. Shannon Becker was the Duty Officer who received the initial call.

On 11/24/10, a check valve gasket in the slop oil transfer system failed. The check valve was located at the new oil water separator for the Ultra Low Sulfur Diesel (ULSD)/Benzene Splitter project. The majority of the slop oil was contained within the concrete containment vault for the oil water separator. Approximately 50 gallons of slop oil was released outside of the containment as a result of spraying outward from the failed check valve gasket onto the surrounding ground covered by construction insulation blankets for the new BenzOUT Unit. As a winter snow storm had passed through the area earlier in the evening, the pattern and location of the spray was easily recognizable. The insulating blankets containing the discolored snow were carefully dragged onto the concrete containment pad for the ULSD and Benzene Splitter Units. Once on the concrete containment for the ULSD and Benzene Splitter Units, the discolored snow on the insulating blankets was slid off and transferred to the wash slab for treatment through our Waste Water Treatment Plant. The insulation blankets and ground in close proximity to the failed check valve gasket were saturated with slop oil (see "Final Site Diagram"). The free product was collected with absorbent pads and a vacuum truck. The absorbent pads were placed in drums and disposed of offsite and the liquid collected was treated on-site. The impacted soil was excavated and stored on-site in our petroleum contaminated soils building until it can be disposed of offsite. The saturated insulation blankets were folded up and steam cleaned later.

The cause of the check valve gasket failure is because of frozen water was in contact with the check valve causing it to be damaged. While Enbridge is filling Tank 25, Murphy blocks in their crude tanks (47,48,49,50) so that the delivery is routed to Tank 25 and not directly to Murphy's crude tanks. When this occurs, it pressures up the slop oil transfer lines in the refinery that can be routed to any of our crude tanks. This pressure caused slop oil to spray out of the damaged check valve while Tank 25 was being filled. The valve was replaced and the line was steam traced and insulated in order to prevent frozen water from damaging the check valve.

After the initial cleanup and excavation was completed, Twin Ports Testing was contacted to sample for DRO, GRO, and PVOC's on December 1<sup>st</sup>, 2010. Upon receiving the results, SS-4 was not within the soil cleanup standards found in NR 720. Additional excavation was completed on December 13<sup>th</sup>, 2010 and Twin Ports Testing was again contacted to sample for DRO, GRO, and PVOC's that day. The lab results from the December 13<sup>th</sup>, 2010 indicated that the impacted soil had been removed and the area was clean as defined in NR 720. Below is a table summarizing the results from both sampling events.

Date	Location	DRO (ppm)	GRO (ppm)
12/1/2010	SS-1	ND	ND
12/1/2010	SS-2	ND	1.7
12/1/2010	SS-3	3.5	ND
12/1/2010	SS-4	1400	440
12/13/2010	SS-5	ND	ND
12/13/2010	SS-6	ND	ND

I have attached the reports received from Twin Ports Testing as well as all figures and lab analytical results.

If you have any questions, please do not hesitate to contact me.

Sincerely,



Peter Fredman  
Environmental Engineer  
(715)-398-8434  
[peter\\_fredman@murphyoilcorp.com](mailto:peter_fredman@murphyoilcorp.com)

Attached: 11-24-2010 Slop Oil Release Report

# Table of Contents

Initial Soil Sampling Report.....	1
Site Location.....	2
Initial Site Diagram.....	3
Initial Chain of Custody.....	4
Initial Lab Results.....	5
Follow Up Soil Sampling Report.....	32
Final Site Diagram.....	33
Follow Up Chain of Custody.....	34
Follow Up Lab Results.....	35



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December 17th, 2010

Mr. Peter Fredman  
Murphy Oil USA  
2407 Stinson Avenue  
Superior, WI 54880

Re: Initial Soil Sampling near Benzene Unit

Murphy Oil Refinery

Dear Mr. Fredman,

On December 1, 2010, Twin Ports Testing was called with a request for soil analyses near the benzene unit within the Murphy Oil refinery (Figure 1). Jon Hinkel and I arrived at your office at 1:00pm that afternoon. We were shown the impacted soil area and collected four soil samples (SS-1 through SS-4) each at depths of approximately 8" (Figure 2). Field screening of each sample was conducted using a photoionization detector equipped with a 10.6 eV lamp. Field screening results showed petroleum-related organic vapors in sample SS-4 at 217 parts per million, while the remaining three samples registered no detectable organic vapors. Each sample was analyzed for gasoline range organics (GRO), diesel range organics (DRO), and volatile organic compounds (VOCs).

Laboratory samples were shipped to Environmental Science Corporation of Mount Juliet, Tennessee under standard chain of custody procedures. We anticipate receiving the results of these tests on December 4, 2010. The results will then be forwarded to you as soon as possible.

If you should have any questions, please call me at (715) 392-7114. We appreciate doing business with you.

Sincerely,  
Twin Ports Testing

A handwritten signature in blue ink that reads "Alexandra Prasch". The signature is fluid and cursive, with the first name "Alexandra" and the last name "Prasch" connected by a single stroke.

Alexandra Prasch, Geophysicist  
Environmental Department



# Murphy Oil USA, Inc.

## Superior Refinery

Geotechnical  
Engineering

Non-Destructive  
Testing

Environmental  
Consulting

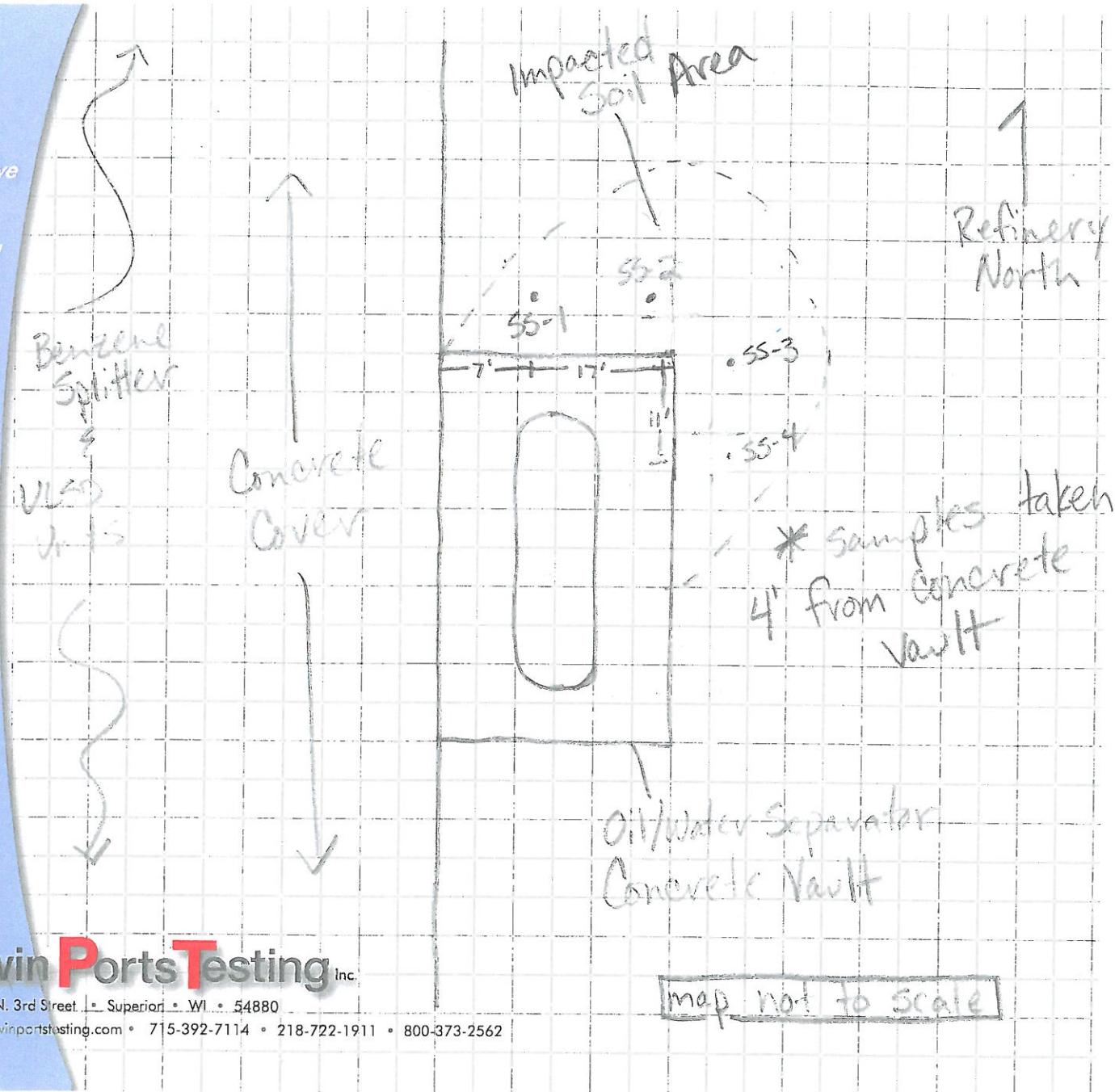
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**Company Name/Address:**  
**Twin Ports Testing**

1301 North 3rd Street  
Superior, WI 54880

Report to: Alex Prasch

**Alternate billing information:**

### Analysis/Container/Preservation

E178

**Chain of Custody**  
Page \_\_\_\_ of \_\_\_\_

Prepared by:

 ENVIRONMENTAL  
SCIENCE CORP

12065 Lebanon Road  
Mt. Juliet, TN 37122

Phone (615) 758-5858  
Phone (800) 767-5859  
FAX (615) 758-5859

CoCode TWINPORW (Lab Use Only)  
Template/Prelogin  
Shipped Via:

Remarks/Contaminant	Sample # (lab only)
---------------------	---------------------

491509-01  
02  
03  
04

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

pH \_\_\_\_\_ Temp \_\_\_\_\_

**Remarks:**

43685781154 flow \_\_\_\_\_ Other \_\_\_\_\_

Relinquished by: (Signature) <i>Alex Brash</i>	Date: <u>12-1-10</u>	Time: <u>17:00</u>	Received by: (Signature)	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier	Condition:	(lab use only) <u>PIC</u>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: <u>34.1</u>	Bottles Received: <u>16</u>	CoC Seal's Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <u>NA</u>
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>Karen Allen</i>	Date: <u>12/2/10</u>	Time: <u>8:30 AM</u>	pH Checked: <input type="checkbox"/> NCF: <input type="checkbox"/>



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Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

### Report Summary

Friday December 10, 2010

Report Number: L491509

Samples Received: 12/02/10

Client Project: 10E

Description: Julie Hillman UST

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  
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

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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1301 North 3rd Street  
Superior, WI 54880

### Case Narrative

Friday December 10, 2010

Report Number: L491509

Samples Received: 12/02/10

Client Project: 10E

Description: Julie Hillman UST

#### Sample Receiving

The samples were received in proper containers and in good condition.

The samples were received on ice (less than or equal to 4 degrees centigrade), in properly preserved containers and in good condition.

#### Data

All samples were treated according to method protocol, no other treatment was necessary.

All Samples were extracted and analyzed within appropriate holding times.

QA/QC was within acceptable ranges. See Qualifiers where applicable.

#### ESC Level 2 Data Package

I certify that, for other than the conditions detailed herein, this data package is in compliance with the terms and conditions of this Agreement, both technically and for completeness. Release of this data has been authorized by the Laboratory Manager or his designee.

#### Other Comments

DROWM samples received in untared containers. FLPROM method was used in lieu of tared container. Note that the LCSD does not meet method criteria for surrogates (high failure). JVH 12-10-2010



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REPORT OF ANALYSIS

December 10, 2010

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

Date Received : December 02, 2010  
Description : 10e-0171  
  
Sample ID : SS-1 8 IN  
  
Collected By : Alex Prasch  
Collection Date : 12/01/10 15:00

ESC Sample # : L491509-01

Site ID :

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	90.3			%		2540G	12/06/10	1
WI DNR								
Gasoline (C6-C10)	U	1.4	5.4	mg/kg		GROWM/80	12/03/10	49
Surrogate recovery-%								
a,a,a-Trifluorotoluene(PID)	102.			% Rec.		GROWM/80	12/03/10	49
Volatile Organics								
Acetone	U	0.51	2.7	mg/kg		8260B	12/02/10	49
Acrylonitrile	U	0.13	0.54	mg/kg		8260B	12/02/10	49
Allyl chloride	U	0.081	0.27	mg/kg		8260B	12/02/10	49
Benzene	U	0.021	0.054	mg/kg		8260B	12/02/10	49
Bromobenzene	U	0.015	0.054	mg/kg		8260B	12/02/10	49
Bromodichloromethane	U	0.016	0.054	mg/kg		8260B	12/02/10	49
Bromoform	U	0.016	0.054	mg/kg		8260B	12/02/10	49
Bromomethane	U	0.077	0.27	mg/kg		8260B	12/02/10	49
n-Butylbenzene	U	0.016	0.054	mg/kg		8260B	12/02/10	49
sec-Butylbenzene	U	0.015	0.054	mg/kg		8260B	12/02/10	49
tert-Butylbenzene	U	0.013	0.054	mg/kg		8260B	12/02/10	49
Carbon tetrachloride	U	0.020	0.054	mg/kg		8260B	12/02/10	49
Chlorobenzene	U	0.016	0.054	mg/kg		8260B	12/02/10	49
Chlorodibromomethane	U	0.015	0.054	mg/kg		8260B	12/02/10	49
Chloroethane	U	0.096	0.27	mg/kg		8260B	12/02/10	49
2-Chloroethyl vinyl ether	U	0.89	2.7	mg/kg		8260B	12/02/10	49
Chloroform	U	0.021	0.27	mg/kg		8260B	12/02/10	49
Chloromethane	U	0.051	0.14	mg/kg		8260B	12/02/10	49
2-Chlorotoluene	U	0.016	0.054	mg/kg		8260B	12/02/10	49
4-Chlorotoluene	U	0.015	0.054	mg/kg		8260B	12/02/10	49
1,2-Dibromo-3-Chloropropane	U	0.052	0.27	mg/kg		8260B	12/02/10	49
1,2-Dibromoethane	U	0.015	0.054	mg/kg		8260B	12/02/10	49
Dibromomethane	U	0.022	0.054	mg/kg		8260B	12/02/10	49
1,2-Dichlorobenzene	U	0.015	0.054	mg/kg		8260B	12/02/10	49
1,3-Dichlorobenzene	U	0.014	0.054	mg/kg		8260B	12/02/10	49
1,4-Dichlorobenzene	U	0.017	0.054	mg/kg		8260B	12/02/10	49
Dichlorodifluoromethane	U	0.021	0.27	mg/kg		8260B	12/02/10	49
Dichlorofluoromethane	U	0.026	0.27	mg/kg	J4J6	8260B	12/02/10	49
1,1-Dichloroethane	U	0.021	0.054	mg/kg		8260B	12/02/10	49
1,2-Dichloroethane	U	0.018	0.054	mg/kg		8260B	12/02/10	49
1,1-Dichloroethene	U	0.026	0.054	mg/kg		8260B	12/02/10	49
cis-1,2-Dichloroethene	U	0.025	0.054	mg/kg	J3	8260B	12/02/10	49
trans-1,2-Dichloroethene	U	0.021	0.054	mg/kg		8260B	12/02/10	49
1,2-Dichloropropane	U	0.029	0.054	mg/kg		8260B	12/02/10	49
1,1-Dichloropropene	U	0.016	0.054	mg/kg		8260B	12/02/10	49

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

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## REPORT OF ANALYSIS

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

December 10, 2010

Date Received : December 02, 2010  
Description : 10e-0171  
Sample ID : SS-1 8 IN  
Collected By : Alex Prasch  
Collection Date : 12/01/10 15:00

ESC Sample # : L491509-01

Site ID :

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
1,3-Dichloropropane	U	0.019	0.054	mg/kg		8260B	12/02/10	49
cis-1,3-Dichloropropene	U	0.015	0.054	mg/kg		8260B	12/02/10	49
trans-1,3-Dichloropropene	U	0.020	0.054	mg/kg		8260B	12/02/10	49
2,2-Dichloropropane	U	0.018	0.054	mg/kg	J3	8260B	12/02/10	49
Di-isopropyl ether	U	0.018	0.054	mg/kg		8260B	12/02/10	49
Ethylbenzene	U	0.015	0.054	mg/kg		8260B	12/02/10	49
Ethyl ether	U	0.040	0.054	mg/kg		8260B	12/02/10	49
Hexachloro-1,3-butadiene	U	0.017	0.054	mg/kg		8260B	12/02/10	49
2-Hexanone	U	0.13	0.54	mg/kg		8260B	12/02/10	49
Isopropylbenzene	U	0.016	0.054	mg/kg		8260B	12/02/10	49
p-Isopropyltoluene	U	0.015	0.054	mg/kg		8260B	12/02/10	49
2-Butanone (MEK)	U	0.21	0.54	mg/kg		8260B	12/02/10	49
Methylene Chloride	U	0.024	0.27	mg/kg		8260B	12/02/10	49
4-Methyl-2-pentanone (MIBK)	U	0.11	0.54	mg/kg		8260B	12/02/10	49
Methyl tert-butyl ether	U	0.017	0.054	mg/kg		8260B	12/02/10	49
Naphthalene	U	0.014	0.27	mg/kg		8260B	12/02/10	49
n-Propylbenzene	U	0.016	0.054	mg/kg		8260B	12/02/10	49
Styrene	U	0.012	0.054	mg/kg	J5	8260B	12/02/10	49
1,1,1,2-Tetrachloroethane	U	0.020	0.054	mg/kg	J3	8260B	12/02/10	49
1,1,2,2-Tetrachloroethane	U	0.014	0.054	mg/kg		8260B	12/02/10	49
1,1,2-Trichloro-1,2,2-trifluoro	U	0.042	0.054	mg/kg		8260B	12/02/10	49
Tetrachloroethene	U	0.022	0.054	mg/kg		8260B	12/02/10	49
Tetrahydrofuran	U	0.085	0.27	mg/kg		8260B	12/02/10	49
Toluene	U	0.016	0.27	mg/kg		8260B	12/02/10	49
1,2,3-Trichlorobenzene	U	0.015	0.054	mg/kg		8260B	12/02/10	49
1,2,4-Trichlorobenzene	U	0.018	0.054	mg/kg		8260B	12/02/10	49
1,1,1-Trichloroethane	U	0.023	0.054	mg/kg		8260B	12/02/10	49
1,1,2-Trichloroethane	U	0.027	0.054	mg/kg		8260B	12/02/10	49
Trichloroethene	U	0.017	0.054	mg/kg		8260B	12/02/10	49
Trichlorofluoromethane	U	0.034	0.27	mg/kg		8260B	12/02/10	49
1,2,3-Trichloropropane	U	0.033	0.054	mg/kg		8260B	12/02/10	49
1,2,4-Trimethylbenzene	U	0.016	0.054	mg/kg		8260B	12/02/10	49
1,2,3-Trimethylbenzene	U	0.016	0.054	mg/kg		8260B	12/02/10	49
1,3,5-Trimethylbenzene	U	0.015	0.054	mg/kg		8260B	12/02/10	49
Vinyl chloride	U	0.026	0.054	mg/kg		8260B	12/02/10	49
Xylenes, Total	U	0.022	0.16	mg/kg		8260B	12/02/10	49
Surrogate Recovery								
Toluene-d8	107.			% Rec.		8260B	12/02/10	49
Dibromofluoromethane	96.6			% Rec.		8260B	12/02/10	49
a,a,a-Trifluorotoluene	106.			% Rec.		8260B	12/02/10	49
4-Bromofluorobenzene	116.			% Rec.		8260B	12/02/10	49
Petroleum Range Organics	U	3.3	11.	mg/kg	V9J3	FLPRO	12/09/10	1

Results listed are dry weight basis.

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RDL = Reported Detection Limit = LOQ = PQL = EQL

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December 10, 2010

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

Date Received : December 02, 2010  
Description : 10e-0171  
  
Sample ID : SS-1 8 IN  
  
Collected By : Alex Prasch  
Collection Date : 12/01/10 15:00

ESC Sample # : L491509-01

Site ID :

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Surrogate Recovery								
o-Terphenyl	101.			% Rec.		F1PRO	12/09/10	1
C35	116.			% Rec.		F1PRO	12/09/10	1

Results listed are dry weight basis.

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REPORT OF ANALYSIS

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

December 10, 2010

Date Received : December 02, 2010  
Description : 10e-0171  
  
Sample ID : SS-2 8 IN  
  
Collected By : Alex Prasch  
Collection Date : 12/01/10 14:15

ESC Sample # : L491509-02

Site ID :

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	91.7			%		2540G	12/06/10	1
WI DNR								
Gasoline (C6-C10)	1.7	1.5	5.5	mg/kg	J	GROWM/80	12/03/10	50.5
Surrogate recovery-%								
a,a,a-Trifluorotoluene(PID)	101.			% Rec.		GROWM/80	12/03/10	50.5
Volatile Organics								
Acetone	U	0.52	2.8	mg/kg		8260B	12/02/10	50.5
Acrylonitrile	U	0.13	0.55	mg/kg		8260B	12/02/10	50.5
Allyl chloride	U	0.083	0.28	mg/kg		8260B	12/02/10	50.5
Benzene	U	0.021	0.055	mg/kg		8260B	12/02/10	50.5
Bromobenzene	U	0.015	0.055	mg/kg		8260B	12/02/10	50.5
Bromodichloromethane	U	0.017	0.055	mg/kg		8260B	12/02/10	50.5
Bromoform	U	0.017	0.055	mg/kg		8260B	12/02/10	50.5
Bromomethane	U	0.079	0.28	mg/kg		8260B	12/02/10	50.5
n-Butylbenzene	U	0.017	0.055	mg/kg		8260B	12/02/10	50.5
sec-Butylbenzene	U	0.016	0.055	mg/kg		8260B	12/02/10	50.5
tert-Butylbenzene	U	0.014	0.055	mg/kg		8260B	12/02/10	50.5
Carbon tetrachloride	U	0.021	0.055	mg/kg		8260B	12/02/10	50.5
Chlorobenzene	U	0.017	0.055	mg/kg		8260B	12/02/10	50.5
Chlorodibromomethane	U	0.016	0.055	mg/kg		8260B	12/02/10	50.5
Chloroethane	U	0.098	0.28	mg/kg		8260B	12/02/10	50.5
2-Chloroethyl vinyl ether	U	0.92	2.8	mg/kg		8260B	12/02/10	50.5
Chloroform	U	0.022	0.28	mg/kg		8260B	12/02/10	50.5
Chloromethane	U	0.053	0.14	mg/kg	J3	8260B	12/02/10	50.5
2-Chlorotoluene	U	0.016	0.055	mg/kg		8260B	12/02/10	50.5
4-Chlorotoluene	U	0.015	0.055	mg/kg		8260B	12/02/10	50.5
1,2-Dibromo-3-Chloropropane	U	0.054	0.28	mg/kg		8260B	12/02/10	50.5
1,2-Dibromoethane	U	0.016	0.055	mg/kg		8260B	12/02/10	50.5
Dibromomethane	U	0.023	0.055	mg/kg		8260B	12/02/10	50.5
1,2-Dichlorobenzene	U	0.016	0.055	mg/kg		8260B	12/02/10	50.5
1,3-Dichlorobenzene	U	0.015	0.055	mg/kg		8260B	12/02/10	50.5
1,4-Dichlorobenzene	U	0.018	0.055	mg/kg		8260B	12/02/10	50.5
Dichlorodifluoromethane	U	0.022	0.28	mg/kg		8260B	12/02/10	50.5
Dichlorofluoromethane	U	0.027	0.28	mg/kg	J4J3	8260B	12/02/10	50.5
1,1-Dichloroethane	U	0.022	0.055	mg/kg		8260B	12/02/10	50.5
1,2-Dichloroethane	U	0.019	0.055	mg/kg		8260B	12/02/10	50.5
1,1-Dichloroethene	U	0.027	0.055	mg/kg		8260B	12/02/10	50.5
cis-1,2-Dichloroethene	U	0.026	0.055	mg/kg		8260B	12/02/10	50.5
trans-1,2-Dichloroethene	U	0.021	0.055	mg/kg		8260B	12/02/10	50.5
1,2-Dichloropropane	U	0.030	0.055	mg/kg		8260B	12/02/10	50.5
1,1-Dichloropropene	U	0.017	0.055	mg/kg		8260B	12/02/10	50.5

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Est. 1970

## REPORT OF ANALYSIS

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

December 10, 2010

Date Received : December 02, 2010  
Description : 10e-0171  
Sample ID : SS-2 8 IN  
Collected By : Alex Prasch  
Collection Date : 12/01/10 14:15

ESC Sample # : L491509-02

Site ID :

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
1,3-Dichloropropane	U	0.019	0.055	mg/kg		8260B	12/02/10	50.5
cis-1,3-Dichloropropene	U	0.015	0.055	mg/kg		8260B	12/02/10	50.5
trans-1,3-Dichloropropene	U	0.020	0.055	mg/kg		8260B	12/02/10	50.5
2,2-Dichloropropane	U	0.018	0.055	mg/kg		8260B	12/02/10	50.5
Di-isopropyl ether	U	0.018	0.055	mg/kg		8260B	12/02/10	50.5
Ethylbenzene	U	0.016	0.055	mg/kg		8260B	12/02/10	50.5
Ethyl ether	U	0.041	0.055	mg/kg		8260B	12/02/10	50.5
Hexachloro-1,3-butadiene	U	0.018	0.055	mg/kg		8260B	12/02/10	50.5
2-Hexanone	U	0.13	0.55	mg/kg		8260B	12/02/10	50.5
Isopropylbenzene	U	0.017	0.055	mg/kg		8260B	12/02/10	50.5
p-Isopropyltoluene	U	0.016	0.055	mg/kg		8260B	12/02/10	50.5
2-Butanone (MEK)	U	0.22	0.55	mg/kg		8260B	12/02/10	50.5
Methylene Chloride	U	0.025	0.28	mg/kg		8260B	12/02/10	50.5
4-Methyl-2-pentanone (MIBK)	U	0.12	0.55	mg/kg		8260B	12/02/10	50.5
Methyl tert-butyl ether	U	0.018	0.055	mg/kg		8260B	12/02/10	50.5
Naphthalene	U	0.014	0.28	mg/kg		8260B	12/02/10	50.5
n-Propylbenzene	U	0.016	0.055	mg/kg		8260B	12/02/10	50.5
Styrene	U	0.012	0.055	mg/kg		8260B	12/02/10	50.5
1,1,1,2-Tetrachloroethane	U	0.020	0.055	mg/kg		8260B	12/02/10	50.5
1,1,2,2-Tetrachloroethane	U	0.014	0.055	mg/kg		8260B	12/02/10	50.5
1,1,2-Trichloro-1,2,2-trifluoro	U	0.043	0.055	mg/kg		8260B	12/02/10	50.5
Tetrachloroethene	U	0.022	0.055	mg/kg		8260B	12/02/10	50.5
Tetrahydrofuran	U	0.087	0.28	mg/kg		8260B	12/02/10	50.5
Toluene	U	0.017	0.28	mg/kg		8260B	12/02/10	50.5
1,2,3-Trichlorobenzene	U	0.015	0.055	mg/kg		8260B	12/02/10	50.5
1,2,4-Trichlorobenzene	U	0.019	0.055	mg/kg		8260B	12/02/10	50.5
1,1,1-Trichloroethane	U	0.024	0.055	mg/kg		8260B	12/02/10	50.5
1,1,2-Trichloroethane	U	0.027	0.055	mg/kg		8260B	12/02/10	50.5
Trichloroethene	U	0.017	0.055	mg/kg		8260B	12/02/10	50.5
Trichlorofluoromethane	U	0.036	0.28	mg/kg		8260B	12/02/10	50.5
1,2,3-Trichloropropane	U	0.034	0.055	mg/kg		8260B	12/02/10	50.5
1,2,4-Trimethylbenzene	U	0.017	0.055	mg/kg		8260B	12/02/10	50.5
1,2,3-Trimethylbenzene	U	0.017	0.055	mg/kg		8260B	12/02/10	50.5
1,3,5-Trimethylbenzene	U	0.015	0.055	mg/kg		8260B	12/02/10	50.5
Vinyl chloride	U	0.026	0.055	mg/kg	J3	8260B	12/02/10	50.5
Xylenes, Total	U	0.023	0.16	mg/kg		8260B	12/02/10	50.5
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	12/02/10	50.5
Dibromofluoromethane	92.7			% Rec.		8260B	12/02/10	50.5
a,a,a-Trifluorotoluene	109.			% Rec.		8260B	12/02/10	50.5
4-Bromofluorobenzene	120.			% Rec.		8260B	12/02/10	50.5
Petroleum Range Organics	U	3.3	11.	mg/kg	V9J3	FLPRO	12/09/10	1

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REPORT OF ANALYSIS

December 10, 2010

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

Date Received : December 02, 2010  
Description : 10e-0171

ESC Sample # : L491509-02

Sample ID : SS-2 8 IN

Site ID :

Collected By : Alex Prasch  
Collection Date : 12/01/10 14:15

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Surrogate Recovery								
o-Terphenyl	90.7			% Rec.		F1PRO	12/09/10 1	
C35	102.			% Rec.		F1PRO	12/09/10 1	

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REPORT OF ANALYSIS

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

December 10, 2010

Date Received : December 02, 2010  
Description : 10e-0171  
  
Sample ID : SS-3 8 IN  
  
Collected By : Alex Prasch  
Collection Date : 12/01/10 14:30

ESC Sample # : L491509-03

Site ID :

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	93.2			%		2540G	12/06/10	1
WI DNR								
Gasoline (C6-C10)	U	1.5	5.4	mg/kg		GROWM/80	12/03/10	50.5
Surrogate recovery-%								
a,a,a-Trifluorotoluene(PID)	103.			% Rec.		GROWM/80	12/03/10	50.5
Volatile Organics								
Acetone	U	0.52	2.7	mg/kg		8260B	12/03/10	50.5
Acrylonitrile	U	0.13	0.54	mg/kg		8260B	12/03/10	50.5
Allyl chloride	U	0.083	0.27	mg/kg		8260B	12/03/10	50.5
Benzene	U	0.021	0.054	mg/kg		8260B	12/03/10	50.5
Bromobenzene	U	0.015	0.054	mg/kg		8260B	12/03/10	50.5
Bromodichloromethane	U	0.017	0.054	mg/kg		8260B	12/03/10	50.5
Bromoform	U	0.017	0.054	mg/kg		8260B	12/03/10	50.5
Bromomethane	U	0.079	0.27	mg/kg		8260B	12/03/10	50.5
n-Butylbenzene	U	0.017	0.054	mg/kg		8260B	12/03/10	50.5
sec-Butylbenzene	U	0.016	0.054	mg/kg		8260B	12/03/10	50.5
tert-Butylbenzene	U	0.014	0.054	mg/kg		8260B	12/03/10	50.5
Carbon tetrachloride	U	0.021	0.054	mg/kg		8260B	12/03/10	50.5
Chlorobenzene	U	0.017	0.054	mg/kg		8260B	12/03/10	50.5
Chlorodibromomethane	U	0.016	0.054	mg/kg		8260B	12/03/10	50.5
Chloroethane	U	0.098	0.27	mg/kg		8260B	12/03/10	50.5
2-Chloroethyl vinyl ether	U	0.92	2.7	mg/kg		8260B	12/03/10	50.5
Chloroform	U	0.022	0.27	mg/kg		8260B	12/03/10	50.5
Chloromethane	U	0.053	0.14	mg/kg	J3	8260B	12/03/10	50.5
2-Chlorotoluene	U	0.016	0.054	mg/kg		8260B	12/03/10	50.5
4-Chlorotoluene	U	0.015	0.054	mg/kg		8260B	12/03/10	50.5
1,2-Dibromo-3-Chloropropane	U	0.054	0.27	mg/kg		8260B	12/03/10	50.5
1,2-Dibromoethane	U	0.016	0.054	mg/kg		8260B	12/03/10	50.5
Dibromomethane	U	0.023	0.054	mg/kg		8260B	12/03/10	50.5
1,2-Dichlorobenzene	U	0.016	0.054	mg/kg		8260B	12/03/10	50.5
1,3-Dichlorobenzene	U	0.015	0.054	mg/kg		8260B	12/03/10	50.5
1,4-Dichlorobenzene	U	0.018	0.054	mg/kg		8260B	12/03/10	50.5
Dichlorodifluoromethane	U	0.022	0.27	mg/kg		8260B	12/03/10	50.5
Dichlorofluoromethane	U	0.027	0.27	mg/kg	J4J3	8260B	12/03/10	50.5
1,1-Dichloroethane	U	0.022	0.054	mg/kg		8260B	12/03/10	50.5
1,2-Dichloroethane	U	0.019	0.054	mg/kg		8260B	12/03/10	50.5
1,1-Dichloroethene	U	0.027	0.054	mg/kg		8260B	12/03/10	50.5
cis-1,2-Dichloroethene	U	0.026	0.054	mg/kg		8260B	12/03/10	50.5
trans-1,2-Dichloroethene	U	0.021	0.054	mg/kg		8260B	12/03/10	50.5
1,2-Dichloropropane	U	0.030	0.054	mg/kg		8260B	12/03/10	50.5
1,1-Dichloropropene	U	0.017	0.054	mg/kg		8260B	12/03/10	50.5

Results listed are dry weight basis.

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## REPORT OF ANALYSIS

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

December 10, 2010

Date Received : December 02, 2010  
Description : 10e-0171  
Sample ID : SS-3 8 IN  
Collected By : Alex Prasch  
Collection Date : 12/01/10 14:30

ESC Sample # : L491509-03

Site ID :

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
1,3-Dichloropropane	U	0.019	0.054	mg/kg		8260B	12/03/10	50.5
cis-1,3-Dichloropropene	U	0.015	0.054	mg/kg		8260B	12/03/10	50.5
trans-1,3-Dichloropropene	U	0.020	0.054	mg/kg		8260B	12/03/10	50.5
2,2-Dichloropropane	U	0.018	0.054	mg/kg		8260B	12/03/10	50.5
Di-isopropyl ether	U	0.018	0.054	mg/kg		8260B	12/03/10	50.5
Ethylbenzene	U	0.016	0.054	mg/kg		8260B	12/03/10	50.5
Ethyl ether	U	0.041	0.054	mg/kg		8260B	12/03/10	50.5
Hexachloro-1,3-butadiene	U	0.018	0.054	mg/kg		8260B	12/03/10	50.5
2-Hexanone	U	0.13	0.54	mg/kg		8260B	12/03/10	50.5
Isopropylbenzene	U	0.017	0.054	mg/kg		8260B	12/03/10	50.5
p-Isopropyltoluene	U	0.016	0.054	mg/kg		8260B	12/03/10	50.5
2-Butanone (MEK)	U	0.22	0.54	mg/kg		8260B	12/03/10	50.5
Methylene Chloride	U	0.025	0.27	mg/kg		8260B	12/03/10	50.5
4-Methyl-2-pentanone (MIBK)	U	0.12	0.54	mg/kg		8260B	12/03/10	50.5
Methyl tert-butyl ether	U	0.018	0.054	mg/kg		8260B	12/03/10	50.5
Naphthalene	U	0.014	0.27	mg/kg		8260B	12/03/10	50.5
n-Propylbenzene	U	0.016	0.054	mg/kg		8260B	12/03/10	50.5
Styrene	U	0.012	0.054	mg/kg		8260B	12/03/10	50.5
1,1,1,2-Tetrachloroethane	U	0.020	0.054	mg/kg		8260B	12/03/10	50.5
1,1,2,2-Tetrachloroethane	U	0.014	0.054	mg/kg		8260B	12/03/10	50.5
1,1,2-Trichloro-1,2,2-trifluoro	U	0.043	0.054	mg/kg		8260B	12/03/10	50.5
Tetrachloroethene	U	0.022	0.054	mg/kg		8260B	12/03/10	50.5
Tetrahydrofuran	U	0.087	0.27	mg/kg		8260B	12/03/10	50.5
Toluene	U	0.017	0.27	mg/kg		8260B	12/03/10	50.5
1,2,3-Trichlorobenzene	U	0.015	0.054	mg/kg		8260B	12/03/10	50.5
1,2,4-Trichlorobenzene	U	0.019	0.054	mg/kg		8260B	12/03/10	50.5
1,1,1-Trichloroethane	U	0.024	0.054	mg/kg		8260B	12/03/10	50.5
1,1,2-Trichloroethane	U	0.027	0.054	mg/kg		8260B	12/03/10	50.5
Trichloroethene	U	0.017	0.054	mg/kg		8260B	12/03/10	50.5
Trichlorofluoromethane	U	0.036	0.27	mg/kg		8260B	12/03/10	50.5
1,2,3-Trichloropropane	U	0.034	0.054	mg/kg		8260B	12/03/10	50.5
1,2,4-Trimethylbenzene	U	0.017	0.054	mg/kg		8260B	12/03/10	50.5
1,2,3-Trimethylbenzene	U	0.017	0.054	mg/kg		8260B	12/03/10	50.5
1,3,5-Trimethylbenzene	U	0.015	0.054	mg/kg		8260B	12/03/10	50.5
Vinyl chloride	U	0.026	0.054	mg/kg	J3	8260B	12/03/10	50.5
Xylenes, Total	U	0.023	0.16	mg/kg		8260B	12/03/10	50.5
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	12/03/10	50.5
Dibromofluoromethane	92.3			% Rec.		8260B	12/03/10	50.5
a,a,a-Trifluorotoluene	107.			% Rec.		8260B	12/03/10	50.5
4-Bromofluorobenzene	113.			% Rec.		8260B	12/03/10	50.5
Petroleum Range Organics	3.5	3.3	11.	mg/kg	JJ3V9	FLLPRO	12/09/10	1

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REPORT OF ANALYSIS

December 10, 2010

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

Date Received : December 02, 2010  
Description : 10e-0171

ESC Sample # : L491509-03

Sample ID : SS-3 8 IN

Site ID :

Collected By : Alex Prasch  
Collection Date : 12/01/10 14:30

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Surrogate Recovery								
o-Terphenyl	91.9			% Rec.		F1PRO	12/09/10 1	
C35	107.			% Rec.		F1PRO	12/09/10 1	

Results listed are dry weight basis.

U = ND (Not Detected)

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REPORT OF ANALYSIS

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

December 10, 2010

Date Received : December 02, 2010  
Description : 10e-0171  
  
Sample ID : SS-4 8 IN  
  
Collected By : Alex Prasch  
Collection Date : 12/01/10 14:45

ESC Sample # : L491509-04

Site ID :

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	90.7			%		2540G	12/06/10	1
WI DNR								
Gasoline (C6-C10)	440	7.4	28.	mg/kg		GROWM/80	12/03/10	250
Surrogate recovery-%								
a,a,a-Trifluorotoluene(PID)	102.			% Rec.		GROWM/80	12/03/10	250
Volatile Organics								
Acetone	U	0.52	2.8	mg/kg		8260B	12/03/10	50
Acrylonitrile	U	0.13	0.55	mg/kg		8260B	12/03/10	50
Allyl chloride	U	0.082	0.28	mg/kg		8260B	12/03/10	50
Benzene	0.45	0.021	0.055	mg/kg		8260B	12/03/10	50
Bromobenzene	U	0.015	0.055	mg/kg		8260B	12/03/10	50
Bromodichloromethane	U	0.017	0.055	mg/kg		8260B	12/03/10	50
Bromoform	U	0.016	0.055	mg/kg		8260B	12/03/10	50
Bromomethane	U	0.078	0.28	mg/kg		8260B	12/03/10	50
n-Butylbenzene	1.4	0.017	0.055	mg/kg		8260B	12/03/10	50
sec-Butylbenzene	0.75	0.015	0.055	mg/kg		8260B	12/03/10	50
tert-Butylbenzene	U	0.014	0.055	mg/kg		8260B	12/03/10	50
Carbon tetrachloride	U	0.021	0.055	mg/kg		8260B	12/03/10	50
Chlorobenzene	U	0.017	0.055	mg/kg		8260B	12/03/10	50
Chlorodibromomethane	U	0.015	0.055	mg/kg		8260B	12/03/10	50
Chloroethane	U	0.098	0.28	mg/kg		8260B	12/03/10	50
2-Chloroethyl vinyl ether	U	0.91	2.8	mg/kg		8260B	12/03/10	50
Chloroform	U	0.022	0.28	mg/kg		8260B	12/03/10	50
Chloromethane	U	0.052	0.14	mg/kg	J3	8260B	12/03/10	50
2-Chlorotoluene	U	0.016	0.055	mg/kg		8260B	12/03/10	50
4-Chlorotoluene	U	0.015	0.055	mg/kg		8260B	12/03/10	50
1,2-Dibromo-3-Chloropropane	U	0.053	0.28	mg/kg		8260B	12/03/10	50
1,2-Dibromoethane	U	0.015	0.055	mg/kg		8260B	12/03/10	50
Dibromomethane	U	0.023	0.055	mg/kg		8260B	12/03/10	50
1,2-Dichlorobenzene	U	0.016	0.055	mg/kg		8260B	12/03/10	50
1,3-Dichlorobenzene	U	0.014	0.055	mg/kg		8260B	12/03/10	50
1,4-Dichlorobenzene	U	0.018	0.055	mg/kg		8260B	12/03/10	50
Dichlorodifluoromethane	U	0.021	0.28	mg/kg		8260B	12/03/10	50
Dichlorofluoromethane	U	0.026	0.28	mg/kg	J4J3	8260B	12/03/10	50
1,1-Dichloroethane	U	0.021	0.055	mg/kg		8260B	12/03/10	50
1,2-Dichloroethane	U	0.019	0.055	mg/kg		8260B	12/03/10	50
1,1-Dichloroethene	U	0.026	0.055	mg/kg		8260B	12/03/10	50
cis-1,2-Dichloroethene	U	0.026	0.055	mg/kg		8260B	12/03/10	50
trans-1,2-Dichloroethene	U	0.021	0.055	mg/kg		8260B	12/03/10	50
1,2-Dichloropropane	U	0.030	0.055	mg/kg		8260B	12/03/10	50
1,1-Dichloropropene	U	0.017	0.055	mg/kg		8260B	12/03/10	50

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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Est. 1970

## REPORT OF ANALYSIS

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

December 10, 2010

Date Received : December 02, 2010  
Description : 10e-0171  
Sample ID : SS-4 8 IN  
Collected By : Alex Prasch  
Collection Date : 12/01/10 14:45

ESC Sample # : L491509-04

Site ID :

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
1,3-Dichloropropane	U	0.019	0.055	mg/kg		8260B	12/03/10	50
cis-1,3-Dichloropropene	U	0.015	0.055	mg/kg		8260B	12/03/10	50
trans-1,3-Dichloropropene	U	0.020	0.055	mg/kg		8260B	12/03/10	50
2,2-Dichloropropane	U	0.018	0.055	mg/kg		8260B	12/03/10	50
Di-isopropyl ether	U	0.018	0.055	mg/kg		8260B	12/03/10	50
Ethylbenzene	5.5	0.016	0.055	mg/kg		8260B	12/03/10	50
Ethyl ether	U	0.041	0.055	mg/kg		8260B	12/03/10	50
Hexachloro-1,3-butadiene	U	0.017	0.055	mg/kg		8260B	12/03/10	50
2-Hexanone	U	0.13	0.55	mg/kg		8260B	12/03/10	50
Isopropylbenzene	0.76	0.017	0.055	mg/kg		8260B	12/03/10	50
p-Isopropyltoluene	2.0	0.016	0.055	mg/kg		8260B	12/03/10	50
2-Butanone (MEK)	U	0.22	0.55	mg/kg		8260B	12/03/10	50
Methylene Chloride	U	0.024	0.28	mg/kg		8260B	12/03/10	50
4-Methyl-2-pentanone (MIBK)	U	0.11	0.55	mg/kg		8260B	12/03/10	50
Methyl tert-butyl ether	U	0.018	0.055	mg/kg		8260B	12/03/10	50
Naphthalene	3.7	0.014	0.28	mg/kg		8260B	12/03/10	50
n-Propylbenzene	3.0	0.016	0.055	mg/kg		8260B	12/03/10	50
Styrene	U	0.012	0.055	mg/kg		8260B	12/03/10	50
1,1,1,2-Tetrachloroethane	U	0.020	0.055	mg/kg		8260B	12/03/10	50
1,1,2,2-Tetrachloroethane	U	0.014	0.055	mg/kg		8260B	12/03/10	50
1,1,2-Trichloro-1,2,2-trifluoro	U	0.043	0.055	mg/kg		8260B	12/03/10	50
Tetrachloroethene	U	0.022	0.055	mg/kg		8260B	12/03/10	50
Tetrahydrofuran	U	0.086	0.28	mg/kg		8260B	12/03/10	50
Toluene	9.3	0.017	0.28	mg/kg		8260B	12/03/10	50
1,2,3-Trichlorobenzene	U	0.015	0.055	mg/kg		8260B	12/03/10	50
1,2,4-Trichlorobenzene	U	0.019	0.055	mg/kg		8260B	12/03/10	50
1,1,1-Trichloroethane	U	0.023	0.055	mg/kg		8260B	12/03/10	50
1,1,2-Trichloroethane	U	0.027	0.055	mg/kg		8260B	12/03/10	50
Trichloroethene	U	0.017	0.055	mg/kg		8260B	12/03/10	50
Trichlorofluoromethane	U	0.035	0.28	mg/kg		8260B	12/03/10	50
1,2,3-Trichloropropane	U	0.034	0.055	mg/kg		8260B	12/03/10	50
1,2,4-Trimethylbenzene	3.7	0.17	0.55	mg/kg		8260B	12/06/10	500
1,2,3-Trimethylbenzene	5.6	0.016	0.055	mg/kg		8260B	12/03/10	50
1,3,5-Trimethylbenzene	6.8	0.015	0.055	mg/kg		8260B	12/03/10	50
Vinyl chloride	U	0.026	0.055	mg/kg	J3	8260B	12/03/10	50
Xylenes, Total	5.3	0.23	1.6	mg/kg		8260B	12/06/10	500
Surrogate Recovery								
Toluene-d8	107.			% Rec.		8260B	12/03/10	50
Dibromofluoromethane	91.6			% Rec.		8260B	12/03/10	50
a,a,a-Trifluorotoluene	107.			% Rec.		8260B	12/03/10	50
4-Bromofluorobenzene	130.			% Rec.		8260B	12/03/10	50
Petroleum Range Organics	1400	16.	55.	mg/kg	V9J3	FLPRO	12/09/10	5

Results listed are dry weight basis.

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REPORT OF ANALYSIS

December 10, 2010

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

Date Received : December 02, 2010  
Description : 10e-0171

ESC Sample # : L491509-04

Sample ID : SS-4 8 IN

Site ID :

Collected By : Alex Prasch  
Collection Date : 12/01/10 14:45

Project # : 10E

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Surrogate Recovery								
o-Terphenyl	63.8			% Rec.		FLPRO	12/09/10	5
C35	88.4			% Rec.		FLPRO	12/09/10	5

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
L491509-01	WG511322	SAMP	Petroleum Range Organics	R1502051	V9J3
	WG511352	SAMP	Dichlorofluoromethane	R1496489	J4J6
	WG511352	SAMP	cis-1,2-Dichloroethene	R1496489	J3
	WG511352	SAMP	2,2-Dichloropropane	R1496489	J3
	WG511352	SAMP	Styrene	R1496489	J5
	WG511352	SAMP	1,1,1,2-Tetrachloroethane	R1496489	J3
L491509-02	WG511507	SAMP	Gasoline (C6-C10)	R1498069	J
	WG511322	SAMP	Petroleum Range Organics	R1502051	V9J3
	WG511352	SAMP	Chloromethane	R1496489	J3
	WG511352	SAMP	Dichlorofluoromethane	R1496489	J4J3
	WG511352	SAMP	Vinyl chloride	R1496489	J3
L491509-03	WG511322	SAMP	Petroleum Range Organics	R1502051	JJ3V9
	WG511352	SAMP	Chloromethane	R1496489	J3
	WG511352	SAMP	Dichlorofluoromethane	R1496489	J4J3
	WG511352	SAMP	Vinyl chloride	R1496489	J3
L491509-04	WG511322	SAMP	Petroleum Range Organics	R1502051	V9J3
	WG511352	SAMP	Chloromethane	R1496489	J3
	WG511352	SAMP	Dichlorofluoromethane	R1496489	J4J3
	WG511352	SAMP	Vinyl chloride	R1496489	J3

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
V9	(ESC) - Additional QC Info: Please refer to the Case Narrative provided with the report.

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.

Summary of Remarks For Samples Printed  
12/10/10 at 14:42:53

TSR Signing Reports: 341  
R3 - Rush: Two Day

Acct- Review

Sample: L491509-01 Account: TWINPORWI Received: 12/02/10 09:00 Due Date: 12/10/10 00:00 RPT Date: 12/10/10 14:42  
Changed DROWM to FLPROM per JH. AV 12/6  
Sample: L491509-02 Account: TWINPORWI Received: 12/02/10 09:00 Due Date: 12/10/10 00:00 RPT Date: 12/10/10 14:42  
Changed DROWM to FLPROM per JH. AV 12/6  
Sample: L491509-03 Account: TWINPORWI Received: 12/02/10 09:00 Due Date: 12/10/10 00:00 RPT Date: 12/10/10 14:42  
Changed DROWM to FLPROM per JH. AV 12/6  
Sample: L491509-04 Account: TWINPORWI Received: 12/02/10 09:00 Due Date: 12/10/10 00:00 RPT Date: 12/10/10 14:42  
Changed DROWM to FLPROM per JH. AV 12/6



L A B S C I E N C E S

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Quality Assurance Report  
Level II

December 10, 2010

L491509

Analyte	Result	Laboratory Blank Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/kg			WG511352	12/02/10 20:24
1,1,1-Trichloroethane	< .001	mg/kg			WG511352	12/02/10 20:24
1,1,2,2-Tetrachloroethane	< .001	mg/kg			WG511352	12/02/10 20:24
1,1,2-Trichloroethane	< .001	mg/kg			WG511352	12/02/10 20:24
1,1,2-Trichloro-1,2,2-trifluoroethane	< .001	mg/kg			WG511352	12/02/10 20:24
1,1-Dichloroethane	< .001	mg/kg			WG511352	12/02/10 20:24
1,1-Dichloroethene	< .001	mg/kg			WG511352	12/02/10 20:24
1,1-Dichloropropene	< .001	mg/kg			WG511352	12/02/10 20:24
1,2,3-Trichlorobenzene	< .001	mg/kg			WG511352	12/02/10 20:24
1,2,3-Trichloropropane	< .001	mg/kg			WG511352	12/02/10 20:24
1,2,3-Trimethylbenzene	< .001	mg/kg			WG511352	12/02/10 20:24
1,2,4-Trichlorobenzene	< .001	mg/kg			WG511352	12/02/10 20:24
1,2,4-Trimethylbenzene	< .001	mg/kg			WG511352	12/02/10 20:24
1,2-Dibromo-3-Chloropropane	< .005	mg/kg			WG511352	12/02/10 20:24
1,2-Dibromoethane	< .001	mg/kg			WG511352	12/02/10 20:24
1,2-Dichlorobenzene	< .001	mg/kg			WG511352	12/02/10 20:24
1,2-Dichloroethane	< .001	mg/kg			WG511352	12/02/10 20:24
1,2-Dichloropropane	< .001	mg/kg			WG511352	12/02/10 20:24
1,3,5-Trimethylbenzene	< .001	mg/kg			WG511352	12/02/10 20:24
1,3-Dichlorobenzene	< .001	mg/kg			WG511352	12/02/10 20:24
1,3-Dichloropropane	< .001	mg/kg			WG511352	12/02/10 20:24
1,4-Dichlorobenzene	< .001	mg/kg			WG511352	12/02/10 20:24
2,2-Dichloropropane	< .001	mg/kg			WG511352	12/02/10 20:24
2-Butanone (MEK)	< .01	mg/kg			WG511352	12/02/10 20:24
2-Chloroethyl vinyl ether	< .001	mg/kg			WG511352	12/02/10 20:24
2-Chlorotoluene	< .001	mg/kg			WG511352	12/02/10 20:24
2-Hexanone	< .01	mg/kg			WG511352	12/02/10 20:24
4-Chlorotoluene	< .001	mg/kg			WG511352	12/02/10 20:24
4-Methyl-2-pentanone (MIBK)	< .01	mg/kg			WG511352	12/02/10 20:24
Acetone	< .05	mg/kg			WG511352	12/02/10 20:24
Acrylonitrile	< .01	mg/kg			WG511352	12/02/10 20:24
Allyl chloride	< .025	mg/kg			WG511352	12/02/10 20:24
Benzene	< .001	mg/kg			WG511352	12/02/10 20:24
Bromobenzene	< .001	mg/kg			WG511352	12/02/10 20:24
Bromodichloromethane	< .001	mg/kg			WG511352	12/02/10 20:24
Bromoform	< .001	mg/kg			WG511352	12/02/10 20:24
Bromomethane	< .005	mg/kg			WG511352	12/02/10 20:24
Carbon tetrachloride	< .001	mg/kg			WG511352	12/02/10 20:24
Chlorobenzene	< .001	mg/kg			WG511352	12/02/10 20:24
Chlorodibromomethane	< .001	mg/kg			WG511352	12/02/10 20:24
Chloroethane	< .005	mg/kg			WG511352	12/02/10 20:24
Chloroform	< .005	mg/kg			WG511352	12/02/10 20:24
Chloromethane	< .0025	mg/kg			WG511352	12/02/10 20:24
cis-1,2-Dichloroethene	< .001	mg/kg			WG511352	12/02/10 20:24
cis-1,3-Dichloropropene	< .001	mg/kg			WG511352	12/02/10 20:24
Di-isopropyl ether	< .001	mg/kg			WG511352	12/02/10 20:24
Dibromomethane	< .001	mg/kg			WG511352	12/02/10 20:24
Dichlorodifluoromethane	< .005	mg/kg			WG511352	12/02/10 20:24
Dichlorofluoromethane	< .005	mg/kg			WG511352	12/02/10 20:24
Ethyl ether	< .001	mg/kg			WG511352	12/02/10 20:24
Ethylbenzene	< .001	mg/kg			WG511352	12/02/10 20:24
Hexachloro-1,3-butadiene	< .001	mg/kg			WG511352	12/02/10 20:24
Isopropylbenzene	< .001	mg/kg			WG511352	12/02/10 20:24
Methyl tert-butyl ether	< .001	mg/kg			WG511352	12/02/10 20:24
Methylene Chloride	< .005	mg/kg			WG511352	12/02/10 20:24
n-Butylbenzene	< .001	mg/kg			WG511352	12/02/10 20:24
n-Propylbenzene	< .001	mg/kg			WG511352	12/02/10 20:24
Naphthalene	< .005	mg/kg			WG511352	12/02/10 20:24
p-Isopropyltoluene	< .001	mg/kg			WG511352	12/02/10 20:24

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Level II

L491509

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December 10, 2010

Analyte	Result	Laboratory Blank Units	% Rec	Limit	Batch	Date Analyzed
sec-Butylbenzene	< .001	mg/kg			WG511352	12/02/10 20:24
Styrene	< .001	mg/kg			WG511352	12/02/10 20:24
tert-Butylbenzene	< .001	mg/kg			WG511352	12/02/10 20:24
Tetrachloroethene	< .001	mg/kg			WG511352	12/02/10 20:24
Tetrahydrofuran	< .005	mg/kg			WG511352	12/02/10 20:24
Toluene	< .005	mg/kg			WG511352	12/02/10 20:24
trans-1,2-Dichloroethene	< .001	mg/kg			WG511352	12/02/10 20:24
trans-1,3-Dichloropropene	< .001	mg/kg			WG511352	12/02/10 20:24
Trichloroethene	< .001	mg/kg			WG511352	12/02/10 20:24
Trichlorofluoromethane	< .005	mg/kg			WG511352	12/02/10 20:24
Vinyl chloride	< .001	mg/kg			WG511352	12/02/10 20:24
Xylenes, Total	< .003	mg/kg			WG511352	12/02/10 20:24
4-Bromofluorobenzene		% Rec.	110.5	59-140	WG511352	12/02/10 20:24
Dibromofluoromethane		% Rec.	101.0	63-139	WG511352	12/02/10 20:24
Toluene-d8		% Rec.	106.6	84-116	WG511352	12/02/10 20:24
a,a,a-Trifluorotoluene		% Rec.	107.5	80-118	WG511352	12/02/10 20:24
Gasoline (C6-C10)	< .1	mg/kg			WG511507	12/03/10 18:02
a,a,a-Trifluorotoluene(PID)		% Rec.	104.5	80-120	WG511507	12/03/10 18:02
Total Solids	< .1	%			WG511387	12/06/10 11:29
1,2,4-Trimethylbenzene	< .001	mg/kg			WG511759	12/06/10 09:40
Xylenes, Total	< .003	mg/kg			WG511759	12/06/10 09:40
4-Bromofluorobenzene		% Rec.	94.46	59-140	WG511759	12/06/10 09:40
Dibromofluoromethane		% Rec.	113.6	63-139	WG511759	12/06/10 09:40
Toluene-d8		% Rec.	104.1	84-116	WG511759	12/06/10 09:40
a,a,a-Trifluorotoluene		% Rec.	102.2	80-118	WG511759	12/06/10 09:40
Petroleum Range Organics	< 10	ppm			WG511322	12/09/10 14:07
C35		% Rec.	91.38	61-136	WG511322	12/09/10 14:07
o-Terphenyl		% Rec.	75.38	50-150	WG511322	12/09/10 14:07

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Total Solids	%	84.0	83.8	0.121	5	L491543-05	WG511387

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/kg	.025	0.0260	104.	73-134	WG511352
1,1,1-Trichloroethane	mg/kg	.025	0.0236	94.4	62-135	WG511352
1,1,2,2-Tetrachloroethane	mg/kg	.025	0.0259	104.	74-129	WG511352
1,1,2-Trichloroethane	mg/kg	.025	0.0272	109.	77-124	WG511352
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	.025	0.0271	108.	49-155	WG511352
1,1-Dichloroethane	mg/kg	.025	0.0242	96.8	61-134	WG511352
1,1-Dichloroethene	mg/kg	.025	0.0249	99.4	53-136	WG511352
1,1-Dichloropropene	mg/kg	.025	0.0240	96.1	63-132	WG511352
1,2,3-Trichlorobenzene	mg/kg	.025	0.0238	95.4	62-146	WG511352
1,2,3-Trichloropropane	mg/kg	.025	0.0276	110.	70-133	WG511352
1,2,3-Trimethylbenzene	mg/kg	.025	0.0249	99.6	73-126	WG511352
1,2,4-Trichlorobenzene	mg/kg	.025	0.0238	95.2	61-148	WG511352
1,2,4-Trimethylbenzene	mg/kg	.025	0.0259	103.	68-135	WG511352
1,2-Dibromo-3-Chloropropane	mg/kg	.025	0.0190	75.9	61-134	WG511352

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Tax I.D. 62-0814289

Est. 1970

Quality Assurance Report  
Level II

L491509

December 10, 2010

Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
1,2-Dibromoethane	mg/kg	.025	0.0279	111.	76-127	WG511352
1,2-Dichlorobenzene	mg/kg	.025	0.0261	104.	77-123	WG511352
1,2-Dichloroethane	mg/kg	.025	0.0256	102.	58-141	WG511352
1,2-Dichloropropane	mg/kg	.025	0.0252	101.	71-128	WG511352
1,3,5-Trimethylbenzene	mg/kg	.025	0.0268	107.	71-133	WG511352
1,3-Dichlorobenzene	mg/kg	.025	0.0279	112.	71-132	WG511352
1,3-Dichloropropane	mg/kg	.025	0.0254	102.	76-120	WG511352
1,4-Dichlorobenzene	mg/kg	.025	0.0259	104.	72-123	WG511352
2,2-Dichloropropane	mg/kg	.025	0.0225	89.9	50-147	WG511352
2-Butanone (MEK)	mg/kg	.125	0.113	90.7	51-131	WG511352
2-Chloroethyl vinyl ether	mg/kg	.125	0.106	85.2	0-188	WG511352
2-Chlorotoluene	mg/kg	.025	0.0266	106.	73-128	WG511352
2-Hexanone	mg/kg	.125	0.121	96.7	62-145	WG511352
4-Chlorotoluene	mg/kg	.025	0.0274	110.	72-129	WG511352
4-Methyl-2-pentanone (MIBK)	mg/kg	.125	0.117	93.4	61-143	WG511352
Acetone	mg/kg	.125	0.105	83.7	44-140	WG511352
Acrylonitrile	mg/kg	.125	0.118	94.6	55-143	WG511352
Benzene	mg/kg	.025	0.0234	93.5	65-128	WG511352
Bromobenzene	mg/kg	.025	0.0262	105.	75-123	WG511352
Bromodichloromethane	mg/kg	.025	0.0246	98.3	66-126	WG511352
Bromoform	mg/kg	.025	0.0207	82.7	64-139	WG511352
Bromomethane	mg/kg	.025	0.0310	124.	41-175	WG511352
Carbon tetrachloride	mg/kg	.025	0.0217	86.9	60-140	WG511352
Chlorobenzene	mg/kg	.025	0.0278	111.	75-125	WG511352
Chlorodibromomethane	mg/kg	.025	0.0257	103.	72-137	WG511352
Chloroethane	mg/kg	.025	0.0294	118.	44-159	WG511352
Chloroform	mg/kg	.025	0.0250	100.	63-123	WG511352
Chloromethane	mg/kg	.025	0.0253	101.	42-149	WG511352
cis-1,2-Dichloroethene	mg/kg	.025	0.0255	102.	71-129	WG511352
cis-1,3-Dichloropropene	mg/kg	.025	0.0240	95.8	73-132	WG511352
Di-isopropyl ether	mg/kg	.025	0.0228	91.2	59-143	WG511352
Dibromomethane	mg/kg	.025	0.0259	104.	70-130	WG511352
Dichlorodifluoromethane	mg/kg	.025	0.0315	126.	26-186	WG511352
Dichlorofluoromethane	mg/kg	.025	0.0245	98.0	70-130	WG511352
Ethyl ether	mg/kg	.025	0.0254	102.	56-147	WG511352
Ethylbenzene	mg/kg	.025	0.0265	106.	74-128	WG511352
Hexachloro-1,3-butadiene	mg/kg	.025	0.0249	99.5	65-137	WG511352
Isopropylbenzene	mg/kg	.025	0.0267	107.	73-130	WG511352
Methyl tert-butyl ether	mg/kg	.025	0.0223	89.2	44-148	WG511352
Methylene Chloride	mg/kg	.025	0.0232	92.7	57-129	WG511352
n-Butylbenzene	mg/kg	.025	0.0250	99.9	60-145	WG511352
n-Propylbenzene	mg/kg	.025	0.0266	106.	71-132	WG511352
Naphthalene	mg/kg	.025	0.0213	85.3	61-142	WG511352
p-Isopropyltoluene	mg/kg	.025	0.0274	110.	67-138	WG511352
sec-Butylbenzene	mg/kg	.025	0.0273	109.	71-134	WG511352
Styrene	mg/kg	.025	0.0276	110.	76-133	WG511352
tert-Butylbenzene	mg/kg	.025	0.0273	109.	72-132	WG511352
Tetrachloroethene	mg/kg	.025	0.0285	114.	65-135	WG511352
Tetrahydrofuran	mg/kg	.025	0.0213	85.2	44-144	WG511352
Toluene	mg/kg	.025	0.0239	95.6	70-120	WG511352
trans-1,2-Dichloroethene	mg/kg	.025	0.0247	98.7	61-133	WG511352
trans-1,3-Dichloropropene	mg/kg	.025	0.0235	93.8	70-135	WG511352
Trichloroethene	mg/kg	.025	0.0256	102.	71-126	WG511352
Trichlorofluoromethane	mg/kg	.025	0.0276	110.	52-147	WG511352
Vinyl chloride	mg/kg	.025	0.0253	101.	50-151	WG511352
Xylenes, Total	mg/kg	.075	0.0776	104.	74-127	WG511352
4-Bromofluorobenzene				113.6	59-140	WG511352
Dibromofluoromethane				104.9	63-139	WG511352
Toluene-d8				107.1	84-116	WG511352

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Quality Assurance Report  
Level II

L491509

December 10, 2010

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
a,a,a-Trifluorotoluene				105.5	80-118	
Gasoline (C6-C10)	mg/kg	.5	0.433	86.7	80-120	WG511507
a,a,a-Trifluorotoluene(PID)				105.0	80-120	WG511507
Total Solids	%	50	50.0	100.	85-115	WG511387
1,2,4-Trimethylbenzene	mg/kg	.025	0.0254	102.	68-135	WG511759
Xylenes, Total	mg/kg	.075	0.0793	106.	74-127	WG511759
4-Bromofluorobenzene				94.30	59-140	WG511759
Dibromofluoromethane				108.0	63-139	WG511759
Toluene-d8				106.1	84-116	WG511759
a,a,a-Trifluorotoluene				98.37	80-118	WG511759
Petroleum Range Organics	mg/kg	136	123.	90.4	63-153	WG511322
C35				71.70	61-136	WG511322
o-Terphenyl				98.94	60-112	WG511322

Analyte	Units	Laboratory	Control	Sample	Duplicate			
		Result	Ref	%Rec		Limit	RPD	Limit
1,1,1,2-Tetrachloroethane	mg/kg	0.0244	0.0260	98.0	73-134	6.25	20	WG511352
1,1,1-Trichloroethane	mg/kg	0.0218	0.0236	87.0	62-135	8.18	20	WG511352
1,1,2,2-Tetrachloroethane	mg/kg	0.0241	0.0259	96.0	74-129	7.36	20	WG511352
1,1,2-Trichloroethane	mg/kg	0.0249	0.0272	100.	77-124	8.67	20	WG511352
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	0.0268	0.0271	107.	49-155	0.930	20	WG511352
1,1-Dichloroethane	mg/kg	0.0223	0.0242	89.0	61-134	7.94	20	WG511352
1,1-Dichloroethene	mg/kg	0.0215	0.0249	86.0	53-136	14.3	20	WG511352
1,1-Dichloropropene	mg/kg	0.0215	0.0240	86.0	63-132	11.0	20	WG511352
1,2,3-Trichlorobenzene	mg/kg	0.0223	0.0238	89.0	62-146	6.53	20	WG511352
1,2,3-Trichloropropane	mg/kg	0.0258	0.0276	103.	70-133	6.50	20	WG511352
1,2,3-Trimethylbenzene	mg/kg	0.0228	0.0249	91.0	73-126	9.01	20	WG511352
1,2,4-Trichlorobenzene	mg/kg	0.0223	0.0238	89.0	61-148	6.45	20	WG511352
1,2,4-Trimethylbenzene	mg/kg	0.0236	0.0259	94.0	68-135	9.25	20	WG511352
1,2-Dibromo-3-Chloropropane	mg/kg	0.0168	0.0190	67.0	61-134	12.0	21	WG511352
1,2-Dibromoethane	mg/kg	0.0251	0.0279	100.	76-127	10.4	20	WG511352
1,2-Dichlorobenzene	mg/kg	0.0244	0.0261	98.0	77-123	6.73	20	WG511352
1,2-Dichloroethane	mg/kg	0.0236	0.0256	94.0	58-141	7.88	20	WG511352
1,2-Dichloropropane	mg/kg	0.0230	0.0252	92.0	71-128	9.22	20	WG511352
1,3,5-Trimethylbenzene	mg/kg	0.0242	0.0268	97.0	71-133	10.0	20	WG511352
1,3-Dichlorobenzene	mg/kg	0.0261	0.0279	104.	71-132	6.43	20	WG511352
1,3-Dichloropropane	mg/kg	0.0232	0.0254	93.0	76-120	9.06	20	WG511352
1,4-Dichlorobenzene	mg/kg	0.0240	0.0259	96.0	72-123	7.53	20	WG511352
2,2-Dichloropropane	mg/kg	0.0211	0.0225	84.0	50-147	6.27	20	WG511352
2-Butanone (MEK)	mg/kg	0.102	0.113	82.0	51-131	10.2	25	WG511352
2-Chloroethyl vinyl ether	mg/kg	0.0971	0.106	78.0	0-188	9.26	39	WG511352
2-Chlorotoluene	mg/kg	0.0242	0.0266	97.0	73-128	9.39	20	WG511352
2-Hexanone	mg/kg	0.109	0.121	88.0	62-145	9.93	23	WG511352
4-Chlorotoluene	mg/kg	0.0247	0.0274	99.0	72-129	10.3	20	WG511352
4-Methyl-2-pentanone (MIBK)	mg/kg	0.105	0.117	84.0	61-143	10.1	23	WG511352
Acetone	mg/kg	0.0967	0.105	77.0	44-140	7.88	25	WG511352
Acrylonitrile	mg/kg	0.108	0.118	86.0	55-143	9.02	20	WG511352
Benzene	mg/kg	0.0212	0.0234	85.0	65-128	9.85	20	WG511352
Bromobenzene	mg/kg	0.0241	0.0262	96.0	75-123	8.48	20	WG511352
Bromodichloromethane	mg/kg	0.0227	0.0246	91.0	66-126	8.05	20	WG511352
Bromoform	mg/kg	0.0188	0.0207	75.0	64-139	9.54	20	WG511352
Bromomethane	mg/kg	0.0258	0.0310	103.	41-175	18.3	20	WG511352

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Quality Assurance Report  
Level II

December 10, 2010

L491509

Analyte	Units	Laboratory Result	Control Ref	Sample %Rec	Duplicate Limit	RPD	Limit	Batch
Carbon tetrachloride	mg/kg	0.0196	0.0217	78.0	60-140	10.1	20	WG511352
Chlorobenzene	mg/kg	0.0254	0.0278	102.	75-125	8.95	20	WG511352
Chlorodibromomethane	mg/kg	0.0235	0.0257	94.0	72-137	9.03	20	WG511352
Chloroethane	mg/kg	0.0246	0.0294	98.0	44-159	18.0	20	WG511352
Chloroform	mg/kg	0.0231	0.0250	92.0	63-123	8.14	20	WG511352
Chloromethane	mg/kg	0.0206	0.0253	82.0	42-149	20.3*	20	WG511352
cis-1,2-Dichloroethene	mg/kg	0.0233	0.0255	93.0	71-129	8.69	20	WG511352
cis-1,3-Dichloropropene	mg/kg	0.0217	0.0240	87.0	73-132	9.73	20	WG511352
Di-isopropyl ether	mg/kg	0.0210	0.0228	84.0	59-143	8.08	20	WG511352
Dibromomethane	mg/kg	0.0230	0.0259	92.0	70-130	12.2	20	WG511352
Dichlorodifluoromethane	mg/kg	0.0262	0.0315	105.	26-186	18.4	22	WG511352
Dichlorofluoromethane	mg/kg	0	0.0245	0*	70-130	200.*	25	WG511352
Ethyl ether	mg/kg	0.0228	0.0254	91.0	56-147	10.8	20	WG511352
Ethylbenzene	mg/kg	0.0242	0.0265	97.0	74-128	9.09	20	WG511352
Hexachloro-1,3-butadiene	mg/kg	0.0234	0.0249	94.0	65-137	6.20	20	WG511352
Isopropylbenzene	mg/kg	0.0246	0.0267	98.0	73-130	8.11	20	WG511352
Methyl tert-butyl ether	mg/kg	0.0206	0.0223	82.0	44-148	7.82	20	WG511352
Methylene Chloride	mg/kg	0.0217	0.0232	87.0	57-129	6.55	20	WG511352
n-Butylbenzene	mg/kg	0.0228	0.0250	91.0	60-145	9.06	20	WG511352
n-Propylbenzene	mg/kg	0.0241	0.0266	96.0	71-132	10.1	20	WG511352
Naphthalene	mg/kg	0.0192	0.0213	77.0	61-142	10.4	20	WG511352
p-Isopropyltoluene	mg/kg	0.0250	0.0274	100.	67-138	8.97	20	WG511352
sec-Butylbenzene	mg/kg	0.0251	0.0273	100.	71-134	8.51	20	WG511352
Styrene	mg/kg	0.0249	0.0276	100.	76-133	10.1	20	WG511352
tert-Butylbenzene	mg/kg	0.0252	0.0273	101.	72-132	8.21	20	WG511352
Tetrachloroethene	mg/kg	0.0254	0.0285	102.	65-135	11.6	20	WG511352
Tetrahydrofuran	mg/kg	0.0192	0.0213	77.0	44-144	10.5	25	WG511352
Toluene	mg/kg	0.0219	0.0239	87.0	70-120	8.89	20	WG511352
trans-1,2-Dichloroethene	mg/kg	0.0218	0.0247	87.0	61-133	12.6	20	WG511352
trans-1,3-Dichloropropene	mg/kg	0.0211	0.0235	84.0	70-135	10.6	20	WG511352
Trichloroethene	mg/kg	0.0231	0.0256	92.0	71-126	10.1	20	WG511352
Trichlorofluoromethane	mg/kg	0.0245	0.0276	98.0	52-147	11.7	20	WG511352
Vinyl chloride	mg/kg	0.0206	0.0253	82.0	50-151	20.5*	20	WG511352
Xylenes, Total	mg/kg	0.0703	0.0776	94.0	74-127	9.93	20	WG511352
4-Bromofluorobenzene				112.3	59-140			WG511352
Dibromofluoromethane				104.6	63-139			WG511352
Toluene-d8				107.2	84-116			WG511352
a,a,a-Trifluorotoluene				106.7	80-118			WG511352
Gasoline (C6-C10)	mg/kg	0.425	0.433	85.0	80-120	1.99	20	WG511507
a,a,a-Trifluorotoluene(PID)				104.8	80-120			WG511507
1,2,4-Trimethylbenzene	mg/kg	0.0253	0.0254	101.	68-135	0.570	20	WG511759
Xylenes, Total	mg/kg	0.0792	0.0793	106.	74-127	0.110	20	WG511759
4-Bromofluorobenzene				94.36	59-140			WG511759
Dibromofluoromethane				107.5	63-139			WG511759
Toluene-d8				106.5	84-116			WG511759
a,a,a-Trifluorotoluene				100.0	80-118			WG511759
Petroleum Range Organics	mg/kg	174.	123.	128.	63-153	34.5*	20	WG511322
C35				128.3	61-136			WG511322
o-Terphenyl				123.6*	60-112			WG511322

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Quality Assurance Report  
Level II

December 10, 2010

L491509

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
1,1,1,2-Tetrachloroethane	mg/kg	0.965	0	.025	78.7	29-145	L491509-01	WG511352
1,1,1-Trichloroethane	mg/kg	0.848	0	.025	69.2	23-147	L491509-01	WG511352
1,1,2,2-Tetrachloroethane	mg/kg	1.03	0	.025	83.8	18-150	L491509-01	WG511352
1,1,2-Trichloroethane	mg/kg	1.12	0	.025	91.4	35-140	L491509-01	WG511352
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	0.910	0	.025	74.3	10-145	L491509-01	WG511352
1,1-Dichloroethane	mg/kg	0.908	0	.025	74.1	24-148	L491509-01	WG511352
1,1-Dichloroethene	mg/kg	0.872	0	.025	71.2	10-149	L491509-01	WG511352
1,1-Dichloropropene	mg/kg	0.898	0	.025	73.3	10-141	L491509-01	WG511352
1,2,3-Trichlorobenzene	mg/kg	0.951	0	.025	77.6	10-129	L491509-01	WG511352
1,2,3-Trichloropropane	mg/kg	1.12	0	.025	91.0	30-148	L491509-01	WG511352
1,2,3-Trimethylbenzene	mg/kg	1.04	0	.025	85.3	10-137	L491509-01	WG511352
1,2,4-Trichlorobenzene	mg/kg	0.931	0	.025	76.0	10-119	L491509-01	WG511352
1,2,4-Trimethylbenzene	mg/kg	1.06	0	.025	86.5	10-145	L491509-01	WG511352
1,2-Dibromo-3-Chloropropane	mg/kg	0.625	0	.025	51.0	19-145	L491509-01	WG511352
1,2-Dibromoethane	mg/kg	1.12	0	.025	91.1	24-145	L491509-01	WG511352
1,2-Dichlorobenzene	mg/kg	1.08	0	.025	87.8	12-130	L491509-01	WG511352
1,2-Dichloroethane	mg/kg	1.03	0	.025	84.2	21-155	L491509-01	WG511352
1,2-Dichloropropane	mg/kg	1.01	0	.025	82.3	28-144	L491509-01	WG511352
1,3,5-Trimethylbenzene	mg/kg	1.05	0	.025	85.8	10-135	L491509-01	WG511352
1,3-Dichlorobenzene	mg/kg	1.15	0	.025	94.3	10-129	L491509-01	WG511352
1,3-Dichloropropane	mg/kg	1.03	0	.025	83.7	31-137	L491509-01	WG511352
1,4-Dichlorobenzene	mg/kg	1.04	0	.025	85.1	10-121	L491509-01	WG511352
2,2-Dichloropropane	mg/kg	0.782	0	.025	63.8	18-144	L491509-01	WG511352
2-Butanone (MEK)	mg/kg	4.35	0	.125	71.1	21-143	L491509-01	WG511352
2-Chloroethyl vinyl ether	mg/kg	4.01	0	.125	65.5	0-176	L491509-01	WG511352
2-Chlorotoluene	mg/kg	1.06	0	.025	86.6	10-132	L491509-01	WG511352
2-Hexanone	mg/kg	4.51	0	.125	73.6	22-151	L491509-01	WG511352
4-Chlorotoluene	mg/kg	1.09	0	.025	88.7	10-129	L491509-01	WG511352
4-Methyl-2-pentanone (MIBK)	mg/kg	4.45	0	.125	72.6	31-151	L491509-01	WG511352
Acetone	mg/kg	4.20	0	.125	68.6	13-158	L491509-01	WG511352
Acrylonitrile	mg/kg	4.44	0	.125	72.6	20-154	L491509-01	WG511352
Benzene	mg/kg	0.895	0	.025	73.0	16-143	L491509-01	WG511352
Bromobenzene	mg/kg	1.06	0	.025	86.5	14-135	L491509-01	WG511352
Bromodichloromethane	mg/kg	0.932	0	.025	76.0	27-139	L491509-01	WG511352
Bromoform	mg/kg	0.684	0	.025	55.8	21-144	L491509-01	WG511352
Bromomethane	mg/kg	0.985	0	.025	80.4	0-180	L491509-01	WG511352
Carbon tetrachloride	mg/kg	0.729	0	.025	59.5	12-149	L491509-01	WG511352
Chlorobenzene	mg/kg	1.12	0	.025	91.8	17-134	L491509-01	WG511352
Chlorodibromomethane	mg/kg	0.907	0	.025	74.0	28-147	L491509-01	WG511352
Chloroethane	mg/kg	0.190	0	.025	15.5	0-172	L491509-01	WG511352
Chloroform	mg/kg	0.925	0	.025	75.5	28-138	L491509-01	WG511352
Chloromethane	mg/kg	0.835	0	.025	68.1	10-158	L491509-01	WG511352
cis-1,2-Dichloroethene	mg/kg	0.972	0	.025	79.4	21-147	L491509-01	WG511352
cis-1,3-Dichloropropene	mg/kg	0.950	0	.025	77.5	17-145	L491509-01	WG511352
Di-isopropyl ether	mg/kg	0.864	0	.025	70.5	31-153	L491509-01	WG511352
Dibromomethane	mg/kg	1.00	0	.025	81.9	24-147	L491509-01	WG511352
Dichlorodifluoromethane	mg/kg	0.748	0	.025	61.0	0-192	L491509-01	WG511352
Dichlorofluoromethane	mg/kg	0	0	.025	0*	70-130	L491509-01	WG511352
Ethyl ether	mg/kg	1.00	0	.025	81.8	25-156	L491509-01	WG511352
Ethylbenzene	mg/kg	1.04	0	.025	84.6	12-137	L491509-01	WG511352
Hexachloro-1,3-butadiene	mg/kg	1.04	0	.025	85.1	10-123	L491509-01	WG511352
Isopropylbenzene	mg/kg	0.968	0	.025	79.0	14-134	L491509-01	WG511352
Methyl tert-butyl ether	mg/kg	0.841	0	.025	68.7	21-157	L491509-01	WG511352
Methylene Chloride	mg/kg	0.972	0	.025	79.3	12-149	L491509-01	WG511352
n-Butylbenzene	mg/kg	0.976	0	.025	79.7	10-130	L491509-01	WG511352
n-Propylbenzene	mg/kg	1.05	0	.025	85.5	10-130	L491509-01	WG511352
Naphthalene	mg/kg	0.803	0	.025	65.5	0-146	L491509-01	WG511352
p-Isopropyltoluene	mg/kg	1.06	0	.025	86.9	10-131	L491509-01	WG511352
sec-Butylbenzene	mg/kg	1.08	0	.025	88.2	10-134	L491509-01	WG511352
Styrene	mg/kg	1.32	0	.025	108.	10-140	L491509-01	WG511352

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



L A B S C I E N C E S

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Alex Prasch  
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Superior, WI 54880

Quality Assurance Report  
Level II

L491509

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

Tax I.D. 62-0814289

Est. 1970

December 10, 2010

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
tert-Butylbenzene	mg/kg	1.06	0	.025	86.2	11-137	L491509-01	WG511352
Tetrachloroethene	mg/kg	1.13	0	.025	92.3	10-131	L491509-01	WG511352
Tetrahydrofuran	mg/kg	0.754	0	.025	61.5	20-153	L491509-01	WG511352
Toluene	mg/kg	0.946	0	.025	77.2	12-136	L491509-01	WG511352
trans-1,2-Dichloroethene	mg/kg	0.935	0	.025	76.3	10-143	L491509-01	WG511352
trans-1,3-Dichloropropene	mg/kg	0.926	0	.025	75.6	16-147	L491509-01	WG511352
Trichloroethene	mg/kg	0.978	0	.025	79.8	10-155	L491509-01	WG511352
Trichlorofluoromethane	mg/kg	0.793	0	.025	64.7	10-154	L491509-01	WG511352
Vinyl chloride	mg/kg	0.907	0	.025	74.0	10-159	L491509-01	WG511352
Xylenes, Total	mg/kg	3.09	0	.075	84.2	10-138	L491509-01	WG511352
4-Bromofluorobenzene					112.5	59-140		WG511352
Dibromofluoromethane					103.2	63-139		WG511352
Toluene-d8					107.7	84-116		WG511352
a,a,a-Trifluorotoluene					104.2	80-118		WG511352
Gasoline (C6-C10)	mg/kg	22.4	0	.5	91.5	80-120	L491509-01	WG511507
a,a,a-Trifluorotoluene(PID)					105.7	80-120		WG511507
1,2,4-Trimethylbenzene	mg/kg	0.0193	0	.025	77.2	10-145	L491310-08	WG511759
Xylenes, Total	mg/kg	0.0594	0	.075	79.2	10-138	L491310-08	WG511759
4-Bromofluorobenzene					91.10	59-140		WG511759
Dibromofluoromethane					111.1	63-139		WG511759
Toluene-d8					102.8	84-116		WG511759
a,a,a-Trifluorotoluene					97.12	80-118		WG511759

Analyte	Units	Matrix Spike Duplicate				RPD	Limit Ref Samp	Batch
		MSD	Ref	%Rec	Limit			
1,1,1,2-Tetrachloroethane	mg/kg	1.33	0.965	108.	29-145	31.7*	31 L491509-01	WG511352
1,1,1-Trichloroethane	mg/kg	1.17	0.848	95.1	23-147	31.5	32 L491509-01	WG511352
1,1,2,2-Tetrachloroethane	mg/kg	1.38	1.03	113.	18-150	29.6	33 L491509-01	WG511352
1,1,2-Trichloroethane	mg/kg	1.46	1.12	119.	35-140	26.6	29 L491509-01	WG511352
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	1.17	0.910	95.5	10-145	25.0	35 L491509-01	WG511352
1,1-Dichloroethane	mg/kg	1.23	0.908	100.	24-148	29.9	31 L491509-01	WG511352
1,1-Dichloroethene	mg/kg	1.10	0.872	89.6	10-149	22.9	34 L491509-01	WG511352
1,1-Dichloropropene	mg/kg	1.26	0.898	103.	10-141	33.7	34 L491509-01	WG511352
1,2,3-Trichlorobenzene	mg/kg	1.33	0.951	109.	10-129	33.3	43 L491509-01	WG511352
1,2,3-Trichloropropane	mg/kg	1.48	1.12	121.	30-148	28.2	32 L491509-01	WG511352
1,2,3-Trimethylbenzene	mg/kg	1.41	1.04	115.	10-137	29.5	36 L491509-01	WG511352
1,2,4-Trichlorobenzene	mg/kg	1.30	0.931	106.	10-119	32.8	44 L491509-01	WG511352
1,2,4-Trimethylbenzene	mg/kg	1.48	1.06	120.	10-145	32.7	41 L491509-01	WG511352
1,2-Dibromo-3-Chloropropane	mg/kg	0.867	0.625	70.8	19-145	32.5	35 L491509-01	WG511352
1,2-Dibromoethane	mg/kg	1.45	1.12	119.	24-145	26.3	31 L491509-01	WG511352
1,2-Dichlorobenzene	mg/kg	1.44	1.08	117.	12-130	29.0	35 L491509-01	WG511352
1,2-Dichloroethane	mg/kg	1.34	1.03	109.	21-155	26.1	29 L491509-01	WG511352
1,2-Dichloropropane	mg/kg	1.35	1.01	110.	28-144	28.9	30 L491509-01	WG511352
1,3,5-Trimethylbenzene	mg/kg	1.48	1.05	121.	10-135	33.9	39 L491509-01	WG511352
1,3-Dichlorobenzene	mg/kg	1.56	1.15	127.	10-129	29.7	38 L491509-01	WG511352
1,3-Dichloropropane	mg/kg	1.36	1.03	111.	31-137	27.7	29 L491509-01	WG511352
1,4-Dichlorobenzene	mg/kg	1.39	1.04	113.	10-121	28.2	36 L491509-01	WG511352
2,2-Dichloropropane	mg/kg	1.09	0.782	89.1	18-144	33.1*	32 L491509-01	WG511352
2-Butanone (MEK)	mg/kg	5.74	4.35	93.7	21-143	27.5	37 L491509-01	WG511352
2-Chloroethyl vinyl ether	mg/kg	5.61	4.01	91.6	0-176	33.3	50 L491509-01	WG511352
2-Chlorotoluene	mg/kg	1.47	1.06	120.	10-132	32.2	37 L491509-01	WG511352
2-Hexanone	mg/kg	6.09	4.51	99.5	22-151	29.9	38 L491509-01	WG511352
4-Chlorotoluene	mg/kg	1.47	1.09	120.	10-129	30.0	38 L491509-01	WG511352
4-Methyl-2-pentanone (MIBK)	mg/kg	5.84	4.45	95.3	31-151	27.0	36 L491509-01	WG511352

\* Performance of this Analyte is outside of established criteria.

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Tax I.D. 62-0814289

Est. 1970

December 10, 2010

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Acetone	mg/kg	5.15	4.20	84.0	13-158	20.2	34	L491509-01		WG511352
Acrylonitrile	mg/kg	5.72	4.44	93.4	20-154	25.2	35	L491509-01		WG511352
Benzene	mg/kg	1.21	0.895	99.1	16-143	30.3	31	L491509-01		WG511352
Bromobenzene	mg/kg	1.42	1.06	116.	14-135	29.3	39	L491509-01		WG511352
Bromodichloromethane	mg/kg	1.23	0.932	101.	27-139	27.9	30	L491509-01		WG511352
Bromoform	mg/kg	0.921	0.684	75.2	21-144	29.6	34	L491509-01		WG511352
Bromomethane	mg/kg	1.23	0.985	100.	0-180	22.3	41	L491509-01		WG511352
Carbon tetrachloride	mg/kg	1.01	0.729	82.6	12-149	32.4	34	L491509-01		WG511352
Chlorobenzene	mg/kg	1.51	1.12	123.	17-134	29.4	34	L491509-01		WG511352
Chlorodibromomethane	mg/kg	1.22	0.907	99.7	28-147	29.5	32	L491509-01		WG511352
Chloroethane	mg/kg	0.209	0.190	17.0	0-172	9.33	38	L491509-01		WG511352
Chloroform	mg/kg	1.25	0.925	102.	28-138	29.6	30	L491509-01		WG511352
Chloromethane	mg/kg	1.07	0.835	87.3	10-158	24.7	35	L491509-01		WG511352
cis-1,2-Dichloroethene	mg/kg	1.33	0.972	109.	21-147	31.4*	31	L491509-01		WG511352
cis-1,3-Dichloropropene	mg/kg	1.25	0.950	102.	17-145	27.4	32	L491509-01		WG511352
Di-isopropyl ether	mg/kg	1.14	0.864	93.2	31-153	27.7	29	L491509-01		WG511352
Dibromomethane	mg/kg	1.32	1.00	108.	24-147	27.6	30	L491509-01		WG511352
Dichlorodifluoromethane	mg/kg	0.947	0.748	77.3	0-192	23.5	38	L491509-01		WG511352
Dichlorofluoromethane	mg/kg	0	0	0*	70-130	0	25	L491509-01		WG511352
Ethyl ether	mg/kg	1.21	1.00	98.4	25-156	18.5	31	L491509-01		WG511352
Ethylbenzene	mg/kg	1.44	1.04	118.	12-137	32.7	36	L491509-01		WG511352
Hexachloro-1,3-butadiene	mg/kg	1.46	1.04	119.	10-123	33.1	50	L491509-01		WG511352
Isopropylbenzene	mg/kg	1.35	0.968	110.	14-134	33.2	37	L491509-01		WG511352
Methyl tert-butyl ether	mg/kg	1.09	0.841	89.0	21-157	25.7	31	L491509-01		WG511352
Methylene Chloride	mg/kg	1.28	0.972	105.	12-149	27.5	31	L491509-01		WG511352
n-Butylbenzene	mg/kg	1.36	0.976	111.	10-130	32.9	48	L491509-01		WG511352
n-Propylbenzene	mg/kg	1.44	1.05	118.	10-130	31.6	40	L491509-01		WG511352
Naphthalene	mg/kg	1.16	0.803	94.6	0-146	36.3	43	L491509-01		WG511352
p-Isopropyltoluene	mg/kg	1.51	1.06	123.	10-131	34.6	43	L491509-01		WG511352
sec-Butylbenzene	mg/kg	1.50	1.08	123.	10-134	32.7	43	L491509-01		WG511352
Styrene	mg/kg	1.82	1.32	149.*	10-140	31.9	35	L491509-01		WG511352
tert-Butylbenzene	mg/kg	1.49	1.06	121.	11-137	33.7	39	L491509-01		WG511352
Tetrachloroethene	mg/kg	1.54	1.13	126.	10-131	30.5	35	L491509-01		WG511352
Tetrahydrofuran	mg/kg	0.986	0.754	80.5	20-153	26.7	37	L491509-01		WG511352
Toluene	mg/kg	1.27	0.946	104.	12-136	29.3	32	L491509-01		WG511352
trans-1,2-Dichloroethene	mg/kg	1.27	0.935	103.	10-143	30.1	33	L491509-01		WG511352
trans-1,3-Dichloropropene	mg/kg	1.21	0.926	98.7	16-147	26.6	32	L491509-01		WG511352
Trichloroethene	mg/kg	1.35	0.978	110.	10-155	31.7	33	L491509-01		WG511352
Trichlorofluoromethane	mg/kg	0.768	0.793	62.7	10-154	3.14	32	L491509-01		WG511352
Vinyl chloride	mg/kg	1.17	0.907	95.2	10-159	25.1	36	L491509-01		WG511352
Xylenes, Total	mg/kg	4.22	3.09	115.	10-138	30.8	36	L491509-01		WG511352
4-Bromofluorobenzene				112.7	59-140					WG511352
Dibromofluoromethane				103.5	63-139					WG511352
Toluene-d8				106.0	84-116					WG511352
a,a,a-Trifluorotoluene				105.0	80-118					WG511352
Gasoline (C6-C10)	mg/kg	22.6	22.4	92.1	80-120	0.710	20	L491509-01		WG511507
a,a,a-Trifluorotoluene(PID)				104.7	80-120					WG511507
1,2,4-Trimethylbenzene	mg/kg	0.0170	0.0193	67.8	10-145	12.9	41	L491310-08		WG511759
Xylenes, Total	mg/kg	0.0538	0.0594	71.8	10-138	9.78	36	L491310-08		WG511759
4-Bromofluorobenzene				94.51	59-140					WG511759
Dibromofluoromethane				108.7	63-139					WG511759
Toluene-d8				105.6	84-116					WG511759
a,a,a-Trifluorotoluene				100.4	80-118					WG511759

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Est. 1970

December 10, 2010

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Batch number /Run number / Sample number cross reference

WG511352: R1496489: L491509-01 02 03 04  
WG511507: R1498069: L491509-01 02 03 04  
WG511387: R1498922: L491509-01 02 03 04  
WG511759: R1499052: L491509-04  
WG511322: R1502051: L491509-01 02 03 04

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



L·A·B S·C·I·E·N·C·E·S

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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.

January 4th, 2010

Mr. Peter Fredman  
Murphy Oil USA  
2407 Stinson Avenue  
Superior, WI 54880

Re: Follow Up Soil Sampling near Benzene Unit  
Murphy Oil Refinery

Dear Mr. Fredman,

On December 13th, 2010, Twin Ports Testing was called with a request for follow up soil analyses near the benzene unit within the Murphy Oil refinery. I arrived at your office at 2:00pm that afternoon and proceeded to visit the impacted area. Two soil samples were collected at depths of approximately 8" below the newly excavated area. (Estimated 1.5' below original ground surface.) Sample SS-5 was collected from below the previous SS-4 sampling site, SS-6 was collected 7' to the south of the previous SS-5site. Laboratory analyses for GRO DRO AND VOCs were conducted on both samples by Environmental Science Corporation of Mount Juliet, Tennessee. The results indicate no detections of the chosen analytes.

If you should have any questions, please call me at (715) 392-7114. We appreciate doing business with you.

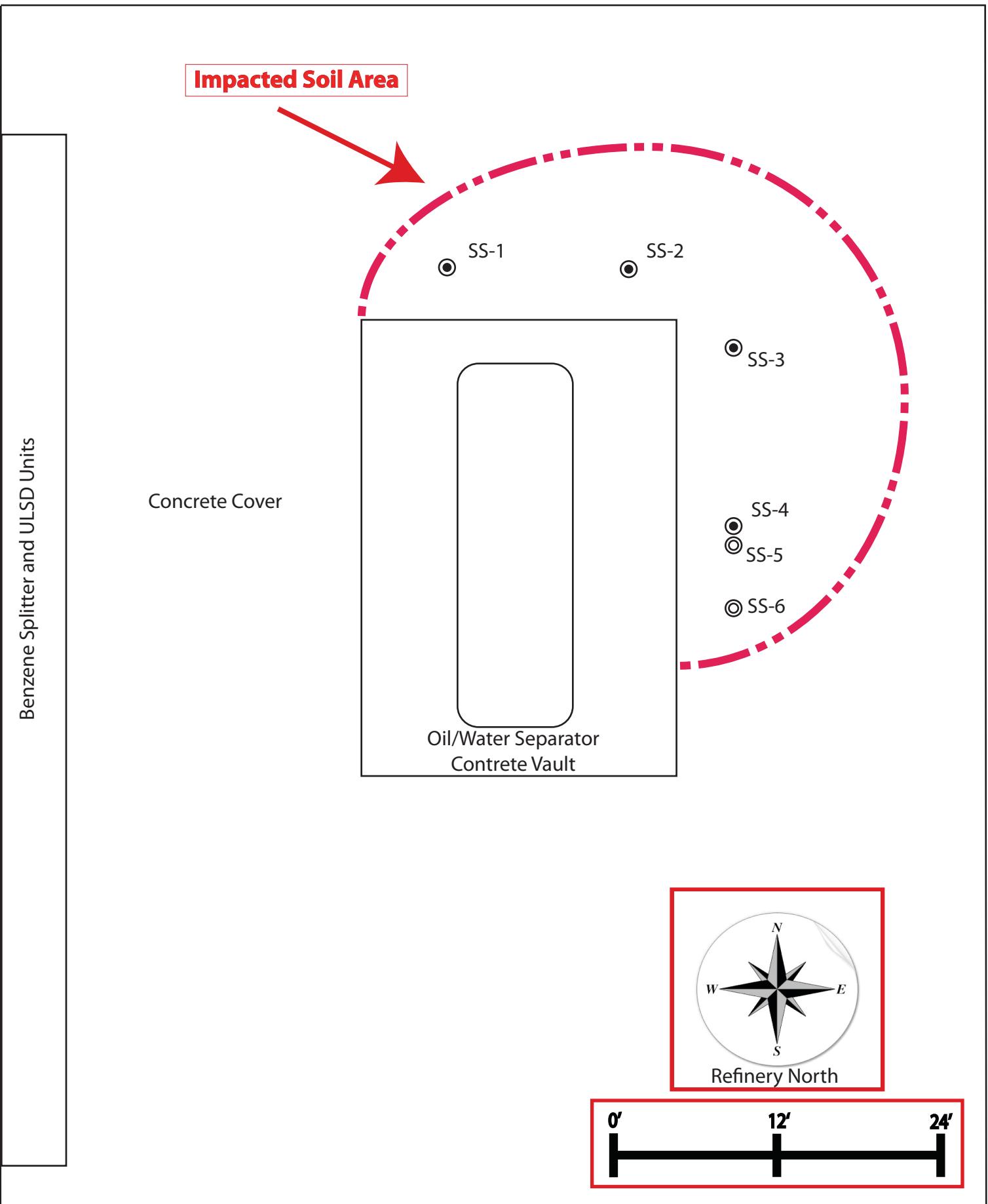
Sincerely,

Twin Ports Testing



Alexandra Prasch, Geophysicist  
Environmental Department

Attachments: Site Map Showing Sample Collection Locations  
ESC Laboratory Report



DRAWN BY	AP
CHECKED BY	RJH
APPROVED BY	AP
DATE	01/04/2011
TPT JOB #	10e-0171
FIGURE	1

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

pH Temp

**Remarks:**

436857811664 Flow \_\_\_\_\_ Other \_\_\_\_\_



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Alex Prasch  
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1301 North 3rd Street  
Superior, WI 54880

### Report Summary

Friday December 17, 2010

Report Number: L493780

Samples Received: 12/15/10

Client Project:

Description: 10e-0171 Murphy Soil Sampling

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  
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

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

Alex Prasch  
Twin Ports Testing  
1301 North 3rd Street  
Superior, WI 54880

December 17, 2010

Date Received : December 15, 2010  
Description : 10e-0171 Murphy Soil Sampling  
Sample ID : SS-5  
Collected By : Alex Prasch  
Collection Date : 12/13/10 00:00

ESC Sample # : L493780-01

Site ID :  
Project # :

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	88.0			%		2540G	12/17/10	1
WI DNR								
Gasoline (C6-C10)	U	1.4	5.6	mg/kg		GROWM/80	12/16/10	49
Surrogate recovery-%				% Rec.				
a,a,a-Trifluorotoluene(PID)	103.					GROWM/80	12/16/10	49
Volatile Organics								
Acetone	1.0	0.51	2.8	mg/kg	J	8260B	12/16/10	49
Acrylonitrile	U	0.13	0.56	mg/kg		8260B	12/16/10	49
Allyl chloride	U	0.081	0.28	mg/kg		8260B	12/16/10	49
Benzene	U	0.021	0.056	mg/kg		8260B	12/16/10	49
Bromobenzene	U	0.015	0.056	mg/kg		8260B	12/16/10	49
Bromodichloromethane	U	0.016	0.056	mg/kg		8260B	12/16/10	49
Bromoform	U	0.016	0.056	mg/kg		8260B	12/16/10	49
Bromomethane	U	0.077	0.28	mg/kg		8260B	12/16/10	49
n-Butylbenzene	U	0.016	0.056	mg/kg		8260B	12/16/10	49
sec-Butylbenzene	U	0.015	0.056	mg/kg		8260B	12/16/10	49
tert-Butylbenzene	U	0.013	0.056	mg/kg	J5	8260B	12/16/10	49
Carbon tetrachloride	U	0.020	0.056	mg/kg		8260B	12/16/10	49
Chlorobenzene	U	0.016	0.056	mg/kg		8260B	12/16/10	49
Chlorodibromomethane	U	0.015	0.056	mg/kg		8260B	12/16/10	49
Chloroethane	U	0.096	0.28	mg/kg		8260B	12/16/10	49
2-Chloroethyl vinyl ether	U	0.89	2.8	mg/kg		8260B	12/16/10	49
Chloroform	U	0.021	0.28	mg/kg		8260B	12/16/10	49
Chloromethane	U	0.051	0.14	mg/kg		8260B	12/16/10	49
2-Chlorotoluene	U	0.016	0.056	mg/kg		8260B	12/16/10	49
4-Chlorotoluene	U	0.015	0.056	mg/kg		8260B	12/16/10	49
1,2-Dibromo-3-Chloropropane	U	0.052	0.28	mg/kg		8260B	12/16/10	49
1,2-Dibromoethane	U	0.015	0.056	mg/kg		8260B	12/16/10	49
Dibromomethane	U	0.022	0.056	mg/kg		8260B	12/16/10	49
1,2-Dichlorobenzene	U	0.015	0.056	mg/kg		8260B	12/16/10	49
1,3-Dichlorobenzene	U	0.014	0.056	mg/kg		8260B	12/16/10	49
1,4-Dichlorobenzene	U	0.017	0.056	mg/kg		8260B	12/16/10	49
Dichlorodifluoromethane	U	0.021	0.28	mg/kg		8260B	12/16/10	49
Dichlorofluoromethane	U	0.026	0.28	mg/kg		8260B	12/16/10	49
1,1-Dichloroethane	U	0.021	0.056	mg/kg		8260B	12/16/10	49
1,2-Dichloroethane	U	0.018	0.056	mg/kg		8260B	12/16/10	49
1,1-Dichloroethene	U	0.026	0.056	mg/kg		8260B	12/16/10	49
cis-1,2-Dichloroethene	U	0.025	0.056	mg/kg		8260B	12/16/10	49
trans-1,2-Dichloroethene	U	0.021	0.056	mg/kg		8260B	12/16/10	49
1,2-Dichloropropane	U	0.029	0.056	mg/kg		8260B	12/16/10	49
1,1-Dichloropropene	U	0.016	0.056	mg/kg		8260B	12/16/10	49

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Sample ID : SS-5  
Collected By : Alex Prasch  
Collection Date : 12/13/10 00:00

ESC Sample # : L493780-01

Site ID :  
Project # :

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
1,3-Dichloropropane	U	0.019	0.056	mg/kg		8260B	12/16/10	49
cis-1,3-Dichloropropene	U	0.015	0.056	mg/kg		8260B	12/16/10	49
trans-1,3-Dichloropropene	U	0.020	0.056	mg/kg		8260B	12/16/10	49
2,2-Dichloropropane	U	0.018	0.056	mg/kg		8260B	12/16/10	49
Di-isopropyl ether	U	0.018	0.056	mg/kg		8260B	12/16/10	49
Ethylbenzene	U	0.015	0.056	mg/kg		8260B	12/16/10	49
Ethyl ether	U	0.040	0.056	mg/kg		8260B	12/16/10	49
Hexachloro-1,3-butadiene	U	0.017	0.056	mg/kg	J5	8260B	12/16/10	49
2-Hexanone	U	0.13	0.56	mg/kg		8260B	12/16/10	49
Isopropylbenzene	U	0.016	0.056	mg/kg		8260B	12/16/10	49
p-Isopropyltoluene	U	0.015	0.056	mg/kg		8260B	12/16/10	49
2-Butanone (MEK)	U	0.21	0.56	mg/kg		8260B	12/16/10	49
Methylene Chloride	U	0.024	0.28	mg/kg		8260B	12/16/10	49
4-Methyl-2-pentanone (MIBK)	U	0.11	0.56	mg/kg		8260B	12/16/10	49
Methyl tert-butyl ether	U	0.017	0.056	mg/kg		8260B	12/16/10	49
Naphthalene	U	0.014	0.28	mg/kg		8260B	12/16/10	49
n-Propylbenzene	U	0.016	0.056	mg/kg		8260B	12/16/10	49
Styrene	U	0.012	0.056	mg/kg		8260B	12/16/10	49
1,1,1,2-Tetrachloroethane	U	0.020	0.056	mg/kg		8260B	12/16/10	49
1,1,2,2-Tetrachloroethane	U	0.014	0.056	mg/kg		8260B	12/16/10	49
1,1,2-Trichloro-1,2,2-trifluoro	U	0.042	0.056	mg/kg		8260B	12/16/10	49
Tetrachloroethene	U	0.022	0.056	mg/kg		8260B	12/16/10	49
Tetrahydrofuran	U	0.085	0.28	mg/kg		8260B	12/16/10	49
Toluene	U	0.016	0.28	mg/kg		8260B	12/16/10	49
1,2,3-Trichlorobenzene	U	0.015	0.056	mg/kg		8260B	12/16/10	49
1,2,4-Trichlorobenzene	U	0.018	0.056	mg/kg	J5	8260B	12/16/10	49
1,1,1-Trichloroethane	U	0.023	0.056	mg/kg		8260B	12/16/10	49
1,1,2-Trichloroethane	U	0.027	0.056	mg/kg		8260B	12/16/10	49
Trichloroethene	U	0.017	0.056	mg/kg		8260B	12/16/10	49
Trichlorofluoromethane	U	0.034	0.28	mg/kg		8260B	12/16/10	49
1,2,3-Trichloropropane	U	0.033	0.056	mg/kg		8260B	12/16/10	49
1,2,4-Trimethylbenzene	U	0.016	0.056	mg/kg		8260B	12/16/10	49
1,2,3-Trimethylbenzene	U	0.016	0.056	mg/kg		8260B	12/16/10	49
1,3,5-Trimethylbenzene	U	0.015	0.056	mg/kg		8260B	12/16/10	49
Vinyl chloride	U	0.026	0.056	mg/kg		8260B	12/16/10	49
Xylenes, Total	U	0.022	0.17	mg/kg		8260B	12/16/10	49
Surrogate Recovery								
Toluene-d8	99.6			% Rec.		8260B	12/16/10	49
Dibromofluoromethane	101.			% Rec.		8260B	12/16/10	49
a,a,a-Trifluorotoluene	107.			% Rec.		8260B	12/16/10	49
4-Bromofluorobenzene	116.			% Rec.		8260B	12/16/10	49
TPH (GC/FID) High Fraction	U	0.77	9.1	mg/kg		DROWM/80	12/17/10	1

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Sample ID : SS-5  
Collected By : Alex Prasch  
Collection Date : 12/13/10 00:00

ESC Sample # : L493780-01

Site ID :  
Project # :

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Surrogate recovery(%)				% Rec.				
Triacontane	91.7						DROWM/80	12/17/10 1

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Date Received : December 15, 2010  
Description : 10e-0171 Murphy Soil Sampling  
Sample ID : SS-6  
Collected By : Alex Prasch  
Collection Date : 12/13/10 00:00

ESC Sample # : L493780-02

Site ID :  
Project # :

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	90.1			%		2540G	12/17/10	1
WI DNR								
Gasoline (C6-C10)	U	1.7	6.3	mg/kg		GROWM/80	12/16/10	57
Surrogate recovery-%								
a,a,a-Trifluorotoluene(PID)	104.			% Rec.		GROWM/80	12/16/10	57
Volatile Organics								
Acetone	U	0.59	3.2	mg/kg		8260B	12/16/10	57
Acrylonitrile	U	0.15	0.63	mg/kg		8260B	12/16/10	57
Allyl chloride	U	0.094	0.32	mg/kg		8260B	12/16/10	57
Benzene	U	0.024	0.063	mg/kg		8260B	12/16/10	57
Bromobenzene	U	0.017	0.063	mg/kg		8260B	12/16/10	57
Bromodichloromethane	U	0.019	0.063	mg/kg		8260B	12/16/10	57
Bromoform	U	0.019	0.063	mg/kg		8260B	12/16/10	57
Bromomethane	U	0.089	0.32	mg/kg		8260B	12/16/10	57
n-Butylbenzene	U	0.019	0.063	mg/kg		8260B	12/16/10	57
sec-Butylbenzene	U	0.018	0.063	mg/kg		8260B	12/16/10	57
tert-Butylbenzene	U	0.015	0.063	mg/kg		8260B	12/16/10	57
Carbon tetrachloride	U	0.024	0.063	mg/kg		8260B	12/16/10	57
Chlorobenzene	U	0.019	0.063	mg/kg		8260B	12/16/10	57
Chlorodibromomethane	U	0.018	0.063	mg/kg		8260B	12/16/10	57
Chloroethane	U	0.11	0.32	mg/kg		8260B	12/16/10	57
2-Chloroethyl vinyl ether	U	1.0	3.2	mg/kg		8260B	12/16/10	57
Chloroform	U	0.025	0.32	mg/kg		8260B	12/16/10	57
Chloromethane	U	0.060	0.16	mg/kg		8260B	12/16/10	57
2-Chlorotoluene	U	0.018	0.063	mg/kg		8260B	12/16/10	57
4-Chlorotoluene	U	0.017	0.063	mg/kg		8260B	12/16/10	57
1,2-Dibromo-3-Chloropropane	U	0.060	0.32	mg/kg		8260B	12/16/10	57
1,2-Dibromoethane	U	0.018	0.063	mg/kg		8260B	12/16/10	57
Dibromomethane	U	0.026	0.063	mg/kg		8260B	12/16/10	57
1,2-Dichlorobenzene	U	0.018	0.063	mg/kg		8260B	12/16/10	57
1,3-Dichlorobenzene	U	0.016	0.063	mg/kg		8260B	12/16/10	57
1,4-Dichlorobenzene	U	0.020	0.063	mg/kg		8260B	12/16/10	57
Dichlorodifluoromethane	U	0.024	0.32	mg/kg		8260B	12/16/10	57
Dichlorofluoromethane	U	0.030	0.32	mg/kg		8260B	12/17/10	57
1,1-Dichloroethane	U	0.024	0.063	mg/kg		8260B	12/16/10	57
1,2-Dichloroethane	U	0.021	0.063	mg/kg		8260B	12/16/10	57
1,1-Dichloroethene	U	0.030	0.063	mg/kg		8260B	12/16/10	57
cis-1,2-Dichloroethene	U	0.029	0.063	mg/kg		8260B	12/16/10	57
trans-1,2-Dichloroethene	U	0.024	0.063	mg/kg		8260B	12/16/10	57
1,2-Dichloropropane	U	0.034	0.063	mg/kg		8260B	12/16/10	57
1,1-Dichloropropene	U	0.019	0.063	mg/kg		8260B	12/16/10	57

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Sample ID : SS-6  
Collected By : Alex Prasch  
Collection Date : 12/13/10 00:00

ESC Sample # : L493780-02

Site ID :  
Project # :

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
1,3-Dichloropropane	U	0.022	0.063	mg/kg		8260B	12/16/10	57
cis-1,3-Dichloropropene	U	0.017	0.063	mg/kg		8260B	12/16/10	57
trans-1,3-Dichloropropene	U	0.023	0.063	mg/kg		8260B	12/16/10	57
2,2-Dichloropropane	U	0.020	0.063	mg/kg		8260B	12/16/10	57
Di-isopropyl ether	U	0.021	0.063	mg/kg		8260B	12/16/10	57
Ethylbenzene	U	0.018	0.063	mg/kg		8260B	12/16/10	57
Ethyl ether	U	0.046	0.063	mg/kg		8260B	12/16/10	57
Hexachloro-1,3-butadiene	U	0.020	0.063	mg/kg		8260B	12/16/10	57
2-Hexanone	U	0.15	0.63	mg/kg		8260B	12/16/10	57
Isopropylbenzene	U	0.019	0.063	mg/kg		8260B	12/16/10	57
p-Isopropyltoluene	U	0.018	0.063	mg/kg		8260B	12/16/10	57
2-Butanone (MEK)	U	0.25	0.63	mg/kg		8260B	12/16/10	57
Methylene Chloride	U	0.028	0.32	mg/kg		8260B	12/16/10	57
4-Methyl-2-pentanone (MIBK)	U	0.13	0.63	mg/kg		8260B	12/16/10	57
Methyl tert-butyl ether	U	0.020	0.063	mg/kg		8260B	12/16/10	57
Naphthalene	U	0.016	0.32	mg/kg		8260B	12/16/10	57
n-Propylbenzene	U	0.018	0.063	mg/kg		8260B	12/16/10	57
Styrene	U	0.014	0.063	mg/kg		8260B	12/16/10	57
1,1,1,2-Tetrachloroethane	U	0.023	0.063	mg/kg		8260B	12/16/10	57
1,1,2,2-Tetrachloroethane	U	0.016	0.063	mg/kg		8260B	12/16/10	57
1,1,2-Trichloro-1,2,2-trifluoro	U	0.049	0.063	mg/kg		8260B	12/16/10	57
Tetrachloroethene	U	0.025	0.063	mg/kg		8260B	12/16/10	57
Tetrahydrofuran	U	0.099	0.32	mg/kg		8260B	12/16/10	57
Toluene	U	0.019	0.32	mg/kg		8260B	12/16/10	57
1,2,3-Trichlorobenzene	U	0.017	0.063	mg/kg		8260B	12/16/10	57
1,2,4-Trichlorobenzene	U	0.022	0.063	mg/kg		8260B	12/16/10	57
1,1,1-Trichloroethane	U	0.027	0.063	mg/kg		8260B	12/16/10	57
1,1,2-Trichloroethane	U	0.031	0.063	mg/kg		8260B	12/16/10	57
Trichloroethene	U	0.019	0.063	mg/kg		8260B	12/16/10	57
Trichlorofluoromethane	U	0.040	0.32	mg/kg		8260B	12/16/10	57
1,2,3-Trichloropropane	U	0.038	0.063	mg/kg		8260B	12/16/10	57
1,2,4-Trimethylbenzene	U	0.019	0.063	mg/kg		8260B	12/16/10	57
1,2,3-Trimethylbenzene	U	0.019	0.063	mg/kg		8260B	12/16/10	57
1,3,5-Trimethylbenzene	U	0.017	0.063	mg/kg		8260B	12/16/10	57
Vinyl chloride	U	0.030	0.063	mg/kg		8260B	12/16/10	57
Xylenes, Total	U	0.026	0.19	mg/kg		8260B	12/16/10	57
Surrogate Recovery								
Toluene-d8	98.2			% Rec.		8260B	12/16/10	57
Dibromofluoromethane	99.7			% Rec.		8260B	12/16/10	57
a,a,a-Trifluorotoluene	105.			% Rec.		8260B	12/16/10	57
4-Bromofluorobenzene	116.			% Rec.		8260B	12/16/10	57
TPH (GC/FID) High Fraction	U	0.77	8.9	mg/kg		DROWM/80	12/17/10	1

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Collected By : Alex Prasch  
Collection Date : 12/13/10 00:00

ESC Sample # : L493780-02

Site ID :  
Project # :

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Surrogate recovery(%) Triacontane	80.1			% Rec.		DROWM/80	12/17/10	1

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**Attachment A**  
**List of Analytes with QC Qualifiers**

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L493780-01	WG513621	SAMP	Acetone	R1507109	J
	WG513621	SAMP	tert-Butylbenzene	R1507109	J5
	WG513621	SAMP	Hexachloro-1,3-butadiene	R1507109	J5
	WG513621	SAMP	1,2,4-Trichlorobenzene	R1507109	J5

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high

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.

Summary of Remarks For Samples Printed  
12/17/10 at 17:01:01

TSR Signing Reports: 341  
R3 - Rush: Two Day

Sample: L493780-01 Account: TWINPORWI Received: 12/15/10 09:00 Due Date: 12/17/10 00:00 RPT Date: 12/17/10 17:00

Sample: L493780-02 Account: TWINPORWI Received: 12/15/10 09:00 Due Date: 12/17/10 00:00 RPT Date: 12/17/10 17:00



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Tax I.D. 62-0814289

Est. 1970

Quality Assurance Report  
Level II

L493780

December 17, 2010

Analyte	Result	Laboratory Blank Units	% Rec.	Limit	Batch	Date Analyzed
Gasoline (C6-C10)	< .1	mg/kg			WG513553	12/16/10 11:41
a,a,a-Trifluorotoluene(PID)		% Rec.	104.1	80-120	WG513553	12/16/10 11:41
1,1,1,2-Tetrachloroethane	< .001	mg/kg			WG513621	12/16/10 15:43
1,1,1-Trichloroethane	< .001	mg/kg			WG513621	12/16/10 15:43
1,1,2,2-Tetrachloroethane	< .001	mg/kg			WG513621	12/16/10 15:43
1,1,2-Trichloroethane	< .001	mg/kg			WG513621	12/16/10 15:43
1,1,2-Trichloro-1,2,2-trifluoroethane	< .001	mg/kg			WG513621	12/16/10 15:43
1,1-Dichloroethane	< .001	mg/kg			WG513621	12/16/10 15:43
1,1-Dichloroethene	< .001	mg/kg			WG513621	12/16/10 15:43
1,1-Dichloropropene	< .001	mg/kg			WG513621	12/16/10 15:43
1,2,3-Trichlorobenzene	< .001	mg/kg			WG513621	12/16/10 15:43
1,2,3-Trichloropropane	< .001	mg/kg			WG513621	12/16/10 15:43
1,2,3-Trimethylbenzene	< .001	mg/kg			WG513621	12/16/10 15:43
1,2,4-Trichlorobenzene	< .001	mg/kg			WG513621	12/16/10 15:43
1,2,4-Trimethylbenzene	< .001	mg/kg			WG513621	12/16/10 15:43
1,2-Dibromo-3-Chloropropane	< .005	mg/kg			WG513621	12/16/10 15:43
1,2-Dibromoethane	< .001	mg/kg			WG513621	12/16/10 15:43
1,2-Dichlorobenzene	< .001	mg/kg			WG513621	12/16/10 15:43
1,2-Dichloroethane	< .001	mg/kg			WG513621	12/16/10 15:43
1,2-Dichloropropene	< .001	mg/kg			WG513621	12/16/10 15:43
1,3,5-Trimethylbenzene	< .001	mg/kg			WG513621	12/16/10 15:43
1,3-Dichlorobenzene	< .001	mg/kg			WG513621	12/16/10 15:43
1,3-Dichloropropane	< .001	mg/kg			WG513621	12/16/10 15:43
1,4-Dichlorobenzene	< .001	mg/kg			WG513621	12/16/10 15:43
2,2-Dichloropropane	< .001	mg/kg			WG513621	12/16/10 15:43
2-Butanone (MEK)	< .01	mg/kg			WG513621	12/16/10 15:43
2-Chloroethyl vinyl ether	< .001	mg/kg			WG513621	12/16/10 15:43
2-Chlorotoluene	< .001	mg/kg			WG513621	12/16/10 15:43
2-Hexanone	< .01	mg/kg			WG513621	12/16/10 15:43
4-Chlorotoluene	< .001	mg/kg			WG513621	12/16/10 15:43
4-Methyl-2-pentanone (MIBK)	< .01	mg/kg			WG513621	12/16/10 15:43
Acetone	< .05	mg/kg			WG513621	12/16/10 15:43
Acrylonitrile	< .01	mg/kg			WG513621	12/16/10 15:43
Allyl chloride	< .025	mg/kg			WG513621	12/16/10 15:43
Benzene	< .001	mg/kg			WG513621	12/16/10 15:43
Bromobenzene	< .001	mg/kg			WG513621	12/16/10 15:43
Bromodichloromethane	< .001	mg/kg			WG513621	12/16/10 15:43
Bromoform	< .001	mg/kg			WG513621	12/16/10 15:43
Bromomethane	< .005	mg/kg			WG513621	12/16/10 15:43
Carbon tetrachloride	< .001	mg/kg			WG513621	12/16/10 15:43
Chlorobenzene	< .001	mg/kg			WG513621	12/16/10 15:43
Chlorodibromomethane	< .001	mg/kg			WG513621	12/16/10 15:43
Chloroethane	< .005	mg/kg			WG513621	12/16/10 15:43
Chloroform	< .005	mg/kg			WG513621	12/16/10 15:43
Chloromethane	< .0025	mg/kg			WG513621	12/16/10 15:43
cis-1,2-Dichloroethene	< .001	mg/kg			WG513621	12/16/10 15:43
cis-1,3-Dichloropropene	< .001	mg/kg			WG513621	12/16/10 15:43
Di-isopropyl ether	< .001	mg/kg			WG513621	12/16/10 15:43
Dibromomethane	< .001	mg/kg			WG513621	12/16/10 15:43
Dichlorodifluoromethane	< .005	mg/kg			WG513621	12/16/10 15:43
Ethyl ether	< .001	mg/kg			WG513621	12/16/10 15:43
Ethylbenzene	< .001	mg/kg			WG513621	12/16/10 15:43
Hexachloro-1,3-butadiene	< .001	mg/kg			WG513621	12/16/10 15:43
Isopropylbenzene	< .001	mg/kg			WG513621	12/16/10 15:43
Methyl tert-butyl ether	< .001	mg/kg			WG513621	12/16/10 15:43
Methylene Chloride	< .005	mg/kg			WG513621	12/16/10 15:43
n-Butylbenzene	< .001	mg/kg			WG513621	12/16/10 15:43

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Tax I.D. 62-0814289

Est. 1970

Quality Assurance Report  
Level II

L493780

December 17, 2010

Analyte	Result	Laboratory Blank Units	% Rec	Limit	Batch	Date Analyzed
n-Propylbenzene	< .001	mg/kg			WG513621	12/16/10 15:43
Naphthalene	< .005	mg/kg			WG513621	12/16/10 15:43
p-Isopropyltoluene	< .001	mg/kg			WG513621	12/16/10 15:43
sec-Butylbenzene	< .001	mg/kg			WG513621	12/16/10 15:43
Styrene	< .001	mg/kg			WG513621	12/16/10 15:43
tert-Butylbenzene	< .001	mg/kg			WG513621	12/16/10 15:43
Tetrachloroethene	< .001	mg/kg			WG513621	12/16/10 15:43
Tetrahydrofuran	< .005	mg/kg			WG513621	12/16/10 15:43
Toluene	< .005	mg/kg			WG513621	12/16/10 15:43
trans-1,2-Dichloroethene	< .001	mg/kg			WG513621	12/16/10 15:43
trans-1,3-Dichloropropene	< .001	mg/kg			WG513621	12/16/10 15:43
Trichloroethene	< .001	mg/kg			WG513621	12/16/10 15:43
Trichlorofluoromethane	< .005	mg/kg			WG513621	12/16/10 15:43
Vinyl chloride	< .001	mg/kg			WG513621	12/16/10 15:43
Xylenes, Total	< .003	mg/kg			WG513621	12/16/10 15:43
4-Bromofluorobenzene	% Rec.	111.0		59-140	WG513621	12/16/10 15:43
Dibromofluoromethane	% Rec.	100.8		63-139	WG513621	12/16/10 15:43
Toluene-d8	% Rec.	100.4		84-116	WG513621	12/16/10 15:43
a,a,a-Trifluorotoluene	% Rec.	108.4		80-118	WG513621	12/16/10 15:43
Dichlorofluoromethane	< .005	mg/kg			WG513688	12/16/10 23:07
4-Bromofluorobenzene	% Rec.	111.3		59-140	WG513688	12/16/10 23:07
Dibromofluoromethane	% Rec.	106.0		63-139	WG513688	12/16/10 23:07
Toluene-d8	% Rec.	99.36		84-116	WG513688	12/16/10 23:07
a,a,a-Trifluorotoluene	% Rec.	108.4		80-118	WG513688	12/16/10 23:07
Total Solids	< .1	%			WG513536	12/17/10 12:46
TPH (GC/FID) High Fraction	< 4	ppm			WG513289	12/17/10 15:13
Triaccontane		% Rec.	83.97	50-150	WG513289	12/17/10 15:13

Analyte	Units	Result	Duplicate	Duplicate	RPD	Limit	Ref Samp	Batch
Total Solids	%	77.0		77.2	0.170	5	L493807-01	WG513536

Analyte	Units	Laboratory Known Val	Control Sample	Result	% Rec	Limit	Batch
Gasoline (C6-C10)	mg/kg	.5	0.447	89.4	80-120	WG513553	
a,a,a-Trifluorotoluene(PID)				105.4	80-120	WG513553	
1,1,1,2-Tetrachloroethane	mg/kg	.025	0.0281	113.	73-134	WG513621	
1,1,1-Trichloroethane	mg/kg	.025	0.0257	103.	62-135	WG513621	
1,1,2,2-Tetrachloroethane	mg/kg	.025	0.0253	101.	74-129	WG513621	
1,1,2-Trichloroethane	mg/kg	.025	0.0258	103.	77-124	WG513621	
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	.025	0.0285	114.	49-155	WG513621	
1,1-Dichloroethane	mg/kg	.025	0.0229	91.5	61-134	WG513621	
1,1-Dichloroethene	mg/kg	.025	0.0286	114.	53-136	WG513621	
1,1-Dichloropropene	mg/kg	.025	0.0246	98.3	63-132	WG513621	
1,2,3-Trichlorobenzene	mg/kg	.025	0.0306	122.	62-146	WG513621	
1,2,3-Trichloropropane	mg/kg	.025	0.0311	124.	70-133	WG513621	
1,2,3-Trimethylbenzene	mg/kg	.025	0.0259	104.	73-126	WG513621	
1,2,4-Trichlorobenzene	mg/kg	.025	0.0309	124.	61-148	WG513621	
1,2,4-Trimethylbenzene	mg/kg	.025	0.0307	123.	68-135	WG513621	

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Quality Assurance Report  
Level II

L493780

December 17, 2010

Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
1,2-Dibromo-3-Chloropropane	mg/kg	.025	0.0277	111.	61-134	WG513621
1,2-Dibromoethane	mg/kg	.025	0.0273	109.	76-127	WG513621
1,2-Dichlorobenzene	mg/kg	.025	0.0258	103.	77-123	WG513621
1,2-Dichloroethane	mg/kg	.025	0.0263	105.	58-141	WG513621
1,2-Dichloropropane	mg/kg	.025	0.0226	90.2	71-128	WG513621
1,3,5-Trimethylbenzene	mg/kg	.025	0.0301	121.	71-133	WG513621
1,3-Dichlorobenzene	mg/kg	.025	0.0285	114.	71-132	WG513621
1,3-Dichloropropane	mg/kg	.025	0.0256	103.	76-120	WG513621
1,4-Dichlorobenzene	mg/kg	.025	0.0250	100.	72-123	WG513621
2,2-Dichloropropane	mg/kg	.025	0.0273	109.	50-147	WG513621
2-Butanone (MEK)	mg/kg	.125	0.123	98.6	51-131	WG513621
2-Chloroethyl vinyl ether	mg/kg	.125	0.136	109.	0-188	WG513621
2-Chlorotoluene	mg/kg	.025	0.0279	112.	73-128	WG513621
2-Hexanone	mg/kg	.125	0.136	109.	62-145	WG513621
4-Chlorotoluene	mg/kg	.025	0.0290	116.	72-129	WG513621
4-Methyl-2-pentanone (MIBK)	mg/kg	.125	0.140	112.	61-143	WG513621
Acetone	mg/kg	.125	0.143	115.	44-140	WG513621
Acrylonitrile	mg/kg	.125	0.126	101.	55-143	WG513621
Benzene	mg/kg	.025	0.0214	85.8	65-128	WG513621
Bromobenzene	mg/kg	.025	0.0271	108.	75-123	WG513621
Bromodichloromethane	mg/kg	.025	0.0264	106.	66-126	WG513621
Bromoform	mg/kg	.025	0.0303	121.	64-139	WG513621
Bromomethane	mg/kg	.025	0.0231	92.5	41-175	WG513621
Carbon tetrachloride	mg/kg	.025	0.0261	105.	60-140	WG513621
Chlorobenzene	mg/kg	.025	0.0267	107.	75-125	WG513621
Chlorodibromomethane	mg/kg	.025	0.0292	117.	72-137	WG513621
Chloroethane	mg/kg	.025	0.0270	108.	44-159	WG513621
Chloroform	mg/kg	.025	0.0234	93.6	63-123	WG513621
Chloromethane	mg/kg	.025	0.0168	67.1	42-149	WG513621
cis-1,2-Dichloroethene	mg/kg	.025	0.0233	93.1	71-129	WG513621
cis-1,3-Dichloropropene	mg/kg	.025	0.0260	104.	73-132	WG513621
Di-isopropyl ether	mg/kg	.025	0.0260	104.	59-143	WG513621
Dibromomethane	mg/kg	.025	0.0247	99.0	70-130	WG513621
Dichlorodifluoromethane	mg/kg	.025	0.0163	65.4	26-186	WG513621
Ethyl ether	mg/kg	.025	0.0303	121.	56-147	WG513621
Ethylbenzene	mg/kg	.025	0.0278	111.	74-128	WG513621
Hexachloro-1,3-butadiene	mg/kg	.025	0.0286	114.	65-137	WG513621
Isopropylbenzene	mg/kg	.025	0.0293	117.	73-130	WG513621
Methyl tert-butyl ether	mg/kg	.025	0.0283	113.	44-148	WG513621
Methylene Chloride	mg/kg	.025	0.0216	86.5	57-129	WG513621
n-Butylbenzene	mg/kg	.025	0.0262	105.	60-145	WG513621
n-Propylbenzene	mg/kg	.025	0.0271	108.	71-132	WG513621
Naphthalene	mg/kg	.025	0.0284	114.	61-142	WG513621
p-Isopropyltoluene	mg/kg	.025	0.0286	114.	67-138	WG513621
sec-Butylbenzene	mg/kg	.025	0.0293	117.	71-134	WG513621
Styrene	mg/kg	.025	0.0257	103.	76-133	WG513621
tert-Butylbenzene	mg/kg	.025	0.0304	122.	72-132	WG513621
Tetrachloroethene	mg/kg	.025	0.0267	107.	65-135	WG513621
Tetrahydrofuran	mg/kg	.025	0.0236	94.2	44-144	WG513621
Toluene	mg/kg	.025	0.0229	91.5	70-120	WG513621
trans-1,2-Dichloroethene	mg/kg	.025	0.0230	92.2	61-133	WG513621
trans-1,3-Dichloropropene	mg/kg	.025	0.0265	106.	70-135	WG513621
Trichloroethene	mg/kg	.025	0.0246	98.5	71-126	WG513621
Trichlorofluoromethane	mg/kg	.025	0.0253	101.	52-147	WG513621
Vinyl chloride	mg/kg	.025	0.0203	81.1	50-151	WG513621
Xylenes, Total	mg/kg	.075	0.0862	115.	74-127	WG513621
4-Bromofluorobenzene				116.4	59-140	WG513621
Dibromofluoromethane				97.32	63-139	WG513621
Toluene-d8				99.45	84-116	WG513621

\* Performance of this Analyte is outside of established criteria.

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Est. 1970

December 17, 2010

Analyte	Units	Laboratory Known Val	Control Val	Sample Result	% Rec	Limit	Batch
a,a,a-Trifluorotoluene					104.3	80-118	
Dichlorofluoromethane	mg/kg	.025		0.0281	112.	70-130	WG513688
4-Bromofluorobenzene					113.9	59-140	WG513688
Dibromofluoromethane					97.04	63-139	WG513688
Toluene-d8					101.6	84-116	WG513688
a,a,a-Trifluorotoluene					107.5	80-118	WG513688
Total Solids	%	50		50.1	100.	85-115	WG513536
TPH (GC/FID) High Fraction	mg/kg	40		37.6	94.0	70-120	WG513289
Triacontane					83.81	50-150	WG513289

Analyte	Laboratory Control Sample Duplicate							
	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Gasoline (C6-C10)	mg/kg	0.430	0.447	86.0	80-120	3.86	20	WG513553
a,a,a-Trifluorotoluene(PID)				107.8	80-120			WG513553
1,1,1,2-Tetrachloroethane	mg/kg	0.0263	0.0281	105.	73-134	6.63	20	WG513621
1,1,1-Trichloroethane	mg/kg	0.0257	0.0257	103.	62-135	0	20	WG513621
1,1,2,2-Tetrachloroethane	mg/kg	0.0238	0.0253	95.0	74-129	6.35	20	WG513621
1,1,2-Trichloroethane	mg/kg	0.0248	0.0258	99.0	77-124	3.68	20	WG513621
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	0.0289	0.0285	116.	49-155	1.33	20	WG513621
1,1-Dichloroethane	mg/kg	0.0220	0.0229	88.0	61-134	4.10	20	WG513621
1,1-Dichloroethene	mg/kg	0.0282	0.0286	113.	53-136	1.65	20	WG513621
1,1-Dichloropropene	mg/kg	0.0238	0.0246	95.0	63-132	3.10	20	WG513621
1,2,3-Trichlorobenzene	mg/kg	0.0295	0.0306	118.	62-146	3.59	20	WG513621
1,2,3-Trichloropropane	mg/kg	0.0291	0.0311	116.	70-133	6.63	20	WG513621
1,2,3-Trimethylbenzene	mg/kg	0.0258	0.0259	103.	73-126	0.520	20	WG513621
1,2,4-Trichlorobenzene	mg/kg	0.0305	0.0309	122.	61-148	1.29	20	WG513621
1,2,4-Trimethylbenzene	mg/kg	0.0290	0.0307	116.	68-135	5.43	20	WG513621
1,2-Dibromo-3-Chloropropane	mg/kg	0.0281	0.0277	112.	61-134	1.56	21	WG513621
1,2-Dibromoethane	mg/kg	0.0265	0.0273	106.	76-127	2.97	20	WG513621
1,2-Dichlorobenzene	mg/kg	0.0264	0.0258	105.	77-123	2.35	20	WG513621
1,2-Dichloroethane	mg/kg	0.0258	0.0263	103.	58-141	1.85	20	WG513621
1,2-Dichloropropane	mg/kg	0.0222	0.0226	89.0	71-128	1.78	20	WG513621
1,3,5-Trimethylbenzene	mg/kg	0.0283	0.0301	113.	71-133	6.48	20	WG513621
1,3-Dichlorobenzene	mg/kg	0.0265	0.0285	106.	71-132	7.03	20	WG513621
1,3-Dichloropropene	mg/kg	0.0243	0.0256	97.0	76-120	5.38	20	WG513621
1,4-Dichlorobenzene	mg/kg	0.0248	0.0250	99.0	72-123	0.720	20	WG513621
2,2-Dichloropropane	mg/kg	0.0272	0.0273	109.	50-147	0.330	20	WG513621
2-Butanone (MEK)	mg/kg	0.122	0.123	97.0	51-131	1.19	25	WG513621
2-Chloroethyl vinyl ether	mg/kg	0.102	0.136	81.0	0-188	29.1	39	WG513621
2-Chlorotoluene	mg/kg	0.0267	0.0279	107.	73-128	4.53	20	WG513621
2-Hexanone	mg/kg	0.130	0.136	104.	62-145	4.83	23	WG513621
4-Chlorotoluene	mg/kg	0.0275	0.0290	110.	72-129	5.32	20	WG513621
4-Methyl-2-pentanone (MIBK)	mg/kg	0.141	0.140	113.	61-143	0.790	23	WG513621
Acetone	mg/kg	0.139	0.143	112.	44-140	2.64	25	WG513621
Acrylonitrile	mg/kg	0.118	0.126	94.0	55-143	6.22	20	WG513621
Benzene	mg/kg	0.0210	0.0214	84.0	65-128	2.08	20	WG513621
Bromobenzene	mg/kg	0.0251	0.0271	100.	75-123	7.63	20	WG513621
Bromodichloromethane	mg/kg	0.0260	0.0264	104.	66-126	1.67	20	WG513621
Bromoform	mg/kg	0.0279	0.0303	112.	64-139	8.17	20	WG513621
Bromomethane	mg/kg	0.0226	0.0231	90.0	41-175	2.19	20	WG513621
Carbon tetrachloride	mg/kg	0.0252	0.0261	101.	60-140	3.52	20	WG513621
Chlorobenzene	mg/kg	0.0254	0.0267	102.	75-125	4.89	20	WG513621

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Tax I.D. 62-0814289

Est. 1970

Quality Assurance Report  
Level II

December 17, 2010

L493780

Analyte	Units	Laboratory		%Rec	Limit	RPD	Limit	Batch
		Result	Control Ref					
Chlorodibromomethane	mg/kg	0.0274	0.0292	110.	72-137	6.38	20	WG513621
Chloroethane	mg/kg	0.0269	0.0270	107.	44-159	0.590	20	WG513621
Chloroform	mg/kg	0.0235	0.0234	94.0	63-123	0.510	20	WG513621
Chloromethane	mg/kg	0.0161	0.0168	64.0	42-149	4.31	20	WG513621
cis-1,2-Dichloroethene	mg/kg	0.0232	0.0233	93.0	71-129	0.390	20	WG513621
cis-1,3-Dichloropropene	mg/kg	0.0258	0.0260	103.	73-132	0.830	20	WG513621
Di-isopropyl ether	mg/kg	0.0261	0.0260	104.	59-143	0.440	20	WG513621
Dibromomethane	mg/kg	0.0238	0.0247	95.0	70-130	3.84	20	WG513621
Dichlorodifluoromethane	mg/kg	0.0150	0.0163	60.0	26-186	8.27	22	WG513621
Ethyl ether	mg/kg	0.0297	0.0303	119.	56-147	2.00	20	WG513621
Ethylbenzene	mg/kg	0.0269	0.0278	108.	74-128	3.45	20	WG513621
Hexachloro-1,3-butadiene	mg/kg	0.0280	0.0286	112.	65-137	2.00	20	WG513621
Isopropylbenzene	mg/kg	0.0278	0.0293	111.	73-130	5.19	20	WG513621
Methyl tert-butyl ether	mg/kg	0.0269	0.0283	108.	44-148	5.13	20	WG513621
Methylene Chloride	mg/kg	0.0201	0.0216	80.0	57-129	7.09	20	WG513621
n-Butylbenzene	mg/kg	0.0266	0.0262	106.	60-145	1.63	20	WG513621
n-Propylbenzene	mg/kg	0.0256	0.0271	102.	71-132	5.64	20	WG513621
Naphthalene	mg/kg	0.0280	0.0284	112.	61-142	1.44	20	WG513621
p-Isopropyltoluene	mg/kg	0.0267	0.0286	107.	67-138	6.81	20	WG513621
sec-Butylbenzene	mg/kg	0.0272	0.0293	109.	71-134	7.59	20	WG513621
Styrene	mg/kg	0.0249	0.0257	100.	76-133	3.07	20	WG513621
tert-Butylbenzene	mg/kg	0.0288	0.0304	115.	72-132	5.52	20	WG513621
Tetrachloroethene	mg/kg	0.0265	0.0267	106.	65-135	0.860	20	WG513621
Tetrahydrofuran	mg/kg	0.0230	0.0236	92.0	44-144	2.25	25	WG513621
Toluene	mg/kg	0.0227	0.0229	91.0	70-120	0.630	20	WG513621
trans-1,2-Dichloroethene	mg/kg	0.0225	0.0230	90.0	61-133	2.40	20	WG513621
trans-1,3-Dichloropropene	mg/kg	0.0254	0.0265	101.	70-135	4.35	20	WG513621
Trichloroethene	mg/kg	0.0238	0.0246	95.0	71-126	3.51	20	WG513621
Trichlorofluoromethane	mg/kg	0.0241	0.0253	96.0	52-147	4.84	20	WG513621
Vinyl chloride	mg/kg	0.0200	0.0203	80.0	50-151	1.31	20	WG513621
Xylenes, Total	mg/kg	0.0819	0.0862	109.	74-127	5.03	20	WG513621
4-Bromofluorobenzene				108.1	59-140			WG513621
Dibromofluoromethane				96.11	63-139			WG513621
Toluene-d8				99.88	84-116			WG513621
a,a,a-Trifluorotoluene				104.5	80-118			WG513621
Dichlorofluoromethane	mg/kg	0.0281	0.0281	112.	70-130	0.0700	25	WG513688
4-Bromofluorobenzene				108.1	59-140			WG513688
Dibromofluoromethane				98.57	63-139			WG513688
Toluene-d8				100.6	84-116			WG513688
a,a,a-Trifluorotoluene				105.9	80-118			WG513688
TPH (GC/FID) High Fraction	mg/kg	40.1	37.6	100.	70-120	6.42	20	WG513289
Triacontane				83.17	50-150			WG513289

Analyte	Units	Matrix Spike						Batch
		MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	
Gasoline (C6-C10)	mg/kg	21.8	0	.5	89.0	80-120	L493780-01	WG513553
a,a,a-Trifluorotoluene(PID)					106.4	80-120		WG513553
1,1,1,2-Tetrachloroethane	mg/kg	1.42	0	.025	116.	29-145	L493780-01	WG513621
1,1,1-Trichloroethane	mg/kg	1.31	0	.025	107.	23-147	L493780-01	WG513621
1,1,2,2-Tetrachloroethane	mg/kg	1.21	0	.025	99.0	18-150	L493780-01	WG513621
1,1,2-Trichloroethane	mg/kg	1.26	0	.025	102.	35-140	L493780-01	WG513621
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	1.31	0	.025	107.	10-145	L493780-01	WG513621

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Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
1,1-Dichloroethane	mg/kg	1.11	0	.025	90.4	24-148	L493780-01	WG513621
1,1-Dichloroethene	mg/kg	1.39	0	.025	113.	10-149	L493780-01	WG513621
1,1-Dichloropropene	mg/kg	1.34	0	.025	109.	10-141	L493780-01	WG513621
1,2,3-Trichlorobenzene	mg/kg	1.47	0	.025	120.	10-129	L493780-01	WG513621
1,2,3-Trichloropropane	mg/kg	1.40	0	.025	114.	30-148	L493780-01	WG513621
1,2,3-Trimethylbenzene	mg/kg	1.41	0	.025	115.	10-137	L493780-01	WG513621
1,2,4-Trichlorobenzene	mg/kg	1.50	0	.025	122.*	10-119	L493780-01	WG513621
1,2,4-Trimethylbenzene	mg/kg	1.64	0	.025	134.	10-145	L493780-01	WG513621
1,2-Dibromo-3-Chloropropane	mg/kg	1.26	0	.025	102.	19-145	L493780-01	WG513621
1,2-Dibromoethane	mg/kg	1.30	0	.025	106.	24-145	L493780-01	WG513621
1,2-Dichlorobenzene	mg/kg	1.34	0	.025	109.	12-130	L493780-01	WG513621
1,2-Dichloroethane	mg/kg	1.30	0	.025	106.	21-155	L493780-01	WG513621
1,2-Dichloropropane	mg/kg	1.14	0	.025	93.4	28-144	L493780-01	WG513621
1,3,5-Trimethylbenzene	mg/kg	1.57	0	.025	128.	10-135	L493780-01	WG513621
1,3-Dichlorobenzene	mg/kg	1.43	0	.025	116.	10-129	L493780-01	WG513621
1,3-Dichloropropane	mg/kg	1.21	0	.025	98.6	31-137	L493780-01	WG513621
1,4-Dichlorobenzene	mg/kg	1.24	0	.025	101.	10-121	L493780-01	WG513621
2,2-Dichloropropane	mg/kg	1.26	0	.025	103.	18-144	L493780-01	WG513621
2-Butanone (MEK)	mg/kg	5.78	0	.125	94.4	21-143	L493780-01	WG513621
2-Chloroethyl vinyl ether	mg/kg	7.20	0	.125	117.	0-176	L493780-01	WG513621
2-Chlorotoluene	mg/kg	1.47	0	.025	120.	10-132	L493780-01	WG513621
2-Hexanone	mg/kg	5.92	0	.125	96.7	22-151	L493780-01	WG513621
4-Chlorotoluene	mg/kg	1.48	0	.025	121.	10-129	L493780-01	WG513621
4-Methyl-2-pentanone (MIBK)	mg/kg	6.29	0	.125	103.	31-151	L493780-01	WG513621
Acetone	mg/kg	6.54	0.920	.125	91.8	13-158	L493780-01	WG513621
Acrylonitrile	mg/kg	5.54	0	.125	90.5	20-154	L493780-01	WG513621
Benzene	mg/kg	1.11	0	.025	90.2	16-143	L493780-01	WG513621
Bromobenzene	mg/kg	1.32	0	.025	108.	14-135	L493780-01	WG513621
Bromodichloromethane	mg/kg	1.34	0	.025	110.	27-139	L493780-01	WG513621
Bromoform	mg/kg	1.36	0	.025	111.	21-144	L493780-01	WG513621
Bromomethane	mg/kg	1.10	0	.025	89.8	0-180	L493780-01	WG513621
Carbon tetrachloride	mg/kg	1.34	0	.025	110.	12-149	L493780-01	WG513621
Chlorobenzene	mg/kg	1.36	0	.025	111.	17-134	L493780-01	WG513621
Chlorodibromomethane	mg/kg	1.38	0	.025	113.	28-147	L493780-01	WG513621
Chloroethane	mg/kg	0.775	0	.025	63.3	0-172	L493780-01	WG513621
Chloroform	mg/kg	1.16	0	.025	94.4	28-138	L493780-01	WG513621
Chloromethane	mg/kg	0.816	0	.025	66.6	10-158	L493780-01	WG513621
cis-1,2-Dichloroethene	mg/kg	1.11	0	.025	90.5	21-147	L493780-01	WG513621
cis-1,3-Dichloropropene	mg/kg	1.31	0	.025	107.	17-145	L493780-01	WG513621
Di-isopropyl ether	mg/kg	1.25	0	.025	102.	31-153	L493780-01	WG513621
Dibromomethane	mg/kg	1.19	0	.025	97.2	24-147	L493780-01	WG513621
Dichlorodifluoromethane	mg/kg	0.850	0	.025	69.4	0-192	L493780-01	WG513621
Ethyl ether	mg/kg	1.33	0	.025	108.	25-156	L493780-01	WG513621
Ethylbenzene	mg/kg	1.47	0	.025	120.	12-137	L493780-01	WG513621
Hexachloro-1,3-butadiene	mg/kg	1.66	0	.025	135.*	10-123	L493780-01	WG513621
Isopropylbenzene	mg/kg	1.45	0	.025	119.	14-134	L493780-01	WG513621
Methyl tert-butyl ether	mg/kg	1.24	0	.025	101.	21-157	L493780-01	WG513621
Methylene Chloride	mg/kg	1.07	0	.025	87.3	12-149	L493780-01	WG513621
n-Butylbenzene	mg/kg	1.49	0	.025	122.	10-130	L493780-01	WG513621
n-Propylbenzene	mg/kg	1.42	0	.025	116.	10-130	L493780-01	WG513621
Naphthalene	mg/kg	1.36	0	.025	111.	0-146	L493780-01	WG513621
p-Isopropyltoluene	mg/kg	1.52	0	.025	124.	10-131	L493780-01	WG513621
sec-Butylbenzene	mg/kg	1.59	0	.025	130.	10-134	L493780-01	WG513621
Styrene	mg/kg	1.60	0	.025	131.	10-140	L493780-01	WG513621
tert-Butylbenzene	mg/kg	1.65	0	.025	135.	11-137	L493780-01	WG513621
Tetrachloroethene	mg/kg	1.44	0	.025	117.	10-131	L493780-01	WG513621
Tetrahydrofuran	mg/kg	1.13	0	.025	92.6	20-153	L493780-01	WG513621
Toluene	mg/kg	1.17	0	.025	95.6	12-136	L493780-01	WG513621
trans-1,2-Dichloroethene	mg/kg	1.17	0	.025	95.5	10-143	L493780-01	WG513621

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Analyte	Units	Matrix Spike				% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV					
trans-1,3-Dichloropropene	mg/kg	1.25	0	.025	102.	16-147	L493780-01	WG513621	
Trichloroethene	mg/kg	1.30	0	.025	106.	10-155	L493780-01	WG513621	
Trichlorofluoromethane	mg/kg	0.869	0	.025	70.9	10-154	L493780-01	WG513621	
Vinyl chloride	mg/kg	1.28	0	.025	105.	10-159	L493780-01	WG513621	
Xylenes, Total	mg/kg	4.44	0	.075	121.	10-138	L493780-01	WG513621	
4-Bromofluorobenzene					110.7	59-140		WG513621	
Dibromofluoromethane					98.52	63-139		WG513621	
Toluene-d8					99.42	84-116		WG513621	
a,a,a-Trifluorotoluene					104.4	80-118		WG513621	
Dichlorofluoromethane	mg/kg	0	0	.025	0*	70-130	L494047-03	WG513688	
4-Bromofluorobenzene					112.1	59-140		WG513688	
Dibromofluoromethane					102.8	63-139		WG513688	
Toluene-d8					101.1	84-116		WG513688	
a,a,a-Trifluorotoluene					106.4	80-118		WG513688	

Analyte	Units	Matrix Spike Duplicate				Limit	RPD	Limit Ref Samp	Batch
		MSD	Ref	%Rec					
Gasoline (C6-C10)	mg/kg	21.7	21.8	88.6	80-120	0.390	20	L493780-01	WG513553
a,a,a-Trifluorotoluene(PID)				106.2	80-120				WG513553
1,1,1,2-Tetrachloroethane	mg/kg	1.42	1.42	116.	29-145	0.350	31	L493780-01	WG513621
1,1,1-Trichloroethane	mg/kg	1.33	1.31	109.	23-147	1.94	32	L493780-01	WG513621
1,1,2,2-Tetrachloroethane	mg/kg	1.24	1.21	102.	18-150	2.56	33	L493780-01	WG513621
1,1,2-Trichloroethane	mg/kg	1.27	1.26	103.	35-140	0.930	29	L493780-01	WG513621
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	1.29	1.31	105.	10-145	1.80	35	L493780-01	WG513621
1,1-Dichloroethane	mg/kg	1.11	1.11	91.0	24-148	0.680	31	L493780-01	WG513621
1,1-Dichloroethene	mg/kg	1.36	1.39	111.	10-149	2.26	34	L493780-01	WG513621
1,1-Dichloropropene	mg/kg	1.31	1.34	107.	10-141	2.07	34	L493780-01	WG513621
1,2,3-Trichlorobenzene	mg/kg	1.51	1.47	123.	10-129	2.95	43	L493780-01	WG513621
1,2,3-Trichloropropane	mg/kg	1.46	1.40	119.	30-148	4.12	32	L493780-01	WG513621
1,2,3-Trimethylbenzene	mg/kg	1.40	1.41	114.	10-137	0.600	36	L493780-01	WG513621
1,2,4-Trichlorobenzene	mg/kg	1.51	1.50	123.*	10-119	0.870	44	L493780-01	WG513621
1,2,4-Trimethylbenzene	mg/kg	1.69	1.64	138.	10-145	2.76	41	L493780-01	WG513621
1,2-Dibromo-3-Chloropropane	mg/kg	1.27	1.26	103.	19-145	0.670	35	L493780-01	WG513621
1,2-Dibromoethane	mg/kg	1.32	1.30	108.	24-145	1.51	31	L493780-01	WG513621
1,2-Dichlorobenzene	mg/kg	1.35	1.34	110.	12-130	0.880	35	L493780-01	WG513621
1,2-Dichloroethane	mg/kg	1.28	1.30	104.	21-155	1.26	29	L493780-01	WG513621
1,2-Dichloropropane	mg/kg	1.12	1.14	91.7	28-144	1.81	30	L493780-01	WG513621
1,3,5-Trimethylbenzene	mg/kg	1.61	1.57	132.	10-135	2.48	39	L493780-01	WG513621
1,3-Dichlorobenzene	mg/kg	1.46	1.43	119.	10-129	1.86	38	L493780-01	WG513621
1,3-Dichloropropane	mg/kg	1.19	1.21	97.5	31-137	1.11	29	L493780-01	WG513621
1,4-Dichlorobenzene	mg/kg	1.25	1.24	102.	10-121	0.670	36	L493780-01	WG513621
2,2-Dichloropropane	mg/kg	1.33	1.26	109.	18-144	5.43	32	L493780-01	WG513621
2-Butanone (MEK)	mg/kg	6.01	5.78	98.2	21-143	3.92	37	L493780-01	WG513621
2-Chloroethyl vinyl ether	mg/kg	7.07	7.20	115.	0-176	1.82	50	L493780-01	WG513621
2-Chlorotoluene	mg/kg	1.48	1.47	121.	10-132	1.23	37	L493780-01	WG513621
2-Hexanone	mg/kg	6.17	5.92	101.	22-151	4.05	38	L493780-01	WG513621
4-Chlorotoluene	mg/kg	1.52	1.48	124.	10-129	2.51	38	L493780-01	WG513621
4-Methyl-2-pentanone (MIBK)	mg/kg	6.57	6.29	107.	31-151	4.28	36	L493780-01	WG513621
Acetone	mg/kg	6.71	6.54	94.6	13-158	2.59	34	L493780-01	WG513621
Acrylonitrile	mg/kg	5.65	5.54	92.3	20-154	1.91	35	L493780-01	WG513621
Benzene	mg/kg	1.08	1.11	88.4	16-143	2.08	31	L493780-01	WG513621
Bromobenzene	mg/kg	1.32	1.32	108.	14-135	0.170	39	L493780-01	WG513621
Bromodichloromethane	mg/kg	1.36	1.34	111.	27-139	0.970	30	L493780-01	WG513621
Bromoform	mg/kg	1.36	1.36	111.	21-144	0.140	34	L493780-01	WG513621

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Est. 1970

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Bromomethane	mg/kg	1.14	1.10	92.7	0-180	3.16	41	L493780-01		WG513621
Carbon tetrachloride	mg/kg	1.34	1.34	110.	12-149	0.0500	34	L493780-01		WG513621
Chlorobenzene	mg/kg	1.38	1.36	113.	17-134	1.60	34	L493780-01		WG513621
Chlorodibromomethane	mg/kg	1.41	1.38	115.	28-147	2.42	32	L493780-01		WG513621
Chloroethane	mg/kg	0.810	0.775	66.2	0-172	4.42	38	L493780-01		WG513621
Chloroform	mg/kg	1.13	1.16	92.2	28-138	2.36	30	L493780-01		WG513621
Chloromethane	mg/kg	0.843	0.816	68.8	10-158	3.19	35	L493780-01		WG513621
cis-1,2-Dichloroethene	mg/kg	1.11	1.11	91.0	21-147	0.470	31	L493780-01		WG513621
cis-1,3-Dichloropropene	mg/kg	1.37	1.31	112.	17-145	4.41	32	L493780-01		WG513621
Di-isopropyl ether	mg/kg	1.28	1.25	104.	31-153	1.98	29	L493780-01		WG513621
Dibromomethane	mg/kg	1.17	1.19	95.5	24-147	1.76	30	L493780-01		WG513621
Dichlorodifluoromethane	mg/kg	0.839	0.850	68.5	0-192	1.27	38	L493780-01		WG513621
Ethyl ether	mg/kg	1.39	1.33	113.	25-156	4.41	31	L493780-01		WG513621
Ethylbenzene	mg/kg	1.48	1.47	121.	12-137	0.870	36	L493780-01		WG513621
Hexachloro-1,3-butadiene	mg/kg	1.62	1.66	132.*	10-123	2.32	50	L493780-01		WG513621
Isopropylbenzene	mg/kg	1.46	1.45	119.	14-134	0.510	37	L493780-01		WG513621
Methyl tert-butyl ether	mg/kg	1.25	1.24	102.	21-157	1.26	31	L493780-01		WG513621
Methylene Chloride	mg/kg	1.06	1.07	86.9	12-149	0.440	31	L493780-01		WG513621
n-Butylbenzene	mg/kg	1.47	1.49	120.	10-130	1.30	48	L493780-01		WG513621
n-Propylbenzene	mg/kg	1.44	1.42	117.	10-130	0.990	40	L493780-01		WG513621
Naphthalene	mg/kg	1.39	1.36	114.	0-146	2.44	43	L493780-01		WG513621
p-Isopropyltoluene	mg/kg	1.55	1.52	126.	10-131	1.77	43	L493780-01		WG513621
sec-Butylbenzene	mg/kg	1.63	1.59	133.	10-134	2.66	43	L493780-01		WG513621
Styrene	mg/kg	1.64	1.60	134.	10-140	2.33	35	L493780-01		WG513621
tert-Butylbenzene	mg/kg	1.68	1.65	137.	11-137	1.76	39	L493780-01		WG513621
Tetrachloroethene	mg/kg	1.46	1.44	119.	10-131	1.46	35	L493780-01		WG513621
Tetrahydrofuran	mg/kg	1.15	1.13	93.5	20-153	1.06	37	L493780-01		WG513621
Toluene	mg/kg	1.17	1.17	95.2	12-136	0.370	32	L493780-01		WG513621
trans-1,2-Dichloroethene	mg/kg	1.14	1.17	92.8	10-143	2.86	33	L493780-01		WG513621
trans-1,3-Dichloropropene	mg/kg	1.31	1.25	107.	16-147	4.20	32	L493780-01		WG513621
Trichloroethene	mg/kg	1.30	1.30	106.	10-155	0.0900	33	L493780-01		WG513621
Trichlorofluoromethane	mg/kg	0.978	0.869	79.8	10-154	11.8	32	L493780-01		WG513621
Vinyl chloride	mg/kg	1.31	1.28	107.	10-159	1.76	36	L493780-01		WG513621
Xylenes, Total	mg/kg	4.54	4.44	124.	10-138	2.44	36	L493780-01		WG513621
4-Bromofluorobenzene				113.7	59-140					WG513621
Dibromofluoromethane				99.10	63-139					WG513621
Toluene-d8				101.4	84-116					WG513621
a,a,a-Trifluorotoluene				105.7	80-118					WG513621
Dichlorofluoromethane	mg/kg	0	0	0*	70-130	0	25	L494047-03		WG513688
4-Bromofluorobenzene				113.7	59-140					WG513688
Dibromofluoromethane				99.89	63-139					WG513688
Toluene-d8				102.1	84-116					WG513688
a,a,a-Trifluorotoluene				108.4	80-118					WG513688

Batch number /Run number / Sample number cross reference

WG513553: R1506889: L493780-01 02  
WG513621: R1507109: L493780-01 02  
WG513688: R1507369: L493780-01 02  
WG513536: R1507904: L493780-01 02  
WG513289: R1508250: L493780-01 02

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Est. 1970

December 17, 2010

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.