

4 June 2015

Mr. Bob Williams  
Oregon Department of Environmental Quality  
Northwest Region Portland Office  
2010 SE 4<sup>th</sup> Ave., Suite 400  
Portland, OR 97201

Subject: TGA Well Decommissioning – No-Longer Contains Determination Request  
Cascade Troutdale Gravel Aquifer Remedy (ECSI No. 635)  
Fairview, Oregon

Dear Bob:

Geosyntec Consultants (Geosyntec) has prepared this letter on behalf of Cascade Corporation (Cascade) to request a “No-Longer Contains Determination” for investigation derived waste (IDW) generated at the Cascade manufacturing facility located at 2201 NE 201<sup>st</sup> Ave in Fairview, Oregon. The IDW was generated as part of monitoring well decommissioning activities for the Cascade Troutdale Gravel Aquifer (TGA) remedy site, located at 2201 and 2525 NE 201<sup>st</sup> Ave, Fairview, Oregon (referred to as the Site collectively, or the “off-site” TGA area).

## **SITE HISTORY AND BACKGROUND**

Following remedial investigations conducted from 1988 to 1994, contaminants of concern (COCs) identified at the Site included volatile organic compounds (VOCs) in soil and groundwater, total petroleum hydrocarbons (TPH) in soil, chromium in soil and groundwater, and manganese in groundwater. Active and passive soil and groundwater remediation began in 1989 and was successful in treating the onsite and offsite areas of contamination.

The 2013 TGA Annual Report (Geosyntec, 2013) presented the most recent groundwater monitoring data, which showed VOC concentrations in off-site groundwater in most monitoring wells at concentrations below cleanup goals, and no detections of VOCs in on-site groundwater monitoring wells. The Oregon Department of Environmental Quality (DEQ) approved closure of the TGA remedy in their Project Closure Memorandum dated 26 November 2014 (DEQ 2014) and issued a Certificate of Completion on 21 January 2015 (DEQ 2015a). DEQ requested that the passive remediation systems (i.e. biomulch wall and poplar trees) remain on the site for a minimum of two years to facilitate ongoing natural attenuation of residual, low levels of VOCs.

## **INVESTIGATION DERIVED WASTE**

Following DEQ's approval of the TGA Well Decommissioning Work Plan (Geosyntec 2015; DEQ 2015b), 13 TGA wells (MW-31s, MW-32s, MW-33s, MW-35s, MW-42, MW-43, MW-47a, MW-47b, MW-48a, MW-48b, MW-49, EX-1, and B-5) were decommissioned in March 2015. Twelve of the thirteen monitoring wells were located on or next to the TGA Off-site remediation property at the address of 2525 NE 201<sup>st</sup>, and one monitoring well, EX-1, was located on the Cascade Corporation facility property at 2201 NE 201<sup>st</sup> Avenue. The Site and locations of the 13 monitoring wells are shown on Figure 1. A report documenting the decommissioning is pending.

IDW generated during the decommissioning consisted of soil, filter pack sand, and bentonite well materials. The IDW was placed into a lined and covered 10 cubic yard soil bin. Two multi-part composite samples were obtained from the soil bin on 2 April 2015 and analyzed for VOCs by U.S. Environmental Protection Agency (EPA) Method 8260. IDW water (i.e. groundwater and decontamination water) was routed through the existing water treatment system related to the Cascade Troutdale Sandstone Aquifer (TSA), also located at the 2525 NE 201<sup>st</sup> Ave property.

## **IDW TESTING RESULTS**

VOCs were not detected in the two soil/solid samples collected, with one exception. 4-Methyl-2-pentanone (MIBK) was detected at a concentration of 0.013 milligrams per kilogram (mg/kg), just over the detection limit of 0.012 mg/kg in one sample. MIBK was not detected in the second sample obtained from the soil bin. MIBK is not associated with site-related VOCs, and the detection is within the statistical error margin of the analytical method (+/-28 %). A copy of the analytical report is provided in Attachment A.

## **DISCUSSION**

Potentially applicable waste codes that could apply to this waste would be F001 or F002, for waste related to historical parts degreasing using trichloroethene (TCE) at the Cascade facility.

Based on the analytical results, VOCs including TCE were not detected in the IDW. This is expected since 12 of the 13 wells decommissioned were located in the off-site portion of the TGA remedy, which was not directly contaminated by VOCs historically. Rather groundwater contaminated with VOCs migrated to the off-site portion of the Site. Most recent groundwater sampling results indicated very low residual concentrations of VOCs were present in some areas of the off-site TGA Site.

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Based on the analytical results for the soil/solids IDW samples, we request that DEQ make a “No-longer Contains Determination” for the soil/solid IDW. Following DEQ’s review and approval, the soil bin will be transported to an off-site, permitted facility for disposal of the IDW.

**CLOSURE**

Please contact us at (503) 222-9518 with any questions regarding this No Longer Contains Determination request letter, or if you need additional information to support this request.

Sincerely,

**Geosyntec Consultants, Inc.**



Cindy Bartlett, R.G.  
Geologist/Project Manager



Brent A. Miller, P.E.  
Principal Engineer

**ATTACHEMENTS:**

- |              |                              |
|--------------|------------------------------|
| Figure 1     | TGA Well Locations           |
| Attachment A | Analytical Laboratory Report |

Mr. Bob Williams  
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## REFERENCES

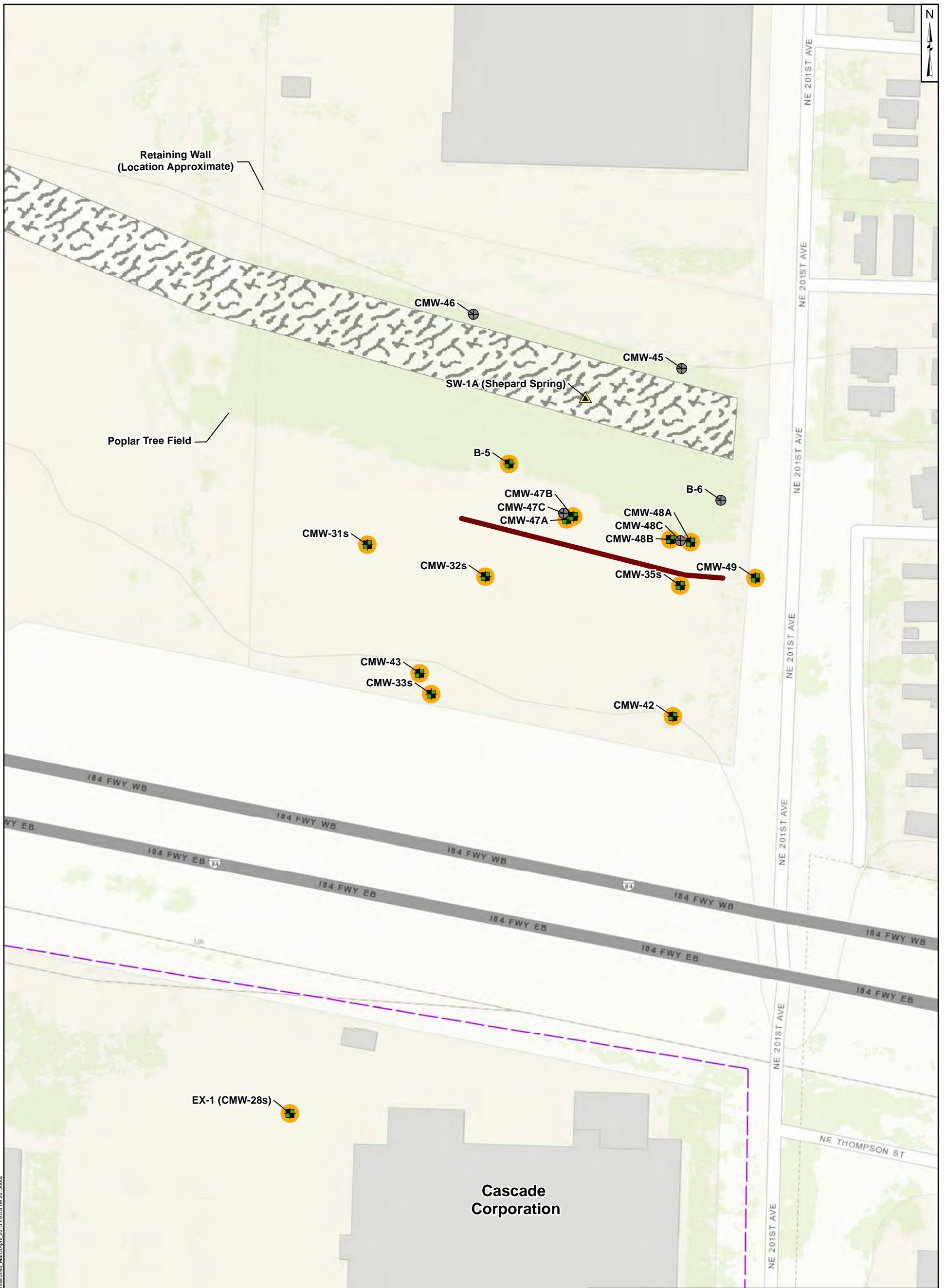
Geosyntec Consultants, 2013. Troutdale Gravel Aquifer, 2013 Annual Performance Report, Cascade Corporation, Fairview, Oregon. 23 December 2013.

Geosyntec Consultants, 2015. TGA Well Decommissioning Work Plan, Cascade Troutdale Gravel Aquifer Remedy, Fairview, Oregon, ECSI No. 635.

Oregon Department of Environmental Quality, 2014. Project Closure Memorandum, Cascade Corporation File, ECSI #635. 26 November 2014.








Oregon Department of Environmental Quality, 2015a. Order on Consent, DEQ No. WMCSR-NWR-96-09, Certification of Completion. 21 January 2015.

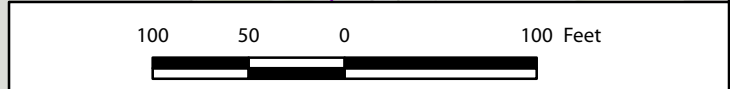
Oregon Department of Environmental Quality, 2015b. DEQ email communication to Geosyntec Consultants approving TGA Well Decommissioning. 16 March and 24 February 2015.



SantaBarbara-01\Data\P\GIS\PNG0564 - Cascade\Projects\015\Fig01 - TGA Wells Decommissioned March/April 2015.mxd STW 20150602

**Legend**

-  CU1 Monitoring Well
-  Shepard Springs Sample
-  TGA Monitoring Well
-  Decommissioned TGA Well
-  CU1 Truncation
-  Bioremediation Treatment Wall
-  Cascade Corporation Property Boundary



**Locations of TGA Wells Decommissioned March/April 2015**  
**East Multnomah County**  
 East Multnomah County



Figure  
**1**

PNG0564G

June 2015

**ATTACHMENT A**  
**Analytical Laboratory Report**



12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
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Tax I.D. 62-0814289

Est. 1970

Cindy Bartlett  
GeoSyntec, Inc. - OR  
621 SW Morrison St., Suite 600  
Portland, OR 97205

## Report Summary

Tuesday April 14, 2015

Report Number: L757522


Samples Received: 04/04/15

Client Project: PNG0564G15

Description: Cascade TSA

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:

  
Jared Willis, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
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REPORT OF ANALYSIS

Cindy Bartlett  
 GeoSyntec, Inc. - OR  
 621 SW Morrison St., Suite 600  
 Portland, OR 97205

April 14, 2015

Date Received : April 04, 2015  
 Description : Cascade  
 Sample ID : ET-040215  
 Collected By : Luke Smith  
 Collection Date : 04/02/15 16:45

ESC Sample # : L757522-01  
 Site ID :  
 Project # : PNG0564G15

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	82.8		%	2540 G-2011	04/08/15	1
<b>Volatile Organics</b>						
Acetone	BDL	0.060	mg/kg	8260B	04/12/15	1
Acrylonitrile	BDL	0.012	mg/kg	8260B	04/12/15	1
Benzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Bromobenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Bromodichloromethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
Bromoform	BDL	0.0012	mg/kg	8260B	04/12/15	1
Bromomethane	BDL	0.0060	mg/kg	8260B	04/12/15	1
n-Butylbenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
sec-Butylbenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
tert-Butylbenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Carbon tetrachloride	BDL	0.0012	mg/kg	8260B	04/12/15	1
Chlorobenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Chlorodibromomethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
Chloroethane	BDL	0.0060	mg/kg	8260B	04/12/15	1
2-Chloroethyl vinyl ether	BDL	0.060	mg/kg	8260B	04/12/15	1
Chloroform	BDL	0.0060	mg/kg	8260B	04/12/15	1
Chloromethane	BDL	0.0030	mg/kg	8260B	04/12/15	1
2-Chlorotoluene	BDL	0.0012	mg/kg	8260B	04/12/15	1
4-Chlorotoluene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,2-Dibromo-3-Chloropropane	BDL	0.0060	mg/kg	8260B	04/12/15	1
1,2-Dibromoethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
Dibromomethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,2-Dichlorobenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,3-Dichlorobenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,4-Dichlorobenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Dichlorodifluoromethane	BDL	0.0060	mg/kg	8260B	04/12/15	1
1,1-Dichloroethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,2-Dichloroethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,1-Dichloroethene	BDL	0.0012	mg/kg	8260B	04/12/15	1
cis-1,2-Dichloroethene	BDL	0.0012	mg/kg	8260B	04/12/15	1
trans-1,2-Dichloroethene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,2-Dichloropropane	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,1-Dichloropropene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,3-Dichloropropane	BDL	0.0012	mg/kg	8260B	04/12/15	1
cis-1,3-Dichloropropene	BDL	0.0012	mg/kg	8260B	04/12/15	1
trans-1,3-Dichloropropene	BDL	0.0012	mg/kg	8260B	04/12/15	1
2,2-Dichloropropane	BDL	0.0012	mg/kg	8260B	04/12/15	1
Di-isopropyl ether	BDL	0.0012	mg/kg	8260B	04/12/15	1
Ethylbenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Hexachloro-1,3-butadiene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Isopropylbenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1

Results listed are dry weight basis.  
 BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
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REPORT OF ANALYSIS

Cindy Bartlett  
 GeoSyntec, Inc. - OR  
 621 SW Morrison St., Suite 600  
 Portland, OR 97205

April 14, 2015

Date Received : April 04, 2015  
 Description : Cascade  
 Sample ID : ET-040215  
 Collected By : Luke Smith  
 Collection Date : 04/02/15 16:45

ESC Sample # : L757522-01  
 Site ID :  
 Project # : PNG0564G15

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
p-Isopropyltoluene	BDL	0.0012	mg/kg	8260B	04/12/15	1
2-Butanone (MEK)	BDL	0.012	mg/kg	8260B	04/12/15	1
Methylene Chloride	BDL	0.0060	mg/kg	8260B	04/12/15	1
4-Methyl-2-pentanone (MIBK)	0.013	0.012	mg/kg	8260B	04/12/15	1
Methyl tert-butyl ether	BDL	0.0012	mg/kg	8260B	04/12/15	1
Naphthalene	BDL	0.0060	mg/kg	8260B	04/12/15	1
n-Propylbenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Styrene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,1,1,2-Tetrachloroethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,1,2,2-Tetrachloroethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,1,2-Trichlorotrifluoroethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
Tetrachloroethene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Toluene	BDL	0.0060	mg/kg	8260B	04/12/15	1
1,2,3-Trichlorobenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,2,4-Trichlorobenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,1,1-Trichloroethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,1,2-Trichloroethane	BDL	0.0012	mg/kg	8260B	04/12/15	1
Trichloroethene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Trichlorofluoromethane	BDL	0.0060	mg/kg	8260B	04/12/15	1
1,2,3-Trichloropropane	BDL	0.0030	mg/kg	8260B	04/12/15	1
1,2,4-Trimethylbenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,2,3-Trimethylbenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
1,3,5-Trimethylbenzene	BDL	0.0012	mg/kg	8260B	04/12/15	1
Vinyl chloride	BDL	0.0012	mg/kg	8260B	04/12/15	1
Xylenes, Total	BDL	0.0036	mg/kg	8260B	04/12/15	1
Surrogate Recovery						
Toluene-d8	109.		% Rec.	8260B	04/12/15	1
Dibromofluoromethane	113.		% Rec.	8260B	04/12/15	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	04/12/15	1
4-Bromofluorobenzene	94.6		% Rec.	8260B	04/12/15	1

Results listed are dry weight basis.

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Det. Limit - Practical Quantitation Limit(PQL)

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 Portland, OR 97205

April 14, 2015

Date Received : April 04, 2015  
 Description : Cascade  
 Sample ID : WT-040215  
 Collected By : Luke Smith  
 Collection Date : 04/02/15 16:55

ESC Sample # : L757522-02

Site ID :

Project # : PNG0564G15

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	64.1		%	2540 G-2011	04/08/15	1
<b>Volatile Organics</b>						
Acetone	BDL	0.078	mg/kg	8260B	04/11/15	1
Acrylonitrile	BDL	0.016	mg/kg	8260B	04/11/15	1
Benzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Bromobenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Bromodichloromethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
Bromoform	BDL	0.0016	mg/kg	8260B	04/11/15	1
Bromomethane	BDL	0.0078	mg/kg	8260B	04/11/15	1
n-Butylbenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
sec-Butylbenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
tert-Butylbenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Carbon tetrachloride	BDL	0.0016	mg/kg	8260B	04/11/15	1
Chlorobenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Chlorodibromomethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
Chloroethane	BDL	0.0078	mg/kg	8260B	04/11/15	1
2-Chloroethyl vinyl ether	BDL	0.078	mg/kg	8260B	04/11/15	1
Chloroform	BDL	0.0078	mg/kg	8260B	04/11/15	1
Chloromethane	BDL	0.0039	mg/kg	8260B	04/11/15	1
2-Chlorotoluene	BDL	0.0016	mg/kg	8260B	04/11/15	1
4-Chlorotoluene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,2-Dibromo-3-Chloropropane	BDL	0.0078	mg/kg	8260B	04/11/15	1
1,2-Dibromoethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
Dibromomethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,2-Dichlorobenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,3-Dichlorobenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,4-Dichlorobenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Dichlorodifluoromethane	BDL	0.0078	mg/kg	8260B	04/11/15	1
1,1-Dichloroethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,2-Dichloroethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,1-Dichloroethene	BDL	0.0016	mg/kg	8260B	04/11/15	1
cis-1,2-Dichloroethene	BDL	0.0016	mg/kg	8260B	04/11/15	1
trans-1,2-Dichloroethene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,2-Dichloropropane	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,1-Dichloropropene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,3-Dichloropropane	BDL	0.0016	mg/kg	8260B	04/11/15	1
cis-1,3-Dichloropropene	BDL	0.0016	mg/kg	8260B	04/11/15	1
trans-1,3-Dichloropropene	BDL	0.0016	mg/kg	8260B	04/11/15	1
2,2-Dichloropropane	BDL	0.0016	mg/kg	8260B	04/11/15	1
Di-isopropyl ether	BDL	0.0016	mg/kg	8260B	04/11/15	1
Ethylbenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Hexachloro-1,3-butadiene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Isopropylbenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1

Results listed are dry weight basis.  
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ESC Sample # : L757522-02  
 Site ID :  
 Project # : PNG0564G15

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
p-Isopropyltoluene	BDL	0.0016	mg/kg	8260B	04/11/15	1
2-Butanone (MEK)	BDL	0.016	mg/kg	8260B	04/11/15	1
Methylene Chloride	BDL	0.0078	mg/kg	8260B	04/11/15	1
4-Methyl-2-pentanone (MIBK)	BDL	0.016	mg/kg	8260B	04/11/15	1
Methyl tert-butyl ether	BDL	0.0016	mg/kg	8260B	04/11/15	1
Naphthalene	BDL	0.0078	mg/kg	8260B	04/11/15	1
n-Propylbenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Styrene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,1,1,2-Tetrachloroethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,1,2,2-Tetrachloroethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,1,2-Trichlorotrifluoroethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
Tetrachloroethene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Toluene	BDL	0.0078	mg/kg	8260B	04/11/15	1
1,2,3-Trichlorobenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,2,4-Trichlorobenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,1,1-Trichloroethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,1,2-Trichloroethane	BDL	0.0016	mg/kg	8260B	04/11/15	1
Trichloroethene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Trichlorofluoromethane	BDL	0.0078	mg/kg	8260B	04/11/15	1
1,2,3-Trichloropropane	BDL	0.0039	mg/kg	8260B	04/11/15	1
1,2,4-Trimethylbenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,2,3-Trimethylbenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
1,3,5-Trimethylbenzene	BDL	0.0016	mg/kg	8260B	04/11/15	1
Vinyl chloride	BDL	0.0016	mg/kg	8260B	04/11/15	1
Xylenes, Total	BDL	0.0047	mg/kg	8260B	04/11/15	1
Surrogate Recovery						
Toluene-d8	103.		% Rec.	8260B	04/11/15	1
Dibromofluoromethane	103.		% Rec.	8260B	04/11/15	1
a,a,a-Trifluorotoluene	106.		% Rec.	8260B	04/11/15	1
4-Bromofluorobenzene	106.		% Rec.	8260B	04/11/15	1

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

This report shall not be reproduced, except in full, without the written approval from ESC.

The reported analytical results relate only to the sample submitted

Reported: 04/14/15 10:58 Printed: 04/14/15 10:58

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L757522-01	WG780269	SAMP	Chloroethane	R3030553	J4

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J4	The associated batch QC was outside the established quality control range for accuracy.

Qualifier Report Information

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

Definitions

**Accuracy** - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

**Precision** - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.

**Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

**TIC** - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



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 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 14, 2015

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Total Solids	< .1	%			WG780559	04/08/15 08:30
1,1,1,2-Tetrachloroethane	< .001	mg/kg			WG780275	04/11/15 10:29
1,1,1-Trichloroethane	< .001	mg/kg			WG780275	04/11/15 10:29
1,1,2,2-Tetrachloroethane	< .001	mg/kg			WG780275	04/11/15 10:29
1,1,2-Trichloroethane	< .001	mg/kg			WG780275	04/11/15 10:29
1,1,2-Trichlorotrifluoroethane	< .001	mg/kg			WG780275	04/11/15 10:29
1,1-Dichloroethane	< .001	mg/kg			WG780275	04/11/15 10:29
1,1-Dichloroethene	< .001	mg/kg			WG780275	04/11/15 10:29
1,1-Dichloropropene	< .001	mg/kg			WG780275	04/11/15 10:29
1,2,3-Trichlorobenzene	< .001	mg/kg			WG780275	04/11/15 10:29
1,2,3-Trichloropropane	< .0025	mg/kg			WG780275	04/11/15 10:29
1,2,3-Trimethylbenzene	< .001	mg/kg			WG780275	04/11/15 10:29
1,2,4-Trichlorobenzene	< .001	mg/kg			WG780275	04/11/15 10:29
1,2,4-Trimethylbenzene	< .001	mg/kg			WG780275	04/11/15 10:29
1,2-Dibromo-3-Chloropropane	< .005	mg/kg			WG780275	04/11/15 10:29
1,2-Dibromoethane	< .001	mg/kg			WG780275	04/11/15 10:29
1,2-Dichlorobenzene	< .001	mg/kg			WG780275	04/11/15 10:29
1,2-Dichloroethane	< .001	mg/kg			WG780275	04/11/15 10:29
1,2-Dichloropropane	< .001	mg/kg			WG780275	04/11/15 10:29
1,3,5-Trimethylbenzene	< .001	mg/kg			WG780275	04/11/15 10:29
1,3-Dichlorobenzene	< .001	mg/kg			WG780275	04/11/15 10:29
1,3-Dichloropropane	< .001	mg/kg			WG780275	04/11/15 10:29
1,4-Dichlorobenzene	< .001	mg/kg			WG780275	04/11/15 10:29
2,2-Dichloropropane	< .001	mg/kg			WG780275	04/11/15 10:29
2-Butanone (MEK)	< .01	mg/kg			WG780275	04/11/15 10:29
2-Chloroethyl vinyl ether	< .05	mg/kg			WG780275	04/11/15 10:29
2-Chlorotoluene	< .001	mg/kg			WG780275	04/11/15 10:29
4-Chlorotoluene	< .001	mg/kg			WG780275	04/11/15 10:29
4-Methyl-2-pentanone (MIBK)	< .01	mg/kg			WG780275	04/11/15 10:29
Acetone	< .05	mg/kg			WG780275	04/11/15 10:29
Acrylonitrile	< .01	mg/kg			WG780275	04/11/15 10:29
Benzene	< .001	mg/kg			WG780275	04/11/15 10:29
Bromobenzene	< .001	mg/kg			WG780275	04/11/15 10:29
Bromodichloromethane	< .001	mg/kg			WG780275	04/11/15 10:29
Bromoform	< .001	mg/kg			WG780275	04/11/15 10:29
Bromomethane	< .005	mg/kg			WG780275	04/11/15 10:29
Carbon tetrachloride	< .001	mg/kg			WG780275	04/11/15 10:29
Chlorobenzene	< .001	mg/kg			WG780275	04/11/15 10:29
Chlorodibromomethane	< .001	mg/kg			WG780275	04/11/15 10:29
Chloroethane	< .005	mg/kg			WG780275	04/11/15 10:29
Chloroform	< .005	mg/kg			WG780275	04/11/15 10:29
Chloromethane	< .0025	mg/kg			WG780275	04/11/15 10:29
cis-1,2-Dichloroethene	< .001	mg/kg			WG780275	04/11/15 10:29
cis-1,3-Dichloropropene	< .001	mg/kg			WG780275	04/11/15 10:29
Di-isopropyl ether	< .001	mg/kg			WG780275	04/11/15 10:29
Dibromomethane	< .001	mg/kg			WG780275	04/11/15 10:29
Dichlorodifluoromethane	< .005	mg/kg			WG780275	04/11/15 10:29
Ethylbenzene	< .001	mg/kg			WG780275	04/11/15 10:29
Hexachloro-1,3-butadiene	< .001	mg/kg			WG780275	04/11/15 10:29
Isopropylbenzene	< .001	mg/kg			WG780275	04/11/15 10:29
Methyl tert-butyl ether	< .001	mg/kg			WG780275	04/11/15 10:29
Methylene Chloride	< .005	mg/kg			WG780275	04/11/15 10:29
n-Butylbenzene	< .001	mg/kg			WG780275	04/11/15 10:29
n-Propylbenzene	< .001	mg/kg			WG780275	04/11/15 10:29
Naphthalene	< .005	mg/kg			WG780275	04/11/15 10:29
p-Isopropyltoluene	< .001	mg/kg			WG780275	04/11/15 10:29
sec-Butylbenzene	< .001	mg/kg			WG780275	04/11/15 10:29

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

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Tax I.D. 62-0814289

Est. 1970

April 14, 2015

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Styrene	< .001	mg/kg			WG780275	04/11/15 10:29
tert-Butylbenzene	< .001	mg/kg			WG780275	04/11/15 10:29
Tetrachloroethene	< .001	mg/kg			WG780275	04/11/15 10:29
Toluene	< .005	mg/kg			WG780275	04/11/15 10:29
trans-1,2-Dichloroethene	< .001	mg/kg			WG780275	04/11/15 10:29
trans-1,3-Dichloropropene	< .001	mg/kg			WG780275	04/11/15 10:29
Trichloroethene	< .001	mg/kg			WG780275	04/11/15 10:29
Trichlorofluoromethane	< .005	mg/kg			WG780275	04/11/15 10:29
Vinyl chloride	< .001	mg/kg			WG780275	04/11/15 10:29
Xylenes, Total	< .003	mg/kg			WG780275	04/11/15 10:29
4-Bromofluorobenzene		% Rec.	109.0	71-126	WG780275	04/11/15 10:29
Dibromofluoromethane		% Rec.	104.0	78.3-121	WG780275	04/11/15 10:29
Toluene-d8		% Rec.	104.0	88.5-111	WG780275	04/11/15 10:29
a,a,a-Trifluorotoluene		% Rec.	104.0	85-114	WG780275	04/11/15 10:29
1,1,1,2-Tetrachloroethane	< .001	mg/kg			WG780269	04/12/15 06:56
1,1,1-Trichloroethane	< .001	mg/kg			WG780269	04/12/15 06:56
1,1,2,2-Tetrachloroethane	< .001	mg/kg			WG780269	04/12/15 06:56
1,1,2-Trichloroethane	< .001	mg/kg			WG780269	04/12/15 06:56
1,1,2-Trichlorotrifluoroethane	< .001	mg/kg			WG780269	04/12/15 06:56
1,1-Dichloroethane	< .001	mg/kg			WG780269	04/12/15 06:56
1,1-Dichloroethene	< .001	mg/kg			WG780269	04/12/15 06:56
1,1-Dichloropropene	< .001	mg/kg			WG780269	04/12/15 06:56
1,2,3-Trichlorobenzene	< .001	mg/kg			WG780269	04/12/15 06:56
1,2,3-Trichloropropane	< .0025	mg/kg			WG780269	04/12/15 06:56
1,2,3-Trimethylbenzene	< .001	mg/kg			WG780269	04/12/15 06:56
1,2,4-Trichlorobenzene	< .001	mg/kg			WG780269	04/12/15 06:56
1,2,4-Trimethylbenzene	< .001	mg/kg			WG780269	04/12/15 06:56
1,2-Dibromo-3-Chloropropane	< .005	mg/kg			WG780269	04/12/15 06:56
1,2-Dibromoethane	< .001	mg/kg			WG780269	04/12/15 06:56
1,2-Dichlorobenzene	< .001	mg/kg			WG780269	04/12/15 06:56
1,2-Dichloroethane	< .001	mg/kg			WG780269	04/12/15 06:56
1,2-Dichloropropane	< .001	mg/kg			WG780269	04/12/15 06:56
1,3,5-Trimethylbenzene	< .001	mg/kg			WG780269	04/12/15 06:56
1,3-Dichlorobenzene	< .001	mg/kg			WG780269	04/12/15 06:56
1,3-Dichloropropane	< .001	mg/kg			WG780269	04/12/15 06:56
1,4-Dichlorobenzene	< .001	mg/kg			WG780269	04/12/15 06:56
2,2-Dichloropropane	< .001	mg/kg			WG780269	04/12/15 06:56
2-Butanone (MEK)	< .01	mg/kg			WG780269	04/12/15 06:56
2-Chloroethyl vinyl ether	< .05	mg/kg			WG780269	04/12/15 06:56
2-Chlorotoluene	< .001	mg/kg			WG780269	04/12/15 06:56
4-Chlorotoluene	< .001	mg/kg			WG780269	04/12/15 06:56
4-Methyl-2-pentanone (MIBK)	< .01	mg/kg			WG780269	04/12/15 06:56
Acetone	< .05	mg/kg			WG780269	04/12/15 06:56
Acrylonitrile	< .01	mg/kg			WG780269	04/12/15 06:56
Benzene	< .001	mg/kg			WG780269	04/12/15 06:56
Bromobenzene	< .001	mg/kg			WG780269	04/12/15 06:56
Bromodichloromethane	< .001	mg/kg			WG780269	04/12/15 06:56
Bromoform	< .001	mg/kg			WG780269	04/12/15 06:56
Bromomethane	< .005	mg/kg			WG780269	04/12/15 06:56
Carbon tetrachloride	< .001	mg/kg			WG780269	04/12/15 06:56
Chlorobenzene	< .001	mg/kg			WG780269	04/12/15 06:56
Chlorodibromomethane	< .001	mg/kg			WG780269	04/12/15 06:56
Chloroethane	< .005	mg/kg			WG780269	04/12/15 06:56
Chloroform	< .005	mg/kg			WG780269	04/12/15 06:56
Chloromethane	< .0025	mg/kg			WG780269	04/12/15 06:56
cis-1,2-Dichloroethene	< .001	mg/kg			WG780269	04/12/15 06:56
cis-1,3-Dichloropropene	< .001	mg/kg			WG780269	04/12/15 06:56

\* 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

April 14, 2015

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Di-isopropyl ether	< .001	mg/kg			WG780269	04/12/15 06:56
Dibromomethane	< .001	mg/kg			WG780269	04/12/15 06:56
Dichlorodifluoromethane	< .005	mg/kg			WG780269	04/12/15 06:56
Ethylbenzene	< .001	mg/kg			WG780269	04/12/15 06:56
Hexachloro-1,3-butadiene	< .001	mg/kg			WG780269	04/12/15 06:56
Isopropylbenzene	< .001	mg/kg			WG780269	04/12/15 06:56
Methyl tert-butyl ether	< .001	mg/kg			WG780269	04/12/15 06:56
Methylene Chloride	< .005	mg/kg			WG780269	04/12/15 06:56
n-Butylbenzene	< .001	mg/kg			WG780269	04/12/15 06:56
n-Propylbenzene	< .001	mg/kg			WG780269	04/12/15 06:56
Naphthalene	< .005	mg/kg			WG780269	04/12/15 06:56
p-Isopropyltoluene	< .001	mg/kg			WG780269	04/12/15 06:56
sec-Butylbenzene	< .001	mg/kg			WG780269	04/12/15 06:56
Styrene	< .001	mg/kg			WG780269	04/12/15 06:56
tert-Butylbenzene	< .001	mg/kg			WG780269	04/12/15 06:56
Tetrachloroethene	< .001	mg/kg			WG780269	04/12/15 06:56
Toluene	< .005	mg/kg			WG780269	04/12/15 06:56
trans-1,2-Dichloroethene	< .001	mg/kg			WG780269	04/12/15 06:56
trans-1,3-Dichloropropene	< .001	mg/kg			WG780269	04/12/15 06:56
Trichloroethene	< .001	mg/kg			WG780269	04/12/15 06:56
Trichlorofluoromethane	< .005	mg/kg			WG780269	04/12/15 06:56
Vinyl chloride	< .001	mg/kg			WG780269	04/12/15 06:56
Xylenes, Total	< .003	mg/kg			WG780269	04/12/15 06:56
4-Bromofluorobenzene		% Rec.	99.10	71-126	WG780269	04/12/15 06:56
Dibromofluoromethane		% Rec.	108.0	78.3-121	WG780269	04/12/15 06:56
Toluene-d8		% Rec.	110.0	88.5-111	WG780269	04/12/15 06:56
a,a,a-Trifluorotoluene		% Rec.	103.0	85-114	WG780269	04/12/15 06:56

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Total Solids	%	79.0	79.3	0.340	5	L757526-01	WG780559

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Total Solids	%	50	50.0	100.	85-115	WG780559
1,1,1,2-Tetrachloroethane	mg/kg	.025	0.0252	101.	72.9-124	WG780275
1,1,1-Trichloroethane	mg/kg	.025	0.0236	94.3	73.7-124	WG780275
1,1,2,2-Tetrachloroethane	mg/kg	.025	0.0250	99.8	69.4-122	WG780275
1,1,2-Trichloroethane	mg/kg	.025	0.0235	94.0	79.1-118	WG780275
1,1,2-Trichlorotrifluoroethane	mg/kg	.025	0.0235	93.9	70-146	WG780275
1,1-Dichloroethane	mg/kg	.025	0.0236	94.3	75-124	WG780275
1,1-Dichloroethene	mg/kg	.025	0.0234	93.5	70.4-129	WG780275
1,1-Dichloropropene	mg/kg	.025	0.0233	93.3	74.9-124	WG780275
1,2,3-Trichlorobenzene	mg/kg	.025	0.0243	97.0	69.3-131	WG780275
1,2,3-Trichloropropane	mg/kg	.025	0.0242	96.7	71.4-123	WG780275
1,2,3-Trimethylbenzene	mg/kg	.025	0.0237	94.9	73.6-113	WG780275
1,2,4-Trichlorobenzene	mg/kg	.025	0.0237	94.7	71.9-137	WG780275
1,2,4-Trimethylbenzene	mg/kg	.025	0.0245	97.9	75.5-122	WG780275
1,2-Dibromo-3-Chloropropane	mg/kg	.025	0.0237	94.9	62.8-133	WG780275
1,2-Dibromoethane	mg/kg	.025	0.0236	94.5	78.6-120	WG780275
1,2-Dichlorobenzene	mg/kg	.025	0.0234	93.5	78.3-118	WG780275
1,2-Dichloroethane	mg/kg	.025	0.0235	94.2	70.1-124	WG780275
1,2-Dichloropropene	mg/kg	.025	0.0229	91.7	77.9-119	WG780275
1,3,5-Trimethylbenzene	mg/kg	.025	0.0245	98.0	75.9-124	WG780275
1,3-Dichlorobenzene	mg/kg	.025	0.0250	99.8	72-126	WG780275

\* Performance of this Analyte is outside of established criteria.  
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Tax I.D. 62-0814289

Est. 1970

April 14, 2015

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,3-Dichloropropane	mg/kg	.025	0.0214	85.7	79.1-117	WG780275
1,4-Dichlorobenzene	mg/kg	.025	0.0228	91.2	78.3-117	WG780275
2,2-Dichloropropane	mg/kg	.025	0.0229	91.4	61.3-136	WG780275
2-Butanone (MEK)	mg/kg	.125	0.130	104.	53.7-153	WG780275
2-Chloroethyl vinyl ether	mg/kg	.125	0.114	91.6	37.7-157	WG780275
2-Chlorotoluene	mg/kg	.025	0.0244	97.7	75.6-121	WG780275
4-Chlorotoluene	mg/kg	.025	0.0246	98.4	77.3-120	WG780275
4-Methyl-2-pentanone (MIBK)	mg/kg	.125	0.124	99.2	70.4-137	WG780275
Acetone	mg/kg	.125	0.127	102.	35.1-175	WG780275
Acrylonitrile	mg/kg	.125	0.126	101.	56.4-128	WG780275
Benzene	mg/kg	.025	0.0234	93.5	77.1-121	WG780275
Bromobenzene	mg/kg	.025	0.0233	93.3	78.2-115	WG780275
Bromodichloromethane	mg/kg	.025	0.0234	93.6	74.9-115	WG780275
Bromoform	mg/kg	.025	0.0253	101.	65.9-132	WG780275
Bromomethane	mg/kg	.025	0.0230	92.0	48.7-165	WG780275
Carbon tetrachloride	mg/kg	.025	0.0236	94.4	70-124	WG780275
Chlorobenzene	mg/kg	.025	0.0234	93.6	79.1-119	WG780275
Chlorodibromomethane	mg/kg	.025	0.0243	97.2	73.5-121	WG780275
Chloroethane	mg/kg	.025	0.0231	92.4	66.2-132	WG780275
Chloroform	mg/kg	.025	0.0239	95.5	76.7-122	WG780275
Chloromethane	mg/kg	.025	0.0226	90.5	63.4-131	WG780275
cis-1,2-Dichloroethene	mg/kg	.025	0.0243	97.3	78.2-119	WG780275
cis-1,3-Dichloropropene	mg/kg	.025	0.0241	96.3	79.6-120	WG780275
Di-isopropyl ether	mg/kg	.025	0.0244	97.5	70.4-133	WG780275
Dibromomethane	mg/kg	.025	0.0232	93.0	79.4-120	WG780275
Dichlorodifluoromethane	mg/kg	.025	0.0233	93.1	57.1-137	WG780275
Ethylbenzene	mg/kg	.025	0.0233	93.1	79.7-122	WG780275
Hexachloro-1,3-butadiene	mg/kg	.025	0.0223	89.0	68.2-123	WG780275
Isopropylbenzene	mg/kg	.025	0.0254	102.	80-135	WG780275
Methyl tert-butyl ether	mg/kg	.025	0.0249	99.6	73-129	WG780275
Methylene Chloride	mg/kg	.025	0.0245	98.1	72.6-120	WG780275
n-Butylbenzene	mg/kg	.025	0.0239	95.5	77.5-126	WG780275
n-Propylbenzene	mg/kg	.025	0.0244	97.7	77.9-123	WG780275
Naphthalene	mg/kg	.025	0.0235	94.2	69.8-128	WG780275
p-Isopropyltoluene	mg/kg	.025	0.0249	99.5	75.8-129	WG780275
sec-Butylbenzene	mg/kg	.025	0.0245	97.8	75.8-126	WG780275
Styrene	mg/kg	.025	0.0245	97.8	82.4-126	WG780275
tert-Butylbenzene	mg/kg	.025	0.0246	98.5	76.4-126	WG780275
Tetrachloroethene	mg/kg	.025	0.0232	92.8	73.9-125	WG780275
Toluene	mg/kg	.025	0.0236	94.5	79.7-118	WG780275
trans-1,2-Dichloroethene	mg/kg	.025	0.0240	96.2	73.8-122	WG780275
trans-1,3-Dichloropropene	mg/kg	.025	0.0242	96.8	75.9-124	WG780275
Trichloroethene	mg/kg	.025	0.0231	92.2	77.9-118	WG780275
Trichlorofluoromethane	mg/kg	.025	0.0231	92.6	67.7-131	WG780275
Vinyl chloride	mg/kg	.025	0.0232	92.7	66.7-130	WG780275
Xylenes, Total	mg/kg	.075	0.0724	96.6	78.8-121	WG780275
4-Bromofluorobenzene				105.0	71-126	WG780275
Dibromofluoromethane				104.0	78.3-121	WG780275
Toluene-d8				104.0	88.5-111	WG780275
a,a,a-Trifluorotoluene				105.0	85-114	WG780275
1,1,1,2-Tetrachloroethane	mg/kg	.025	0.0236	94.3	72.9-124	WG780269
1,1,1-Trichloroethane	mg/kg	.025	0.0258	103.	73.7-124	WG780269
1,1,2,2-Tetrachloroethane	mg/kg	.025	0.0232	92.9	69.4-122	WG780269
1,1,2-Trichloroethane	mg/kg	.025	0.0218	87.1	79.1-118	WG780269
1,1,2-Trichlorotrifluoroethane	mg/kg	.025	0.0264	106.	70-146	WG780269
1,1-Dichloroethane	mg/kg	.025	0.0270	108.	75-124	WG780269
1,1-Dichloroethene	mg/kg	.025	0.0276	110.	70.4-129	WG780269

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

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**YOUR LAB OF CHOICE**

GeoSyntec, Inc. - OR  
Cindy Bartlett  
621 SW Morrison St., Suite 600

Portland, OR 97205

Quality Assurance Report  
Level II

L757522

12065 Lebanon Rd.  
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1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 14, 2015

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,1-Dichloropropene	mg/kg	.025	0.0275	110.	74.9-124	WG780269
1,2,3-Trichlorobenzene	mg/kg	.025	0.0243	97.2	69.3-131	WG780269
1,2,3-Trichloropropane	mg/kg	.025	0.0231	92.2	71.4-123	WG780269
1,2,3-Trimethylbenzene	mg/kg	.025	0.0259	104.	73.6-113	WG780269
1,2,4-Trichlorobenzene	mg/kg	.025	0.0267	107.	71.9-137	WG780269
1,2,4-Trimethylbenzene	mg/kg	.025	0.0233	93.3	75.5-122	WG780269
1,2-Dibromo-3-Chloropropane	mg/kg	.025	0.0228	91.2	62.8-133	WG780269
1,2-Dibromoethane	mg/kg	.025	0.0234	93.8	78.6-120	WG780269
1,2-Dichlorobenzene	mg/kg	.025	0.0261	105.	78.3-118	WG780269
1,2-Dichloroethane	mg/kg	.025	0.0273	109.	70.1-124	WG780269
1,2-Dichloropropane	mg/kg	.025	0.0259	104.	77.9-119	WG780269
1,3,5-Trimethylbenzene	mg/kg	.025	0.0235	94.2	75.9-124	WG780269
1,3-Dichlorobenzene	mg/kg	.025	0.0233	93.2	72-126	WG780269
1,3-Dichloropropane	mg/kg	.025	0.0239	95.5	79.1-117	WG780269
1,4-Dichlorobenzene	mg/kg	.025	0.0253	101.	78.3-117	WG780269
2,2-Dichloropropane	mg/kg	.025	0.0255	102.	61.3-136	WG780269
2-Butanone (MEK)	mg/kg	.125	0.123	98.8	53.7-153	WG780269
2-Chloroethyl vinyl ether	mg/kg	.125	0.116	92.6	37.7-157	WG780269
2-Chlorotoluene	mg/kg	.025	0.0234	93.6	75.6-121	WG780269
4-Chlorotoluene	mg/kg	.025	0.0236	94.4	77.3-120	WG780269
4-Methyl-2-pentanone (MIBK)	mg/kg	.125	0.136	109.	70.4-137	WG780269
Acetone	mg/kg	.125	0.0799	63.9	35.1-175	WG780269
Acrylonitrile	mg/kg	.125	0.131	105.	56.4-128	WG780269
Benzene	mg/kg	.025	0.0254	102.	77.1-121	WG780269
Bromobenzene	mg/kg	.025	0.0235	93.9	78.2-115	WG780269
Bromodichloromethane	mg/kg	.025	0.0244	97.4	74.9-115	WG780269
Bromoform	mg/kg	.025	0.0238	95.1	65.9-132	WG780269
Bromomethane	mg/kg	.025	0.0278	111.	48.7-165	WG780269
Carbon tetrachloride	mg/kg	.025	0.0267	107.	70-124	WG780269
Chlorobenzene	mg/kg	.025	0.0236	94.6	79.1-119	WG780269
Chlorodibromomethane	mg/kg	.025	0.0225	89.9	73.5-121	WG780269
Chloroethane	mg/kg	.025	0.0339	136.*	66.2-132	WG780269
Chloroform	mg/kg	.025	0.0256	102.	76.7-122	WG780269
Chloromethane	mg/kg	.025	0.0271	109.	63.4-131	WG780269
cis-1,2-Dichloroethene	mg/kg	.025	0.0237	94.7	78.2-119	WG780269
cis-1,3-Dichloropropene	mg/kg	.025	0.0256	102.	79.6-120	WG780269
Di-isopropyl ether	mg/kg	.025	0.0268	107.	70.4-133	WG780269
Dibromomethane	mg/kg	.025	0.0260	104.	79.4-120	WG780269
Dichlorodifluoromethane	mg/kg	.025	0.0277	111.	57.1-137	WG780269
Ethylbenzene	mg/kg	.025	0.0245	98.0	79.7-122	WG780269
Hexachloro-1,3-butadiene	mg/kg	.025	0.0254	101.	68.2-123	WG780269
Isopropylbenzene	mg/kg	.025	0.0247	98.9	80-135	WG780269
Methyl tert-butyl ether	mg/kg	.025	0.0254	102.	73-129	WG780269
Methylene Chloride	mg/kg	.025	0.0245	97.9	72.6-120	WG780269
n-Butylbenzene	mg/kg	.025	0.0275	110.	77.5-126	WG780269
n-Propylbenzene	mg/kg	.025	0.0250	100.	77.9-123	WG780269
Naphthalene	mg/kg	.025	0.0249	99.5	69.8-128	WG780269
p-Isopropyltoluene	mg/kg	.025	0.0243	97.2	75.8-129	WG780269
sec-Butylbenzene	mg/kg	.025	0.0245	98.1	75.8-126	WG780269
Styrene	mg/kg	.025	0.0240	96.0	82.4-126	WG780269
tert-Butylbenzene	mg/kg	.025	0.0246	98.6	76.4-126	WG780269
Tetrachloroethene	mg/kg	.025	0.0240	95.8	73.9-125	WG780269
Toluene	mg/kg	.025	0.0250	99.9	79.7-118	WG780269
trans-1,2-Dichloroethene	mg/kg	.025	0.0254	102.	73.8-122	WG780269
trans-1,3-Dichloropropene	mg/kg	.025	0.0231	92.3	75.9-124	WG780269
Trichloroethene	mg/kg	.025	0.0249	99.7	77.9-118	WG780269
Trichlorofluoromethane	mg/kg	.025	0.0265	106.	67.7-131	WG780269
Vinyl chloride	mg/kg	.025	0.0275	110.	66.7-130	WG780269
Xylenes, Total	mg/kg	.075	0.0727	96.9	78.8-121	WG780269

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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 14, 2015

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
4-Bromofluorobenzene					102.0		71-126	
Dibromofluoromethane					106.0		78.3-121	
Toluene-d8					107.0		88.5-111	
a,a,a-Trifluorotoluene					99.40		85-114	

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
1,1,1,2-Tetrachloroethane	mg/kg	0.0254	0.0252	102.	72.9-124	0.970	20	WG780275
1,1,1-Trichloroethane	mg/kg	0.0236	0.0236	94.0	73.7-124	0.180	20	WG780275
1,1,2,2-Tetrachloroethane	mg/kg	0.0270	0.0250	108.	69.4-122	7.97	20	WG780275
1,1,2-Trichloroethane	mg/kg	0.0245	0.0235	98.0	79.1-118	4.17	20	WG780275
1,1,2-Trichlorotrifluoroethane	mg/kg	0.0237	0.0235	95.0	70-146	1.03	20	WG780275
1,1-Dichloroethane	mg/kg	0.0235	0.0236	94.0	75-124	0.430	20	WG780275
1,1-Dichloroethene	mg/kg	0.0232	0.0234	93.0	70.4-129	0.640	20	WG780275
1,1-Dichloropropene	mg/kg	0.0236	0.0233	94.0	74.9-124	1.20	20	WG780275
1,2,3-Trichlorobenzene	mg/kg	0.0264	0.0243	106.	69.3-131	8.52	20	WG780275
1,2,3-Trichloropropane	mg/kg	0.0256	0.0242	102.	71.4-123	5.66	20	WG780275
1,2,3-Trimethylbenzene	mg/kg	0.0246	0.0237	98.0	73.6-113	3.45	20	WG780275
1,2,4-Trichlorobenzene	mg/kg	0.0267	0.0237	107.	71.9-137	11.9	20	WG780275
1,2,4-Trimethylbenzene	mg/kg	0.0264	0.0245	106.	75.5-122	7.71	20	WG780275
1,2-Dibromo-3-Chloropropane	mg/kg	0.0261	0.0237	104.	62.8-133	9.58	20	WG780275
1,2-Dibromoethane	mg/kg	0.0243	0.0236	97.0	78.6-120	2.80	20	WG780275
1,2-Dichlorobenzene	mg/kg	0.0244	0.0234	98.0	78.3-118	4.17	20	WG780275
1,2-Dichloroethane	mg/kg	0.0240	0.0235	96.0	70.1-124	1.83	20	WG780275
1,2-Dichloropropane	mg/kg	0.0239	0.0229	96.0	77.9-119	4.14	20	WG780275
1,3,5-Trimethylbenzene	mg/kg	0.0265	0.0245	106.	75.9-124	7.79	20	WG780275
1,3-Dichlorobenzene	mg/kg	0.0267	0.0250	107.	72-126	6.76	20	WG780275
1,3-Dichloropropane	mg/kg	0.0224	0.0214	90.0	79.1-117	4.50	20	WG780275
1,4-Dichlorobenzene	mg/kg	0.0231	0.0228	92.0	78.3-117	1.40	20	WG780275
2,2-Dichloropropane	mg/kg	0.0232	0.0229	93.0	61.3-136	1.57	20	WG780275
2-Butanone (MEK)	mg/kg	0.135	0.130	108.	53.7-153	3.96	21.2	WG780275
2-Chloroethyl vinyl ether	mg/kg	0.121	0.114	96.0	37.7-157	5.28	20	WG780275
2-Chlorotoluene	mg/kg	0.0255	0.0244	102.	75.6-121	4.22	20	WG780275
4-Chlorotoluene	mg/kg	0.0262	0.0246	105.	77.3-120	6.16	20	WG780275
4-Methyl-2-pentanone (MIBK)	mg/kg	0.129	0.124	103.	70.4-137	3.99	20	WG780275
Acetone	mg/kg	0.133	0.127	106.	35.1-175	4.36	26.1	WG780275
Acrylonitrile	mg/kg	0.129	0.126	103.	56.4-128	2.60	20	WG780275
Benzene	mg/kg	0.0237	0.0234	95.0	77.1-121	1.44	20	WG780275
Bromobenzene	mg/kg	0.0246	0.0233	98.0	78.2-115	5.16	20	WG780275
Bromodichloromethane	mg/kg	0.0237	0.0234	95.0	74.9-115	1.18	20	WG780275
Bromoform	mg/kg	0.0268	0.0253	107.	65.9-132	5.73	20	WG780275
Bromomethane	mg/kg	0.0215	0.0230	86.0	48.7-165	6.82	20	WG780275
Carbon tetrachloride	mg/kg	0.0235	0.0236	94.0	70-124	0.410	20	WG780275
Chlorobenzene	mg/kg	0.0243	0.0234	97.0	79.1-119	3.79	20	WG780275
Chlorodibromomethane	mg/kg	0.0254	0.0243	102.	73.5-121	4.60	20	WG780275
Chloroethane	mg/kg	0.0220	0.0231	88.0	66.2-132	4.71	20	WG780275
Chloroform	mg/kg	0.0236	0.0239	94.0	76.7-122	1.21	20	WG780275
Chloromethane	mg/kg	0.0230	0.0226	92.0	63.4-131	1.77	20	WG780275
cis-1,2-Dichloroethene	mg/kg	0.0240	0.0243	96.0	78.2-119	1.38	20	WG780275
cis-1,3-Dichloropropene	mg/kg	0.0240	0.0241	96.0	79.6-120	0.420	20	WG780275
Di-isopropyl ether	mg/kg	0.0244	0.0244	98.0	70.4-133	0.170	20	WG780275
Dibromomethane	mg/kg	0.0239	0.0232	96.0	79.4-120	3.01	20	WG780275
Dichlorodifluoromethane	mg/kg	0.0233	0.0233	93.0	57.1-137	0.120	20	WG780275
Ethylbenzene	mg/kg	0.0245	0.0233	98.0	79.7-122	5.19	20	WG780275
Hexachloro-1,3-butadiene	mg/kg	0.0248	0.0223	99.0	68.2-123	10.7	20	WG780275
Isopropylbenzene	mg/kg	0.0264	0.0254	106.	80-135	3.85	20	WG780275
Methyl tert-butyl ether	mg/kg	0.0248	0.0249	99.0	73-129	0.300	20	WG780275
Methylene Chloride	mg/kg	0.0246	0.0245	98.0	72.6-120	0.470	20	WG780275

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Tax I.D. 62-0814289

Est. 1970

April 14, 2015

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
n-Butylbenzene	mg/kg	0.0257	0.0239	103.	77.5-126	7.43	20	WG780275
n-Propylbenzene	mg/kg	0.0260	0.0244	104.	77.9-123	6.04	20	WG780275
Naphthalene	mg/kg	0.0263	0.0235	105.	69.8-128	11.2	20	WG780275
p-Isopropyltoluene	mg/kg	0.0277	0.0249	111.	75.8-129	10.9	20	WG780275
sec-Butylbenzene	mg/kg	0.0265	0.0245	106.	75.8-126	7.90	20	WG780275
Styrene	mg/kg	0.0259	0.0245	104.	82.4-126	5.91	20	WG780275
tert-Butylbenzene	mg/kg	0.0264	0.0246	105.	76.4-126	6.79	20	WG780275
Tetrachloroethene	mg/kg	0.0241	0.0232	96.0	73.9-125	3.70	20	WG780275
Toluene	mg/kg	0.0239	0.0236	96.0	79.7-118	1.10	20	WG780275
trans-1,2-Dichloroethene	mg/kg	0.0239	0.0240	96.0	73.8-122	0.700	20	WG780275
trans-1,3-Dichloropropene	mg/kg	0.0257	0.0242	103.	75.9-124	5.96	20	WG780275
Trichloroethene	mg/kg	0.0235	0.0231	94.0	77.9-118	1.98	20	WG780275
Trichlorofluoromethane	mg/kg	0.0224	0.0231	90.0	67.7-131	3.11	20	WG780275
Vinyl chloride	mg/kg	0.0240	0.0232	96.0	66.7-130	3.45	20	WG780275
Xylenes, Total	mg/kg	0.0751	0.0724	100.	78.8-121	3.68	20	WG780275
4-Bromofluorobenzene				108.0	71-126			WG780275
Dibromofluoromethane				102.0	78.3-121			WG780275
Toluene-d8				104.0	88.5-111			WG780275
a,a,a-Trifluorotoluene				104.0	85-114			WG780275
1,1,1,2-Tetrachloroethane	mg/kg	0.0246	0.0236	98.0	72.9-124	4.11	20	WG780269
1,1,1-Trichloroethane	mg/kg	0.0266	0.0258	106.	73.7-124	3.42	20	WG780269
1,1,2,2-Tetrachloroethane	mg/kg	0.0241	0.0232	96.0	69.4-122	3.82	20	WG780269
1,1,2-Trichloroethane	mg/kg	0.0235	0.0218	94.0	79.1-118	7.45	20	WG780269
1,1,2-Trichlorotrifluoroethane	mg/kg	0.0276	0.0264	110.	70-146	4.57	20	WG780269
1,1-Dichloroethane	mg/kg	0.0277	0.0270	111.	75-124	2.43	20	WG780269
1,1-Dichloroethene	mg/kg	0.0286	0.0276	114.	70.4-129	3.58	20	WG780269
1,1-Dichloropropene	mg/kg	0.0276	0.0275	110.	74.9-124	0.540	20	WG780269
1,2,3-Trichlorobenzene	mg/kg	0.0238	0.0243	95.0	69.3-131	2.21	20	WG780269
1,2,3-Trichloropropane	mg/kg	0.0230	0.0231	92.0	71.4-123	0.390	20	WG780269
1,2,3-Trimethylbenzene	mg/kg	0.0261	0.0259	104.	73.6-113	0.670	20	WG780269
1,2,4-Trichlorobenzene	mg/kg	0.0263	0.0267	105.	71.9-137	1.61	20	WG780269
1,2,4-Trimethylbenzene	mg/kg	0.0245	0.0233	98.0	75.5-122	4.96	20	WG780269
1,2-Dibromo-3-Chloropropane	mg/kg	0.0218	0.0228	87.0	62.8-133	4.30	20	WG780269
1,2-Dibromoethane	mg/kg	0.0239	0.0234	96.0	78.6-120	2.09	20	WG780269
1,2-Dichlorobenzene	mg/kg	0.0258	0.0261	103.	78.3-118	1.44	20	WG780269
1,2-Dichloroethane	mg/kg	0.0272	0.0273	109.	70.1-124	0.170	20	WG780269
1,2-Dichloropropane	mg/kg	0.0270	0.0259	108.	77.9-119	4.30	20	WG780269
1,3,5-Trimethylbenzene	mg/kg	0.0254	0.0235	102.	75.9-124	7.55	20	WG780269
1,3-Dichlorobenzene	mg/kg	0.0251	0.0233	100.	72-126	7.22	20	WG780269
1,3-Dichloropropane	mg/kg	0.0256	0.0239	102.	79.1-117	7.09	20	WG780269
1,4-Dichlorobenzene	mg/kg	0.0238	0.0253	95.0	78.3-117	6.14	20	WG780269
2,2-Dichloropropane	mg/kg	0.0259	0.0255	104.	61.3-136	1.78	20	WG780269
2-Butanone (MEK)	mg/kg	0.110	0.123	88.0	53.7-153	11.2	21.2	WG780269
2-Chloroethyl vinyl ether	mg/kg	0.112	0.116	90.0	37.7-157	3.21	20	WG780269
2-Chlorotoluene	mg/kg	0.0259	0.0234	104.	75.6-121	10.3	20	WG780269
4-Chlorotoluene	mg/kg	0.0250	0.0236	100.	77.3-120	5.88	20	WG780269
4-Methyl-2-pentanone (MIBK)	mg/kg	0.127	0.136	102.	70.4-137	6.23	20	WG780269
Acetone	mg/kg	0.0702	0.0799	56.0	35.1-175	12.9	26.1	WG780269
Acrylonitrile	mg/kg	0.118	0.131	94.0	56.4-128	10.9	20	WG780269
Benzene	mg/kg	0.0259	0.0254	104.	77.1-121	2.06	20	WG780269
Bromobenzene	mg/kg	0.0248	0.0235	99.0	78.2-115	5.25	20	WG780269
Bromodichloromethane	mg/kg	0.0250	0.0244	100.	74.9-115	2.77	20	WG780269
Bromoform	mg/kg	0.0250	0.0238	100.	65.9-132	5.09	20	WG780269
Bromomethane	mg/kg	0.0294	0.0278	118.	48.7-165	5.63	20	WG780269
Carbon tetrachloride	mg/kg	0.0267	0.0267	107.	70-124	0.100	20	WG780269
Chlorobenzene	mg/kg	0.0255	0.0236	102.	79.1-119	7.38	20	WG780269
Chlorodibromomethane	mg/kg	0.0245	0.0225	98.0	73.5-121	8.55	20	WG780269

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

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**YOUR LAB OF CHOICE**

GeoSyntec, Inc. - OR  
Cindy Bartlett  
621 SW Morrison St., Suite 600

Portland, OR 97205

Quality Assurance Report  
Level II

L757522

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

April 14, 2015

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Chloroethane	mg/kg	0.0355	0.0339	142*	66.2-132	4.73	20	WG780269
Chloroform	mg/kg	0.0255	0.0256	102.	76.7-122	0.530	20	WG780269
Chloromethane	mg/kg	0.0278	0.0271	111.	63.4-131	2.31	20	WG780269
cis-1,2-Dichloroethene	mg/kg	0.0242	0.0237	97.0	78.2-119	2.23	20	WG780269
cis-1,3-Dichloropropene	mg/kg	0.0253	0.0256	101.	79.6-120	1.29	20	WG780269
Di-isopropyl ether	mg/kg	0.0264	0.0268	106.	70.4-133	1.42	20	WG780269
Dibromomethane	mg/kg	0.0254	0.0260	102.	79.4-120	2.19	20	WG780269
Dichlorodifluoromethane	mg/kg	0.0284	0.0277	114.	57.1-137	2.61	20	WG780269
Ethylbenzene	mg/kg	0.0260	0.0245	104.	79.7-122	5.82	20	WG780269
Hexachloro-1,3-butadiene	mg/kg	0.0258	0.0254	103.	68.2-123	1.76	20	WG780269
Isopropylbenzene	mg/kg	0.0263	0.0247	105.	80-135	6.23	20	WG780269
Methyl tert-butyl ether	mg/kg	0.0251	0.0254	100.	73-129	1.03	20	WG780269
Methylene Chloride	mg/kg	0.0259	0.0245	103.	72.6-120	5.53	20	WG780269
n-Butylbenzene	mg/kg	0.0269	0.0275	108.	77.5-126	2.27	20	WG780269
n-Propylbenzene	mg/kg	0.0268	0.0250	107.	77.9-123	6.80	20	WG780269
Naphthalene	mg/kg	0.0233	0.0249	93.0	69.8-128	6.69	20	WG780269
p-Isopropyltoluene	mg/kg	0.0257	0.0243	103.	75.8-129	5.49	20	WG780269
sec-Butylbenzene	mg/kg	0.0263	0.0245	105.	75.8-126	6.98	20	WG780269
Styrene	mg/kg	0.0259	0.0240	104.	82.4-126	7.71	20	WG780269
tert-Butylbenzene	mg/kg	0.0260	0.0246	104.	76.4-126	5.46	20	WG780269
Tetrachloroethene	mg/kg	0.0256	0.0240	102.	73.9-125	6.52	20	WG780269
Toluene	mg/kg	0.0255	0.0250	102.	79.7-118	2.12	20	WG780269
trans-1,2-Dichloroethene	mg/kg	0.0253	0.0254	101.	73.8-122	0.310	20	WG780269
trans-1,3-Dichloropropene	mg/kg	0.0225	0.0231	90.0	75.9-124	2.54	20	WG780269
Trichloroethene	mg/kg	0.0270	0.0249	108.	77.9-118	7.96	20	WG780269
Trichlorofluoromethane	mg/kg	0.0283	0.0265	113.	67.7-131	6.73	20	WG780269
Vinyl chloride	mg/kg	0.0291	0.0275	116.	66.7-130	5.65	20	WG780269
Xylenes, Total	mg/kg	0.0776	0.0727	103.	78.8-121	6.51	20	WG780269
4-Bromofluorobenzene				102.0	71-126			WG780269
Dibromofluoromethane				105.0	78.3-121			WG780269
Toluene-d8				107.0	88.5-111			WG780269
a,a,a-Trifluorotoluene				102.0	85-114			WG780269

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
1,1,1,2-Tetrachloroethane	mg/kg	0.0216	0.0	.025	86.0	64-128	L757522-02	WG780275
1,1,1-Trichloroethane	mg/kg	0.0209	0.0	.025	84.0	58.7-134	L757522-02	WG780275
1,1,2,2-Tetrachloroethane	mg/kg	0.0227	0.0	.025	91.0	56-132	L757522-02	WG780275
1,1,2-Trichloroethane	mg/kg	0.0201	0.0	.025	80.0	66.3-125	L757522-02	WG780275
1,1,2-Trichlorotrifluoroethane	mg/kg	0.0204	0.0	.025	82.0	54.8-154	L757522-02	WG780275
1,1-Dichloroethane	mg/kg	0.0202	0.0	.025	81.0	58.5-132	L757522-02	WG780275
1,1-Dichloroethene	mg/kg	0.0191	0.0	.025	76.0	51.1-140	L757522-02	WG780275
1,1-Dichloropropene	mg/kg	0.0192	0.0	.025	77.0	57.3-136	L757522-02	WG780275
1,2,3-Trichlorobenzene	mg/kg	0.0218	0.0	.025	87.0	59.1-138	L757522-02	WG780275
1,2,3-Trichloropropane	mg/kg	0.0208	0.0	.025	83.0	61.4-128	L757522-02	WG780275
1,2,3-Trimethylbenzene	mg/kg	0.0216	0.0	.025	86.0	61.3-122	L757522-02	WG780275
1,2,4-Trichlorobenzene	mg/kg	0.0227	0.0	.025	91.0	63.6-143	L757522-02	WG780275
1,2,4-Trimethylbenzene	mg/kg	0.0223	0.0	.025	89.0	57.4-137	L757522-02	WG780275
1,2-Dibromo-3-Chloropropane	mg/kg	0.0212	0.0	.025	85.0	57.3-136	L757522-02	WG780275
1,2-Dibromoethane	mg/kg	0.0195	0.0	.025	78.0	67.1-125	L757522-02	WG780275
1,2-Dichlorobenzene	mg/kg	0.0212	0.0	.025	85.0	68.2-123	L757522-02	WG780275
1,2-Dichloroethane	mg/kg	0.0198	0.0	.025	79.0	60-126	L757522-02	WG780275
1,2-Dichloropropane	mg/kg	0.0198	0.0	.025	79.0	64.2-123	L757522-02	WG780275
1,3,5-Trimethylbenzene	mg/kg	0.0224	0.0	.025	90.0	63.6-132	L757522-02	WG780275
1,3-Dichlorobenzene	mg/kg	0.0225	0.0	.025	90.0	63.1-131	L757522-02	WG780275
1,3-Dichloropropane	mg/kg	0.0183	0.0	.025	73.0	67.9-121	L757522-02	WG780275
1,4-Dichlorobenzene	mg/kg	0.0201	0.0	.025	80.0	68.6-123	L757522-02	WG780275
2,2-Dichloropropane	mg/kg	0.0212	0.0	.025	85.0	50.5-144	L757522-02	WG780275

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Est. 1970

April 14, 2015

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
2-Butanone (MEK)	mg/kg	0.103	0.0	.125	82.0	22.4-138	L757522-02	WG780275
2-Chloroethyl vinyl ether	mg/kg	0.0926	0.0	.125	74.0	10-155	L757522-02	WG780275
2-Chlorotoluene	mg/kg	0.0219	0.0	.025	88.0	63.6-128	L757522-02	WG780275
4-Chlorotoluene	mg/kg	0.0216	0.0	.025	86.0	65.7-127	L757522-02	WG780275
4-Methyl-2-pentanone (MIBK)	mg/kg	0.101	0.0	.125	81.0	60.8-140	L757522-02	WG780275
Acetone	mg/kg	0.101	0.000694	.125	80.0	10-130	L757522-02	WG780275
Acrylonitrile	mg/kg	0.104	0.0	.125	83.0	49.4-133	L757522-02	WG780275
Benzene	mg/kg	0.0196	0.0	.025	78.0	54.3-133	L757522-02	WG780275
Bromobenzene	mg/kg	0.0204	0.0	.025	81.0	63.9-124	L757522-02	WG780275
Bromodichloromethane	mg/kg	0.0200	0.0	.025	80.0	63.9-121	L757522-02	WG780275
Bromoform	mg/kg	0.0217	0.0	.025	87.0	59.5-134	L757522-02	WG780275
Bromomethane	mg/kg	0.0176	0.0	.025	70.0	41.7-155	L757522-02	WG780275
Carbon tetrachloride	mg/kg	0.0204	0.0	.025	82.0	55.7-134	L757522-02	WG780275
Chlorobenzene	mg/kg	0.0201	0.0	.025	80.0	67-125	L757522-02	WG780275
Chlorodibromomethane	mg/kg	0.0205	0.0	.025	82.0	64.3-125	L757522-02	WG780275
Chloroethane	mg/kg	0.0184	0.0	.025	74.0	51.5-136	L757522-02	WG780275
Chloroform	mg/kg	0.0209	0.0	.025	84.0	63-129	L757522-02	WG780275
Chloromethane	mg/kg	0.0167	0.0	.025	67.0	42.4-135	L757522-02	WG780275
cis-1,2-Dichloroethene	mg/kg	0.0206	0.0	.025	82.0	59.2-129	L757522-02	WG780275
cis-1,3-Dichloropropene	mg/kg	0.0192	0.0	.025	77.0	66.4-125	L757522-02	WG780275
Di-isopropyl ether	mg/kg	0.0208	0.0	.025	83.0	56.9-136	L757522-02	WG780275
Dibromomethane	mg/kg	0.0193	0.0	.025	77.0	68.2-124	L757522-02	WG780275
Dichlorodifluoromethane	mg/kg	0.0208	0.0	.025	83.0	40.6-144	L757522-02	WG780275
Ethylbenzene	mg/kg	0.0201	0.0	.025	80.0	61.4-133	L757522-02	WG780275
Hexachloro-1,3-butadiene	mg/kg	0.0209	0.0	.025	84.0	55.1-136	L757522-02	WG780275
Isopropylbenzene	mg/kg	0.0226	0.0	.025	90.0	66.8-141	L757522-02	WG780275
Methyl tert-butyl ether	mg/kg	0.0212	0.0	.025	85.0	57.7-134	L757522-02	WG780275
Methylene Chloride	mg/kg	0.0192	0.0	.025	77.0	58.1-122	L757522-02	WG780275
n-Butylbenzene	mg/kg	0.0227	0.0	.025	91.0	62.7-140	L757522-02	WG780275
n-Propylbenzene	mg/kg	0.0219	0.0	.025	88.0	10-176	L757522-02	WG780275
Naphthalene	mg/kg	0.0209	0.0	.025	84.0	58-135	L757522-02	WG780275
p-Isopropyltoluene	mg/kg	0.0235	0.0	.025	94.0	63.2-139	L757522-02	WG780275
sec-Butylbenzene	mg/kg	0.0229	0.0	.025	92.0	62.2-136	L757522-02	WG780275
Styrene	mg/kg	0.0211	0.0	.025	84.0	66.8-133	L757522-02	WG780275
tert-Butylbenzene	mg/kg	0.0227	0.0	.025	91.0	63.3-134	L757522-02	WG780275
Tetrachloroethene	mg/kg	0.0188	0.0	.025	75.0	53-139	L757522-02	WG780275
Toluene	mg/kg	0.0195	0.0	.025	78.0	61.4-130	L757522-02	WG780275
trans-1,2-Dichloroethene	mg/kg	0.0188	0.0	.025	75.0	56.5-129	L757522-02	WG780275
trans-1,3-Dichloropropene	mg/kg	0.0204	0.0	.025	82.0	64.1-128	L757522-02	WG780275
Trichloroethene	mg/kg	0.0188	0.0	.025	75.0	44.1-149	L757522-02	WG780275
Trichlorofluoromethane	mg/kg	0.0194	0.0	.025	78.0	49.6-145	L757522-02	WG780275
Vinyl chloride	mg/kg	0.0183	0.0	.025	73.0	47.8-137	L757522-02	WG780275
Xylenes, Total	mg/kg	0.0623	0.0	.075	83.0	63.3-131	L757522-02	WG780275
4-Bromofluorobenzene					106.0	71-126		WG780275
Dibromofluoromethane					105.0	78.3-121		WG780275
Toluene-d8					104.0	88.5-111		WG780275
a,a,a-Trifluorotoluene					105.0	85-114		WG780275
1,1,1,2-Tetrachloroethane	mg/kg	0.106	0.0	.025	85.0	64-128	L757445-01	WG780269
1,1,1-Trichloroethane	mg/kg	0.118	0.0	.025	94.0	58.7-134	L757445-01	WG780269
1,1,2,2-Tetrachloroethane	mg/kg	0.103	0.0	.025	82.0	56-132	L757445-01	WG780269
1,1,2-Trichloroethane	mg/kg	0.0995	0.0	.025	80.0	66.3-125	L757445-01	WG780269
1,1,2-Trichlorotrifluoroethane	mg/kg	0.122	0.0	.025	97.0	54.8-154	L757445-01	WG780269
1,1-Dichloroethane	mg/kg	0.122	0.0	.025	97.0	58.5-132	L757445-01	WG780269
1,1-Dichloroethene	mg/kg	0.130	0.0	.025	100.	51.1-140	L757445-01	WG780269
1,1-Dichloropropene	mg/kg	0.120	0.0	.025	96.0	57.3-136	L757445-01	WG780269
1,2,3-Trichlorobenzene	mg/kg	0.114	0.0	.025	91.0	59.1-138	L757445-01	WG780269
1,2,3-Trichloropropane	mg/kg	0.100	0.0	.025	80.0	61.4-128	L757445-01	WG780269

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Est. 1970

April 14, 2015

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
1,2,3-Trimethylbenzene	mg/kg	0.121	0.0	.025	97.0	61.3-122	L757445-01	WG780269
1,2,4-Trichlorobenzene	mg/kg	0.118	0.0	.025	94.0	63.6-143	L757445-01	WG780269
1,2,4-Trimethylbenzene	mg/kg	0.110	0.000811	.025	88.0	57.4-137	L757445-01	WG780269
1,2-Dibromo-3-Chloropropane	mg/kg	0.0899	0.0	.025	72.0	57.3-136	L757445-01	WG780269
1,2-Dibromoethane	mg/kg	0.0992	0.0	.025	79.0	67.1-125	L757445-01	WG780269
1,2-Dichlorobenzene	mg/kg	0.117	0.0	.025	93.0	68.2-123	L757445-01	WG780269
1,2-Dichloroethane	mg/kg	0.120	0.0	.025	96.0	60-126	L757445-01	WG780269
1,2-Dichloropropane	mg/kg	0.120	0.0	.025	96.0	64.2-123	L757445-01	WG780269
1,3,5-Trimethylbenzene	mg/kg	0.112	0.000317	.025	89.0	63.6-132	L757445-01	WG780269
1,3-Dichlorobenzene	mg/kg	0.110	0.000727	.025	88.0	63.1-131	L757445-01	WG780269
1,3-Dichloropropane	mg/kg	0.107	0.0	.025	86.0	67.9-121	L757445-01	WG780269
1,4-Dichlorobenzene	mg/kg	0.118	0.0	.025	94.0	68.6-123	L757445-01	WG780269
2,2-Dichloropropane	mg/kg	0.116	0.0	.025	93.0	50.5-144	L757445-01	WG780269
2-Butanone (MEK)	mg/kg	0.494	0.0	.125	79.0	22.4-138	L757445-01	WG780269
2-Chloroethyl vinyl ether	mg/kg	0.437	0.0	.125	70.0	10-155	L757445-01	WG780269
2-Chlorotoluene	mg/kg	0.114	0.0	.025	92.0	63.6-128	L757445-01	WG780269
4-Chlorotoluene	mg/kg	0.111	0.0	.025	89.0	65.7-127	L757445-01	WG780269
4-Methyl-2-pentanone (MIBK)	mg/kg	0.526	0.0	.125	84.0	60.8-140	L757445-01	WG780269
Acetone	mg/kg	0.293	0.0	.125	47.0	10-130	L757445-01	WG780269
Acrylonitrile	mg/kg	0.505	0.0	.125	81.0	49.4-133	L757445-01	WG780269
Benzene	mg/kg	0.115	0.0	.025	92.0	54.3-133	L757445-01	WG780269
Bromobenzene	mg/kg	0.110	0.0	.025	88.0	63.9-124	L757445-01	WG780269
Bromodichloromethane	mg/kg	0.108	0.0	.025	87.0	63.9-121	L757445-01	WG780269
Bromoform	mg/kg	0.105	0.0	.025	84.0	59.5-134	L757445-01	WG780269
Bromomethane	mg/kg	0.135	0.0	.025	110.	41.7-155	L757445-01	WG780269
Carbon tetrachloride	mg/kg	0.119	0.0	.025	95.0	55.7-134	L757445-01	WG780269
Chlorobenzene	mg/kg	0.113	0.0	.025	91.0	67-125	L757445-01	WG780269
Chlorodibromomethane	mg/kg	0.108	0.0	.025	86.0	64.3-125	L757445-01	WG780269
Chloroethane	mg/kg	0.157	0.0	.025	130.	51.5-136	L757445-01	WG780269
Chloroform	mg/kg	0.111	0.0	.025	89.0	63-129	L757445-01	WG780269
Chloromethane	mg/kg	0.127	0.0	.025	100.	42.4-135	L757445-01	WG780269
cis-1,2-Dichloroethene	mg/kg	0.106	0.0	.025	85.0	59.2-129	L757445-01	WG780269
cis-1,3-Dichloropropene	mg/kg	0.115	0.0	.025	92.0	66.4-125	L757445-01	WG780269
Di-isopropyl ether	mg/kg	0.115	0.0	.025	92.0	56.9-136	L757445-01	WG780269
Dibromomethane	mg/kg	0.116	0.0	.025	93.0	68.2-124	L757445-01	WG780269
Dichlorodifluoromethane	mg/kg	0.130	0.0	.025	100.	40.6-144	L757445-01	WG780269
Ethylbenzene	mg/kg	0.117	0.0	.025	94.0	61.4-133	L757445-01	WG780269
Hexachloro-1,3-butadiene	mg/kg	0.119	0.0	.025	95.0	55.1-136	L757445-01	WG780269
Isopropylbenzene	mg/kg	0.116	0.0	.025	93.0	66.8-141	L757445-01	WG780269
Methyl tert-butyl ether	mg/kg	0.109	0.0	.025	87.0	57.7-134	L757445-01	WG780269
Methylene Chloride	mg/kg	0.112	0.0	.025	89.0	58.1-122	L757445-01	WG780269
n-Butylbenzene	mg/kg	0.126	0.000827	.025	100.	62.7-140	L757445-01	WG780269
n-Propylbenzene	mg/kg	0.117	0.0	.025	94.0	10-176	L757445-01	WG780269
Naphthalene	mg/kg	0.103	0.0	.025	82.0	58-135	L757445-01	WG780269
p-Isopropyltoluene	mg/kg	0.116	0.0	.025	92.0	63.2-139	L757445-01	WG780269
sec-Butylbenzene	mg/kg	0.115	0.000523	.025	92.0	62.2-136	L757445-01	WG780269
Styrene	mg/kg	0.114	0.0	.025	92.0	66.8-133	L757445-01	WG780269
tert-Butylbenzene	mg/kg	0.113	0.0	.025	91.0	63.3-134	L757445-01	WG780269
Tetrachloroethene	mg/kg	0.115	0.0	.025	92.0	53-139	L757445-01	WG780269
Toluene	mg/kg	0.113	0.0	.025	90.0	61.4-130	L757445-01	WG780269
trans-1,2-Dichloroethene	mg/kg	0.113	0.0	.025	91.0	56.5-129	L757445-01	WG780269
trans-1,3-Dichloropropene	mg/kg	0.103	0.0	.025	83.0	64.1-128	L757445-01	WG780269
Trichloroethene	mg/kg	0.114	0.0	.025	91.0	44.1-149	L757445-01	WG780269
Trichlorofluoromethane	mg/kg	0.126	0.0	.025	100.	49.6-145	L757445-01	WG780269
Vinyl chloride	mg/kg	0.124	0.0	.025	99.0	47.8-137	L757445-01	WG780269
Xylenes, Total	mg/kg	0.338	0.0	.075	90.0	63.3-131	L757445-01	WG780269
4-Bromofluorobenzene					104.0	71-126		WG780269
Dibromofluoromethane					109.0	78.3-121		WG780269
Toluene-d8					110.0	88.5-111		WG780269

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Est. 1970

April 14, 2015

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
a,a,a-Trifluorotoluene					101.0	85-114			

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
1,1,1,2-Tetrachloroethane	mg/kg	0.0226	0.0216	90.4	64-128	4.43	20	L757522-02	WG780275
1,1,1-Trichloroethane	mg/kg	0.0210	0.0209	84.0	58.7-134	0.290	20	L757522-02	WG780275
1,1,2,2-Tetrachloroethane	mg/kg	0.0229	0.0227	91.7	56-132	1.11	22.2	L757522-02	WG780275
1,1,2-Trichloroethane	mg/kg	0.0206	0.0201	82.6	66.3-125	2.85	20	L757522-02	WG780275
1,1,2-Trichlorotrifluoroethane	mg/kg	0.0209	0.0204	83.7	54.8-154	2.39	22.5	L757522-02	WG780275
1,1-Dichloroethane	mg/kg	0.0202	0.0202	80.7	58.5-132	0.200	20	L757522-02	WG780275
1,1-Dichloroethene	mg/kg	0.0189	0.0191	75.8	51.1-140	0.770	20.2	L757522-02	WG780275
1,1-Dichloropropene	mg/kg	0.0193	0.0192	77.3	57.3-136	0.690	20	L757522-02	WG780275
1,2,3-Trichlorobenzene	mg/kg	0.0196	0.0218	78.4	59.1-138	10.5	23.7	L757522-02	WG780275
1,2,3-Trichloropropane	mg/kg	0.0212	0.0208	84.8	61.4-128	1.88	22.4	L757522-02	WG780275
1,2,3-Trimethylbenzene	mg/kg	0.0211	0.0216	84.5	61.3-122	2.16	20	L757522-02	WG780275
1,2,4-Trichlorobenzene	mg/kg	0.0202	0.0227	81.0	63.6-143	11.5	21.9	L757522-02	WG780275
1,2,4-Trimethylbenzene	mg/kg	0.0227	0.0223	90.8	57.4-137	1.73	20	L757522-02	WG780275
1,2-Dibromo-3-Chloropropane	mg/kg	0.0210	0.0212	84.1	57.3-136	0.570	27	L757522-02	WG780275
1,2-Dibromoethane	mg/kg	0.0199	0.0195	79.5	67.1-125	2.09	20	L757522-02	WG780275
1,2-Dichlorobenzene	mg/kg	0.0206	0.0212	82.4	68.2-123	2.74	20	L757522-02	WG780275
1,2-Dichloroethane	mg/kg	0.0195	0.0198	78.1	60-126	1.44	20	L757522-02	WG780275
1,2-Dichloropropane	mg/kg	0.0193	0.0198	77.2	64.2-123	2.34	20	L757522-02	WG780275
1,3,5-Trimethylbenzene	mg/kg	0.0229	0.0224	91.6	63.6-132	2.27	20.5	L757522-02	WG780275
1,3-Dichlorobenzene	mg/kg	0.0225	0.0225	90.1	63.1-131	0.0700	20	L757522-02	WG780275
1,3-Dichloropropane	mg/kg	0.0189	0.0183	75.5	67.9-121	3.08	20	L757522-02	WG780275
1,4-Dichlorobenzene	mg/kg	0.0197	0.0201	78.6	68.6-123	2.37	20	L757522-02	WG780275
2,2-Dichloropropane	mg/kg	0.0212	0.0212	84.8	50.5-144	0.0900	21.9	L757522-02	WG780275
2-Butanone (MEK)	mg/kg	0.103	0.103	82.6	22.4-138	0.370	27	L757522-02	WG780275
2-Chloroethyl vinyl ether	mg/kg	0.0929	0.0926	74.4	10-155	0.370	40	L757522-02	WG780275
2-Chlorotoluene	mg/kg	0.0222	0.0219	88.6	63.6-128	1.35	20	L757522-02	WG780275
4-Chlorotoluene	mg/kg	0.0224	0.0216	89.7	65.7-127	3.66	20	L757522-02	WG780275
4-Methyl-2-pentanone (MIBK)	mg/kg	0.102	0.101	81.3	60.8-140	0.170	25.1	L757522-02	WG780275
Acetone	mg/kg	0.0863	0.101	68.5	10-130	15.2	27.9	L757522-02	WG780275
Acrylonitrile	mg/kg	0.102	0.104	81.7	49.4-133	1.33	25.3	L757522-02	WG780275
Benzene	mg/kg	0.0195	0.0196	78.1	54.3-133	0.400	20	L757522-02	WG780275
Bromobenzene	mg/kg	0.0207	0.0204	82.7	63.9-124	1.54	20	L757522-02	WG780275
Bromodichloromethane	mg/kg	0.0197	0.0200	78.9	63.9-121	1.57	20	L757522-02	WG780275
Bromoform	mg/kg	0.0224	0.0217	89.6	59.5-134	3.32	20.8	L757522-02	WG780275
Bromomethane	mg/kg	0.0175	0.0176	69.9	41.7-155	0.740	20.5	L757522-02	WG780275
Carbon tetrachloride	mg/kg	0.0205	0.0204	82.0	55.7-134	0.490	20.3	L757522-02	WG780275
Chlorobenzene	mg/kg	0.0205	0.0201	82.2	67-125	2.05	20	L757522-02	WG780275
Chlorodibromomethane	mg/kg	0.0210	0.0205	83.9	64.3-125	2.18	20	L757522-02	WG780275
Chloroethane	mg/kg	0.0182	0.0184	73.0	51.5-136	0.940	20.8	L757522-02	WG780275
Chloroform	mg/kg	0.0206	0.0209	82.3	63-129	1.47	20	L757522-02	WG780275
Chloromethane	mg/kg	0.0168	0.0167	67.3	42.4-135	0.950	20	L757522-02	WG780275
cis-1,2-Dichloroethene	mg/kg	0.0201	0.0206	80.4	59.2-129	2.53	20	L757522-02	WG780275
cis-1,3-Dichloropropene	mg/kg	0.0196	0.0192	78.5	66.4-125	1.93	20	L757522-02	WG780275
Di-isopropyl ether	mg/kg	0.0206	0.0208	82.2	56.9-136	1.27	20	L757522-02	WG780275
Dibromomethane	mg/kg	0.0191	0.0193	76.3	68.2-124	0.990	20	L757522-02	WG780275
Dichlorodifluoromethane	mg/kg	0.0209	0.0208	83.5	40.6-144	0.300	20.2	L757522-02	WG780275
Ethylbenzene	mg/kg	0.0211	0.0201	84.4	61.4-133	4.84	20	L757522-02	WG780275
Hexachloro-1,3-butadiene	mg/kg	0.0196	0.0209	78.3	55.1-136	6.56	23.6	L757522-02	WG780275
Isopropylbenzene	mg/kg	0.0232	0.0226	93.0	66.8-141	2.90	20	L757522-02	WG780275
Methyl tert-butyl ether	mg/kg	0.0203	0.0212	81.1	57.7-134	4.58	20	L757522-02	WG780275
Methylene Chloride	mg/kg	0.0190	0.0192	76.1	58.1-122	0.730	20	L757522-02	WG780275
n-Butylbenzene	mg/kg	0.0221	0.0227	88.6	62.7-140	2.59	20	L757522-02	WG780275
n-Propylbenzene	mg/kg	0.0228	0.0219	91.1	10-176	3.94	26.6	L757522-02	WG780275
Naphthalene	mg/kg	0.0197	0.0209	78.8	58-135	5.87	25.5	L757522-02	WG780275

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Table with columns: Analyte, Units, MSD, Matrix Spike Ref, Duplicate %Rec, Limit, RPD, Limit, Ref Samp, Batch. Lists various chemical analytes and their associated data points.

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
cis-1,2-Dichloroethene	mg/kg	0.0997	0.106	79.8	59.2-129	6.54	20	L757445-01	WG780269
cis-1,3-Dichloropropene	mg/kg	0.107	0.115	85.3	66.4-125	7.52	20	L757445-01	WG780269
Di-isopropyl ether	mg/kg	0.112	0.115	89.7	56.9-136	2.95	20	L757445-01	WG780269
Dibromomethane	mg/kg	0.106	0.116	84.6	68.2-124	9.60	20	L757445-01	WG780269
Dichlorodifluoromethane	mg/kg	0.115	0.130	91.7	40.6-144	12.4	20.2	L757445-01	WG780269
Ethylbenzene	mg/kg	0.108	0.117	86.6	61.4-133	7.88	20	L757445-01	WG780269
Hexachloro-1,3-butadiene	mg/kg	0.107	0.119	86.0	55.1-136	10.3	23.6	L757445-01	WG780269
Isopropylbenzene	mg/kg	0.107	0.116	85.8	66.8-141	8.00	20	L757445-01	WG780269
Methyl tert-butyl ether	mg/kg	0.102	0.109	81.6	57.7-134	6.66	20	L757445-01	WG780269
Methylene Chloride	mg/kg	0.102	0.112	81.6	58.1-122	9.01	20	L757445-01	WG780269
n-Butylbenzene	mg/kg	0.114	0.126	90.9	62.7-140	9.38	20	L757445-01	WG780269
n-Propylbenzene	mg/kg	0.112	0.117	89.3	10-176	4.82	26.6	L757445-01	WG780269
Naphthalene	mg/kg	0.0978	0.103	78.2	58-135	5.28	25.5	L757445-01	WG780269
p-Isopropyltoluene	mg/kg	0.107	0.116	85.8	63.2-139	7.51	20.4	L757445-01	WG780269
sec-Butylbenzene	mg/kg	0.106	0.115	84.7	62.2-136	7.65	20.3	L757445-01	WG780269
Styrene	mg/kg	0.105	0.114	83.9	66.8-133	8.63	20	L757445-01	WG780269
tert-Butylbenzene	mg/kg	0.109	0.113	87.0	63.3-134	4.11	20.3	L757445-01	WG780269
Tetrachloroethene	mg/kg	0.105	0.115	83.8	53-139	9.02	20	L757445-01	WG780269
Toluene	mg/kg	0.107	0.113	85.9	61.4-130	4.99	20	L757445-01	WG780269
trans-1,2-Dichloroethene	mg/kg	0.109	0.113	87.5	56.5-129	3.63	20	L757445-01	WG780269
trans-1,3-Dichloropropene	mg/kg	0.0924	0.103	74.0	64.1-128	11.3	20	L757445-01	WG780269
Trichloroethene	mg/kg	0.104	0.114	83.4	44.1-149	8.83	20	L757445-01	WG780269
Trichlorofluoromethane	mg/kg	0.118	0.126	94.0	49.6-145	6.88	21.2	L757445-01	WG780269
Vinyl chloride	mg/kg	0.117	0.124	93.8	47.8-137	5.77	20	L757445-01	WG780269
Xylenes, Total	mg/kg	0.313	0.338	83.5	63.3-131	7.64	20	L757445-01	WG780269
4-Bromofluorobenzene				104.0	71-126				WG780269
Dibromofluoromethane				107.0	78.3-121				WG780269
Toluene-d8				109.0	88.5-111				WG780269
a,a,a-Trifluorotoluene				103.0	85-114				WG780269

Batch number /Run number / Sample number cross reference

WG780559: R3029428: L757522-01 02  
 WG780275: R3030468: L757522-02  
 WG780269: R3030553: L757522-01

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

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

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

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

