



**Nicholson GeoSolutions LLC**

3433 East Lake Drive  
Centennial, CO 80121

June 9, 2014

Mr. Derek Johnson  
Linn Energy, LLC  
235 Callahan Avenue  
Parachute, Colorado 81635

**Subject: C-20 Reserve Pit Soil Sample Results**

Dear Derek:

Nicholson GeoSolutions LLC was retained by Linn Energy, LLC (Linn) to conduct soil sampling of the soils beneath the former reserve pit on the C-20 well pad in the Garden Gulch area, Garfield County, Colorado.

Sampling was conducted on May 17, 2014. Impacted materials from the base and sidewalls of the pit had been previously excavated and stored in a bermed area on the well pad. During the inspection the perimeter and inner corners of the pit were mapped using a hand-held GPS unit and six discrete soil samples were collected to evaluate compliance with COGCC Table 910-1 standards. In addition to the confirmation samples, a composite sample of the excavated spoils was also collected.

Figure 1 shows the approximate extent of the pit and the locations of the six confirmation samples collected. All samples were analyzed for Total Volatile Petroleum Hydrocarbons (TVPH – gasoline range), Total Extractable Petroleum Hydrocarbons (TEPH – diesel and motor oil range), BTEX (benzene, toluene, ethylbenzene, and xylenes), sodium adsorption ratio (SAR), pH, conductivity, metals, and PAHs to evaluate compliance with the Table 910-1 standards and treatment options.

Table 1 provides analytical results for the soil samples collected. The laboratory analytical report is contained in Appendix A. TEPH exceeded the standard for confirmation samples C20-P1 (570 mg/kg), C20-P3 (1,700 mg/kg), C20-P5 (1,014 mg/kg), and C20-P6 (774 mg/kg). SAR also exceeded the standards for confirmation samples C20-P2 and C20-P3; however, these samples were collected from greater than 3 feet depth so no action is required based on the SAR results. All results for the spoils sample were below the COGCC standards except for arsenic. Arsenic ranged from 4.8 to 8.7 mg/kg for the seven samples, within the range of natural background concentrations for the Garden Gulch area.

Nicholson GeoSolutions LLC



David K. Nicholson, P.G.  
Principal Geologist

**Table 1 C-20 Sample Results – May 17, 2014**

Parameter	Table 910-1 Standards	C20-P1	C20-P2	C20-P3	C20-P4	C20-P5	C20-P6	C20-SPOILS
sp. conductance (mmhos/cm)	<4	0.90	2.7	1.1	0.54	0.38	0.42	3.2
pH (standard units)	6-9	8.3	8.8	8.7	8.2	8.2	8.5	7.8
SAR (ratio)	<10	9.7	<b>37</b>	<b>25</b>	5.3	1.9	9.2	7.0
TVPH – gasoline range	500 <sup>1</sup>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TEPH – diesel/motor oil range	500 <sup>1</sup>	<b>570</b>	490	<b>1,700</b>	<80	<b>1,014</b>	<b>774</b>	<80
benzene	0.17	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
toluene	85	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
ethylbenzene	100	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
xylenes	175	<0.0075	<0.0075	<0.0075	<0.0075	<0.0075	<0.0075	<0.0075
PAHs	various	All ok	All ok	All ok	All ok	All ok	All ok	All ok
arsenic	0.39	<b>8.7</b>	<b>7.3</b>	<b>7.1</b>	<b>4.8</b>	<b>5.8</b>	<b>6.2</b>	<b>8.0</b>

<sup>1</sup>The standard is 500 for the combined total of TVPH and TEPH

Values in bold type exceed standards

All units in mg/kg except where indicated



Figure 1

May  
2014

GeoSolutions  
NICHOLSON

### Legend

- Sample Location
- Pit Boundary

0 37.5 75 150 Feet 1" = 75'

**Berry Petroleum**

**C-20  
Pit Investigation**

**APPENDIX A**  
**Laboratory Report**



12065 Lebanon Rd.  
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Dave Nicholson  
Berry Petroleum Company - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

## Report Summary

Thursday May 29, 2014

Report Number: L700009

Samples Received: 05/20/14

Client Project:

Description: Pit Reclamation

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:

Mark W. Beasley , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-TN-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,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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# REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation  
Sample ID : C20-P1  
Collected By :  
Collection Date : 05/17/14 15:50

ESC Sample # : L700009-11

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/22/14	1
ORP	78.		mV	2580 B-2011	05/28/14	1
pH	8.3		su	9045D	05/22/14	1
Sodium Adsorption Ratio	9.7			Calc.	05/24/14	1
Specific Conductance	900		umhos/cm	9050AMod	05/28/14	1
Mercury	BDL	0.020	mg/kg	7471	05/21/14	1
Arsenic	8.7	2.0	mg/kg	6010B	05/23/14	1
Barium	220	0.50	mg/kg	6010B	05/23/14	1
Boron	BDL	10.	mg/kg	6010B	05/23/14	1
Cadmium	BDL	0.50	mg/kg	6010B	05/23/14	1
Chromium	71.	1.0	mg/kg	6010B	05/23/14	1
Copper	12.	2.0	mg/kg	6010B	05/23/14	1
Lead	11.	0.50	mg/kg	6010B	05/23/14	1
Nickel	19.	2.0	mg/kg	6010B	05/23/14	1
Selenium	BDL	2.0	mg/kg	6010B	05/23/14	1
Silver	BDL	1.0	mg/kg	6010B	05/23/14	1
Zinc	48.	3.0	mg/kg	6010B	05/23/14	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/24/14	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/24/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/24/14	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/24/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/24/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.6		% Rec.	8021/8015	05/24/14	5
a,a,a-Trifluorotoluene(PID)	99.4		% Rec.	8021/8015	05/24/14	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	570	40.	mg/kg	8015	05/21/14	10
C28-C40 Oil Range	BDL	40.	mg/kg	8015	05/21/14	10
Surrogate Recovery						
o-Terphenyl	63.1		% Rec.	8015	05/21/14	10
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.024	0.0060	mg/kg	8270C-SIM	05/23/14	1
Acenaphthene	0.036	0.0060	mg/kg	8270C-SIM	05/23/14	1
Acenaphthylene	0.0070	0.0060	mg/kg	8270C-SIM	05/23/14	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/23/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L700009-11 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process

L700009-11 (PH) - 8.3@21.8c



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Collected By :  
Collection Date : 05/17/14 15:50

ESC Sample # : L700009-11

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/23/14	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/23/14	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	05/23/14	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/23/14	1
Chrysene	0.0092	0.0060	mg/kg	8270C-SIM	05/23/14	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/23/14	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/23/14	1
Fluorene	0.035	0.0060	mg/kg	8270C-SIM	05/23/14	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/23/14	1
Naphthalene	0.40	0.020	mg/kg	8270C-SIM	05/23/14	1
Phenanthrene	0.19	0.0060	mg/kg	8270C-SIM	05/23/14	1
Pyrene	0.051	0.0060	mg/kg	8270C-SIM	05/23/14	1
1-Methylnaphthalene	0.38	0.020	mg/kg	8270C-SIM	05/23/14	1
2-Methylnaphthalene	0.86	0.020	mg/kg	8270C-SIM	05/23/14	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/23/14	1
Surrogate Recovery						
p-Terphenyl-d14	70.1		% Rec.	8270C-SIM	05/23/14	1
Nitrobenzene-d5	60.0		% Rec.	8270C-SIM	05/23/14	1
2-Fluorobiphenyl	69.5		% Rec.	8270C-SIM	05/23/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 05/29/14 11:07 Revised: 05/29/14 17:20

L700009-11 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process

L700009-11 (PH) - 8.3@21.8c





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# REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation  
Sample ID : C20-P2  
Collected By :  
Collection Date : 05/17/14 15:55

ESC Sample # : L700009-12

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/22/14	1
ORP	78.		mV	2580 B-2011	05/28/14	1
pH	8.8		su	9045D	05/22/14	1
Sodium Adsorption Ratio	37.			Calc.	05/24/14	1
Specific Conductance	2700		umhos/cm	9050AMod	05/28/14	1
Mercury	BDL	0.020	mg/kg	7471	05/21/14	1
Arsenic	7.3	2.0	mg/kg	6010B	05/23/14	1
Barium	400	0.50	mg/kg	6010B	05/23/14	1
Boron	10.	10.	mg/kg	6010B	05/23/14	1
Cadmium	BDL	0.50	mg/kg	6010B	05/23/14	1
Chromium	50.	1.0	mg/kg	6010B	05/23/14	1
Copper	16.	2.0	mg/kg	6010B	05/23/14	1
Lead	15.	0.50	mg/kg	6010B	05/23/14	1
Nickel	22.	2.0	mg/kg	6010B	05/23/14	1
Selenium	BDL	2.0	mg/kg	6010B	05/23/14	1
Silver	BDL	1.0	mg/kg	6010B	05/23/14	1
Zinc	49.	3.0	mg/kg	6010B	05/23/14	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/26/14	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/26/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/26/14	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/26/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/26/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.1		% Rec.	8021/8015	05/26/14	5
a,a,a-Trifluorotoluene(PID)	99.8		% Rec.	8021/8015	05/26/14	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	490	40.	mg/kg	8015	05/21/14	10
C28-C40 Oil Range	BDL	40.	mg/kg	8015	05/21/14	10
Surrogate Recovery						
o-Terphenyl	71.8		% Rec.	8015	05/21/14	10
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.017	0.0060	mg/kg	8270C-SIM	05/26/14	1
Acenaphthene	0.028	0.0060	mg/kg	8270C-SIM	05/26/14	1
Acenaphthylene	0.0072	0.0060	mg/kg	8270C-SIM	05/26/14	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L700009-12 (PH) - 8.8@21.6c

L700009-12 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process





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May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation

Sample ID : C20-P2

Collected By :  
Collection Date : 05/17/14 15:55

ESC Sample # : L700009-12

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Fluoranthene	0.010	0.0060	mg/kg	8270C-SIM	05/26/14	1
Fluorene	0.026	0.0060	mg/kg	8270C-SIM	05/26/14	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Naphthalene	0.25	0.020	mg/kg	8270C-SIM	05/26/14	1
Phenanthrene	0.14	0.0060	mg/kg	8270C-SIM	05/26/14	1
Pyrene	0.068	0.0060	mg/kg	8270C-SIM	05/26/14	1
1-Methylnaphthalene	0.21	0.020	mg/kg	8270C-SIM	05/26/14	1
2-Methylnaphthalene	0.58	0.020	mg/kg	8270C-SIM	05/26/14	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/26/14	1
Surrogate Recovery						
p-Terphenyl-d14	69.5		% Rec.	8270C-SIM	05/26/14	1
Nitrobenzene-d5	65.9		% Rec.	8270C-SIM	05/26/14	1
2-Fluorobiphenyl	70.0		% Rec.	8270C-SIM	05/26/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 05/29/14 11:07 Revised: 05/29/14 17:20

L700009-12 (PH) - 8.8@21.6c

L700009-12 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process



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# REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation  
Sample ID : C20-P3  
Collected By :  
Collection Date : 05/17/14 16:00

ESC Sample # : L700009-13

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	20.	mg/kg	3060A/7196A	05/26/14	10
ORP	58.		mV	2580 B-2011	05/28/14	1
pH	8.7		su	9045D	05/22/14	1
Sodium Adsorption Ratio	25.			Calc.	05/24/14	1
Specific Conductance	1100		umhos/cm	9050AMod	05/28/14	1
Mercury	BDL	0.020	mg/kg	7471	05/21/14	1
Arsenic	7.1	2.0	mg/kg	6010B	05/23/14	1
Barium	340	0.50	mg/kg	6010B	05/23/14	1
Boron	11.	10.	mg/kg	6010B	05/23/14	1
Cadmium	0.56	0.50	mg/kg	6010B	05/23/14	1
Chromium	42.	1.0	mg/kg	6010B	05/23/14	1
Copper	19.	2.0	mg/kg	6010B	05/23/14	1
Lead	16.	0.50	mg/kg	6010B	05/23/14	1
Nickel	20.	2.0	mg/kg	6010B	05/23/14	1
Selenium	BDL	2.0	mg/kg	6010B	05/23/14	1
Silver	BDL	1.0	mg/kg	6010B	05/23/14	1
Zinc	77.	3.0	mg/kg	6010B	05/23/14	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/26/14	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/26/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/26/14	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/26/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/26/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.1		% Rec.	8021/8015	05/26/14	5
a,a,a-Trifluorotoluene(PID)	99.5		% Rec.	8021/8015	05/26/14	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	1700	40.	mg/kg	8015	05/21/14	10
C28-C40 Oil Range	BDL	40.	mg/kg	8015	05/21/14	10
Surrogate Recovery						
o-Terphenyl	80.1		% Rec.	8015	05/21/14	10
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.16	0.030	mg/kg	8270C-SIM	05/26/14	5
Acenaphthene	0.30	0.030	mg/kg	8270C-SIM	05/26/14	5
Acenaphthylene	0.039	0.030	mg/kg	8270C-SIM	05/26/14	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L700009-13 (CR6) - diluted due to sample color  
L700009-13 (PH) - 8.7@21.6c



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May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation

Sample ID : C20-P3

Collected By :  
Collection Date : 05/17/14 16:00

ESC Sample # : L700009-13

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(a)pyrene	BDL	0.0030	mg/kg	8270C-SIM	05/26/14	5
Benzo(b)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Benzo(g,h,i)perylene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Chrysene	0.032	0.030	mg/kg	8270C-SIM	05/26/14	5
Dibenz(a,h)anthracene	BDL	0.0030	mg/kg	8270C-SIM	05/26/14	5
Fluoranthene	0.10	0.030	mg/kg	8270C-SIM	05/26/14	5
Fluorene	0.27	0.030	mg/kg	8270C-SIM	05/26/14	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Naphthalene	1.2	0.10	mg/kg	8270C-SIM	05/26/14	5
Phenanthrene	1.5	0.030	mg/kg	8270C-SIM	05/26/14	5
Pyrene	0.71	0.030	mg/kg	8270C-SIM	05/26/14	5
1-Methylnaphthalene	1.2	0.10	mg/kg	8270C-SIM	05/26/14	5
2-Methylnaphthalene	3.0	0.10	mg/kg	8270C-SIM	05/26/14	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	05/26/14	5
Surrogate Recovery						
p-Terphenyl-d14	83.6		% Rec.	8270C-SIM	05/26/14	5
Nitrobenzene-d5	50.0		% Rec.	8270C-SIM	05/26/14	5
2-Fluorobiphenyl	62.1		% Rec.	8270C-SIM	05/26/14	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 05/29/14 11:07 Revised: 05/29/14 17:20

L700009-13 (CR6) - diluted due to sample color

L700009-13 (PH) - 8.7@21.6c



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Tax I.D. 62-0814289

Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation  
Sample ID : C20-P4  
Collected By :  
Collection Date : 05/17/14 16:10

ESC Sample # : L700009-14

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	20.	mg/kg	3060A/7196A	05/26/14	10
ORP	77.		mV	2580 B-2011	05/28/14	1
pH	8.2		su	9045D	05/22/14	1
Sodium Adsorption Ratio	5.3			Calc.	05/24/14	1
Specific Conductance	540		umhos/cm	9050AMod	05/28/14	1
Mercury	BDL	0.020	mg/kg	7471	05/21/14	1
Arsenic	4.8	2.0	mg/kg	6010B	05/23/14	1
Barium	290	0.50	mg/kg	6010B	05/23/14	1
Boron	10.	10.	mg/kg	6010B	05/23/14	1
Cadmium	BDL	0.50	mg/kg	6010B	05/23/14	1
Chromium	35.	1.0	mg/kg	6010B	05/23/14	1
Copper	12.	2.0	mg/kg	6010B	05/23/14	1
Lead	12.	0.50	mg/kg	6010B	05/23/14	1
Nickel	17.	2.0	mg/kg	6010B	05/23/14	1
Selenium	BDL	2.0	mg/kg	6010B	05/23/14	1
Silver	BDL	1.0	mg/kg	6010B	05/23/14	1
Zinc	46.	3.0	mg/kg	6010B	05/23/14	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/26/14	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/26/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/26/14	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/26/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/26/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.9		% Rec.	8021/8015	05/26/14	5
a,a,a-Trifluorotoluene(PID)	99.8		% Rec.	8021/8015	05/26/14	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	40.	mg/kg	8015	05/21/14	10
C28-C40 Oil Range	BDL	40.	mg/kg	8015	05/21/14	10
Surrogate Recovery						
o-Terphenyl	68.3		% Rec.	8015	05/21/14	10
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L700009-14 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process

L700009-14 (CR6) - diluted due to sample color

L700009-14 (PH) - 8.2@21.6c



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# REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation

Sample ID : C20-P4

Collected By :  
Collection Date : 05/17/14 16:10

ESC Sample # : L700009-14

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
Naphthalene	0.026	0.020	mg/kg	8270C-SIM	05/26/14	1
Phenanthrene	0.016	0.0060	mg/kg	8270C-SIM	05/26/14	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/26/14	1
1-Methylnaphthalene	0.025	0.020	mg/kg	8270C-SIM	05/26/14	1
2-Methylnaphthalene	0.070	0.020	mg/kg	8270C-SIM	05/26/14	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/26/14	1
Surrogate Recovery						
p-Terphenyl-d14	65.0		% Rec.	8270C-SIM	05/26/14	1
Nitrobenzene-d5	60.5		% Rec.	8270C-SIM	05/26/14	1
2-Fluorobiphenyl	70.9		% Rec.	8270C-SIM	05/26/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 05/29/14 11:07 Revised: 05/29/14 17:20

L700009-14 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process

L700009-14 (CR6) - diluted due to sample color

L700009-14 (PH) - 8.2@21.6c



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# REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation  
Sample ID : C20-P5  
Collected By :  
Collection Date : 05/17/14 16:15

ESC Sample # : L700009-15

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	10.	mg/kg	3060A/7196A	05/26/14	5
ORP	84.		mV	2580 B-2011	05/28/14	1
pH	8.2		su	9045D	05/22/14	1
Sodium Adsorption Ratio	1.9			Calc.	05/24/14	1
Specific Conductance	380		umhos/cm	9050AMod	05/28/14	1
Mercury	BDL	0.020	mg/kg	7471	05/21/14	1
Arsenic	5.8	2.0	mg/kg	6010B	05/23/14	1
Barium	510	0.50	mg/kg	6010B	05/23/14	1
Boron	20.	10.	mg/kg	6010B	05/23/14	1
Cadmium	0.54	0.50	mg/kg	6010B	05/23/14	1
Chromium	29.	1.0	mg/kg	6010B	05/23/14	1
Copper	15.	2.0	mg/kg	6010B	05/23/14	1
Lead	18.	0.50	mg/kg	6010B	05/23/14	1
Nickel	12.	2.0	mg/kg	6010B	05/23/14	1
Selenium	BDL	2.0	mg/kg	6010B	05/23/14	1
Silver	BDL	1.0	mg/kg	6010B	05/23/14	1
Zinc	58.	3.0	mg/kg	6010B	05/23/14	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/24/14	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/24/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/24/14	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/24/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/24/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.6		% Rec.	8021/8015	05/24/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	05/24/14	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	920	40.	mg/kg	8015	05/21/14	10
C28-C40 Oil Range	94.	40.	mg/kg	8015	05/21/14	10
Surrogate Recovery						
o-Terphenyl	87.6		% Rec.	8015	05/21/14	10
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Acenaphthene	0.034	0.030	mg/kg	8270C-SIM	05/28/14	5
Acenaphthylene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L700009-15 (CR6) - diluted due to sample color

L700009-15 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process

L700009-15 (PH) - 8.2@21.4c

L700009-15 (SV8270PAHSIM) - Dilution due to matrix



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# REPORT OF ANALYSIS

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1999 Broadway, Suite 3700  
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May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation  
Sample ID : C20-P5  
Collected By :  
Collection Date : 05/17/14 16:15

ESC Sample # : L700009-15

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(a)pyrene	0.0040	0.0030	mg/kg	8270C-SIM	05/28/14	5
Benzo(b)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Benzo(g,h,i)perylene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Chrysene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Dibenz(a,h)anthracene	BDL	0.0030	mg/kg	8270C-SIM	05/28/14	5
Fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Fluorene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Naphthalene	0.40	0.10	mg/kg	8270C-SIM	05/28/14	5
Phenanthrene	0.19	0.030	mg/kg	8270C-SIM	05/28/14	5
Pyrene	0.11	0.030	mg/kg	8270C-SIM	05/28/14	5
1-Methylnaphthalene	0.34	0.10	mg/kg	8270C-SIM	05/28/14	5
2-Methylnaphthalene	0.97	0.10	mg/kg	8270C-SIM	05/28/14	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	05/28/14	5
Surrogate Recovery						
p-Terphenyl-d14	54.5		% Rec.	8270C-SIM	05/28/14	5
Nitrobenzene-d5	57.3		% Rec.	8270C-SIM	05/28/14	5
2-Fluorobiphenyl	52.0		% Rec.	8270C-SIM	05/28/14	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 05/29/14 11:07 Revised: 05/29/14 17:20

L700009-15 (CR6) - diluted due to sample color

L700009-15 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process

L700009-15 (PH) - 8.2@21.4c

L700009-15 (SV8270PAHSIM) - Dilution due to matrix





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# REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
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May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation  
Sample ID : C20-P6  
Collected By :  
Collection Date : 05/17/14 16:20

ESC Sample # : L700009-16

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	10.	mg/kg	3060A/7196A	05/26/14	5
ORP	70.		mV	2580 B-2011	05/28/14	1
pH	8.5		su	9045D	05/22/14	1
Sodium Adsorption Ratio	9.2			Calc.	05/24/14	1
Specific Conductance	420		umhos/cm	9050AMod	05/28/14	1
Mercury	BDL	0.020	mg/kg	7471	05/21/14	1
Arsenic	6.2	2.0	mg/kg	6010B	05/23/14	1
Barium	430	0.50	mg/kg	6010B	05/23/14	1
Boron	12.	10.	mg/kg	6010B	05/23/14	1
Cadmium	BDL	0.50	mg/kg	6010B	05/23/14	1
Chromium	29.	1.0	mg/kg	6010B	05/23/14	1
Copper	16.	2.0	mg/kg	6010B	05/23/14	1
Lead	15.	0.50	mg/kg	6010B	05/23/14	1
Nickel	13.	2.0	mg/kg	6010B	05/23/14	1
Selenium	BDL	2.0	mg/kg	6010B	05/23/14	1
Silver	BDL	1.0	mg/kg	6010B	05/23/14	1
Zinc	45.	3.0	mg/kg	6010B	05/23/14	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/26/14	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/26/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/26/14	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/26/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/26/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.3		% Rec.	8021/8015	05/26/14	5
a,a,a-Trifluorotoluene(PID)	99.2		% Rec.	8021/8015	05/26/14	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	690	40.	mg/kg	8015	05/21/14	10
C28-C40 Oil Range	84.	40.	mg/kg	8015	05/21/14	10
Surrogate Recovery						
o-Terphenyl	80.8		% Rec.	8015	05/21/14	10
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Acenaphthene	0.042	0.030	mg/kg	8270C-SIM	05/28/14	5
Acenaphthylene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L700009-16 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process

L700009-16 (PH) - 8.5@21.3c

L700009-16 (SV8270PAHSIM) - Dilution due to matrix

L700009-16 (CR6) - diluted due to sample color



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# REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation  
Sample ID : C20-P6  
Collected By :  
Collection Date : 05/17/14 16:20

ESC Sample # : L700009-16

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(a)pyrene	BDL	0.0030	mg/kg	8270C-SIM	05/28/14	5
Benzo(b)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Benzo(g,h,i)perylene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Chrysene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Dibenz(a,h)anthracene	BDL	0.0030	mg/kg	8270C-SIM	05/28/14	5
Fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Fluorene	0.043	0.030	mg/kg	8270C-SIM	05/28/14	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	05/28/14	5
Naphthalene	0.52	0.10	mg/kg	8270C-SIM	05/28/14	5
Phenanthrene	0.22	0.030	mg/kg	8270C-SIM	05/28/14	5
Pyrene	0.097	0.030	mg/kg	8270C-SIM	05/28/14	5
1-Methylnaphthalene	0.53	0.10	mg/kg	8270C-SIM	05/28/14	5
2-Methylnaphthalene	1.3	0.10	mg/kg	8270C-SIM	05/28/14	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	05/28/14	5
Surrogate Recovery						
p-Terphenyl-d14	61.5		% Rec.	8270C-SIM	05/28/14	5
Nitrobenzene-d5	62.3		% Rec.	8270C-SIM	05/28/14	5
2-Fluorobiphenyl	56.4		% Rec.	8270C-SIM	05/28/14	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 05/29/14 11:07 Revised: 05/29/14 17:20

L700009-16 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process

L700009-16 (PH) - 8.5@21.3c

L700009-16 (SV8270PAHSIM) - Dilution due to matrix

L700009-16 (CR6) - diluted due to sample color



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# REPORT OF ANALYSIS

Dave Nicholson  
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May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation  
Sample ID : C20-SPOILS  
Collected By :  
Collection Date : 05/17/14 16:25

ESC Sample # : L700009-17

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	10.	mg/kg	3060A/7196A	05/26/14	5
ORP	110		mV	2580 B-2011	05/28/14	1
pH	7.8		su	9045D	05/22/14	1
Sodium Adsorption Ratio	7.0			Calc.	05/24/14	1
Specific Conductance	3200		umhos/cm	9050AMod	05/28/14	1
Mercury	BDL	0.020	mg/kg	7471	05/21/14	1
Arsenic	8.0	2.0	mg/kg	6010B	05/23/14	1
Barium	520	0.50	mg/kg	6010B	05/23/14	1
Boron	13.	10.	mg/kg	6010B	05/23/14	1
Cadmium	0.54	0.50	mg/kg	6010B	05/23/14	1
Chromium	39.	1.0	mg/kg	6010B	05/23/14	1
Copper	16.	2.0	mg/kg	6010B	05/23/14	1
Lead	20.	0.50	mg/kg	6010B	05/23/14	1
Nickel	17.	2.0	mg/kg	6010B	05/23/14	1
Selenium	BDL	2.0	mg/kg	6010B	05/23/14	1
Silver	BDL	1.0	mg/kg	6010B	05/23/14	1
Zinc	67.	3.0	mg/kg	6010B	05/23/14	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/24/14	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/24/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/24/14	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/24/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/24/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.7		% Rec.	8021/8015	05/24/14	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	05/24/14	5
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	40.	mg/kg	8015	05/21/14	10
C28-C40 Oil Range	BDL	40.	mg/kg	8015	05/21/14	10
Surrogate Recovery						
o-Terphenyl	55.7		% Rec.	8015	05/21/14	10
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Acenaphthene	0.032	0.030	mg/kg	8270C-SIM	05/26/14	5
Acenaphthylene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L700009-17 (PH) - 7.8@21.3c

L700009-17 (CR6) - diluted due to sample color

L700009-17 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process



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Tax I.D. 62-0814289

Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Berry Petroleum Company - Denver, C  
1999 Broadway, Suite 3700  
Denver, CO 80202

May 29, 2014

Date Received : May 20, 2014  
Description : Pit Reclamation

Sample ID : C20-SPOILS

Collected By :  
Collection Date : 05/17/14 16:25

ESC Sample # : L700009-17

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(a)pyrene	BDL	0.0030	mg/kg	8270C-SIM	05/26/14	5
Benzo(b)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Benzo(g,h,i)perylene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Chrysene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Dibenz(a,h)anthracene	BDL	0.0030	mg/kg	8270C-SIM	05/26/14	5
Fluoranthene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Fluorene	0.033	0.030	mg/kg	8270C-SIM	05/26/14	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	05/26/14	5
Naphthalene	0.43	0.10	mg/kg	8270C-SIM	05/26/14	5
Phenanthrene	0.20	0.030	mg/kg	8270C-SIM	05/26/14	5
Pyrene	0.072	0.030	mg/kg	8270C-SIM	05/26/14	5
1-Methylnaphthalene	0.38	0.10	mg/kg	8270C-SIM	05/26/14	5
2-Methylnaphthalene	1.0	0.10	mg/kg	8270C-SIM	05/26/14	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	05/26/14	5
Surrogate Recovery						
p-Terphenyl-d14	54.5		% Rec.	8270C-SIM	05/26/14	5
Nitrobenzene-d5	51.6		% Rec.	8270C-SIM	05/26/14	5
2-Fluorobiphenyl	57.1		% Rec.	8270C-SIM	05/26/14	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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

Reported: 05/29/14 11:07 Revised: 05/29/14 17:20

L700009-17 (PH) - 7.8@21.3c

L700009-17 (CR6) - diluted due to sample color

L700009-17 (DRORLA) - Cannot run at a lower dilution, dilution due to extractions process

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L700009-01	WG722435	SAMP	Barium	R2926840	V
	WG722435	SAMP	Zinc	R2926840	J5
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
L700009-02	WG722353	SAMP	Dibenz(a,h)anthracene	R2928177	U
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
L700009-03	WG722353	SAMP	Benzo(a)pyrene	R2927068	U
	WG722353	SAMP	Dibenz(a,h)anthracene	R2927068	U
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
L700009-04	WG722353	SAMP	Dibenz(a,h)anthracene	R2927068	U
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
L700009-05	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
L700009-06	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
L700009-07	WG7223130	SAMP	Dibenz(a,h)anthracene	R2928588	J
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
L700009-08	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
	WG722082	SAMP	Chromium, Hexavalent	R2926619	O
	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
L700009-09	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
L700009-10	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
L700009-11	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
L700009-12	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
L700009-13	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
L700009-14	WG722864	SAMP	Benzo(a)pyrene	R2928467	U
	WG722864	SAMP	Dibenz(a,h)anthracene	R2928467	U
	WG722581	SAMP	Chromium, Hexavalent	R2928186	O
L700009-15	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
	WG722610	SAMP	Benzene	R2928774	J3
L700009-16	WG722610	SAMP	Toluene	R2928774	J3
	WG722610	SAMP	Ethylbenzene	R2928774	J3
	WG722610	SAMP	Total Xylene	R2928774	J3
L700009-17	WG722581	SAMP	Chromium, Hexavalent	R2928186	O
	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
L700009-18	WG722864	SAMP	Benzo(a)pyrene	R2929425	J
	WG722864	SAMP	Dibenz(a,h)anthracene	R2929425	U
	WG722864	SAMP	Chromium, Hexavalent	R2928186	O
L700009-19	WG722581	SAMP	Chromium, Hexavalent	R2928186	O
	WG722062	SAMP	C10-C28 Diesel Range	R2925768	J3
	WG722062	SAMP	C28-C40 Oil Range	R2925768	J3
L700009-20	WG722864	SAMP	Benzo(a)pyrene	R2928467	U
	WG722864	SAMP	Dibenz(a,h)anthracene	R2928467	U
	WG722581	SAMP	Chromium, Hexavalent	R2928186	O
L700009-21	WG722585	SAMP	o-Terphenyl	R2927465	J7
	WG722864	SAMP	Anthracene	R2928467	O
	WG722864	SAMP	Acenaphthene	R2928467	O
L700009-22	WG722864	SAMP	Acenaphthylene	R2928467	O
	WG722864	SAMP	Benzo(a)anthracene	R2928467	O
	WG722864	SAMP	Benzo(a)pyrene	R2928467	OU
L700009-23	WG722864	SAMP	Benzo(b)fluoranthene	R2928467	O
	WG722864	SAMP	Benzo(g,h,i)perylene	R2928467	O
	WG722864	SAMP	Benzo(k)fluoranthene	R2928467	O
L700009-24	WG722864	SAMP	Chrysene	R2928467	O
	WG722864	SAMP	Dibenz(a,h)anthracene	R2928467	OU
	WG722864	SAMP	Fluoranthene	R2928467	O
L700009-25	WG722864	SAMP	Fluorene	R2928467	O
	WG722864	SAMP	Indeno(1,2,3-cd)pyrene	R2928467	O
	WG722864	SAMP	Naphthalene	R2928467	O
L700009-26	WG722864	SAMP	Phenanthrene	R2928467	O
	WG722864	SAMP	Pyrene	R2928467	O
	WG722864	SAMP	1-Methylnaphthalene	R2928467	O
L700009-27	WG722864	SAMP	2-Methylnaphthalene	R2928467	O
	WG722864	SAMP	2-Chloronaphthalene	R2928467	O

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L700009-20	WG722581	SAMP	Chromium, Hexavalent	R2928186	O
	WG722436	SAMP	Barium	R2927267	VO1
	WG722436	SAMP	Chromium	R2927267	O1
	WG722436	SAMP	Zinc	R2927267	O1
	WG722581	SAMP	Chromium, Hexavalent	R2928186	O
L700009-21	WG722581	SAMP	Chromium, Hexavalent	R2928186	O

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.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
O1	(ESC) The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
U	BDL (EPA) - Below Detectable Limits: Indicates that the compound was analyzed but not detected.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

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  
05/29/14 at 17:20:43

TSR Signing Reports: 134  
R5 - Desired TAT

Always log As, Cd, Cr, Cu, Ni, Pb, Se, Ag, & Zn GW by 6020 Log all PAHs by 8270-SIM

Sample: L700009-01 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-02 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-03 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-04 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-05 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-06 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-07 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-08 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-09 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-10 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-11 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-12 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-13 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-14 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-15 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-16 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-17 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-18 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-19 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-20 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07  
Sample: L700009-21 Account: BERPETDCO Received: 05/20/14 09:45 Due Date: 05/28/14 00:00 RPT Date: 05/29/14 11:07



**YOUR LAB OF CHOICE**

Berry Petroleum Company - Denver, CO  
Dave Nicholson  
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Denver, CO 80202

Quality Assurance Report  
Level II

L700009

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Tax I.D. 62-0814289

Est. 1970

May 29, 2014

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
C10-C28 Diesel Range	< 4	mg/kg			WG722062	05/21/14 10:41
C28-C40 Oil Range	< 4	mg/kg			WG722062	05/21/14 10:41
o-Terphenyl		% Rec.	66.00	50-150	WG722062	05/21/14 10:41
C10-C28 Diesel Range	< 4	mg/kg			WG721619	05/21/14 08:52
C28-C40 Oil Range	< 4	mg/kg			WG721619	05/21/14 08:52
o-Terphenyl		% Rec.	74.00	50-150	WG721619	05/21/14 08:52
Mercury	< .02	mg/kg			WG722041	05/21/14 08:55
Mercury	< .02	mg/kg			WG722119	05/21/14 10:17
Chromium,Hexavalent	< 2	mg/kg			WG722082	05/22/14 16:14
Arsenic	< 1	mg/kg			WG722435	05/23/14 03:23
Barium	< .25	mg/kg			WG722435	05/23/14 03:23
Boron	< 10	mg/kg			WG722435	05/23/14 03:23
Cadmium	< .25	mg/kg			WG722435	05/23/14 03:23
Chromium	< .5	mg/kg			WG722435	05/23/14 03:23
Copper	< 1	mg/kg			WG722435	05/23/14 03:23
Lead	< .25	mg/kg			WG722435	05/23/14 03:23
Nickel	< 1	mg/kg			WG722435	05/23/14 03:23
Selenium	< 1	mg/kg			WG722435	05/23/14 03:23
Silver	< .5	mg/kg			WG722435	05/23/14 03:23
Zinc	< 1.5	mg/kg			WG722435	05/23/14 03:23
C10-C28 Diesel Range	< 4	mg/kg			WG722585	05/22/14 22:20
C28-C40 Oil Range	< 4	mg/kg			WG722585	05/22/14 22:20
o-Terphenyl		% Rec.	96.80	50-150	WG722585	05/22/14 22:20
1-Methylnaphthalene	< .02	mg/kg			WG722353	05/23/14 02:30
2-Chloronaphthalene	< .02	mg/kg			WG722353	05/23/14 02:30
2-Methylnaphthalene	< .02	mg/kg			WG722353	05/23/14 02:30
Acenaphthene	< .006	mg/kg			WG722353	05/23/14 02:30
Acenaphthylene	< .006	mg/kg			WG722353	05/23/14 02:30
Anthracene	< .006	mg/kg			WG722353	05/23/14 02:30
Benzo(a)anthracene	< .006	mg/kg			WG722353	05/23/14 02:30
Benzo(a)pyrene	< .006	mg/kg			WG722353	05/23/14 02:30
Benzo(b)fluoranthene	< .006	mg/kg			WG722353	05/23/14 02:30
Benzo(g,h,i)perylene	< .006	mg/kg			WG722353	05/23/14 02:30
Benzo(k)fluoranthene	< .006	mg/kg			WG722353	05/23/14 02:30
Chrysene	< .006	mg/kg			WG722353	05/23/14 02:30
Dibenz(a,h)anthracene	< .006	mg/kg			WG722353	05/23/14 02:30
Fluoranthene	< .006	mg/kg			WG722353	05/23/14 02:30
Fluorene	< .006	mg/kg			WG722353	05/23/14 02:30
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG722353	05/23/14 02:30
Naphthalene	< .02	mg/kg			WG722353	05/23/14 02:30
Phenanthrene	< .006	mg/kg			WG722353	05/23/14 02:30
Pyrene	< .006	mg/kg			WG722353	05/23/14 02:30
2-Fluorobiphenyl		% Rec.	78.50	38.2-135	WG722353	05/23/14 02:30
Nitrobenzene-d5		% Rec.	76.00	28.4-151	WG722353	05/23/14 02:30
p-Terphenyl-d14		% Rec.	99.30	34.2-141	WG722353	05/23/14 02:30

\* 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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Dave Nicholson  
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Denver, CO 80202

Quality Assurance Report  
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Tax I.D. 62-0814289

Est. 1970

May 29, 2014

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Acenaphthene	< .006	mg/kg			WG722693	05/23/14 12:12
Acenaphthylene	< .006	mg/kg			WG722693	05/23/14 12:12
Anthracene	< .006	mg/kg			WG722693	05/23/14 12:12
Benzo(a)anthracene	< .006	mg/kg			WG722693	05/23/14 12:12
Benzo(a)pyrene	< .006	mg/kg			WG722693	05/23/14 12:12
Benzo(b)fluoranthene	< .006	mg/kg			WG722693	05/23/14 12:12
Benzo(g,h,i)perylene	< .006	mg/kg			WG722693	05/23/14 12:12
Benzo(k)fluoranthene	< .006	mg/kg			WG722693	05/23/14 12:12
Chrysene	< .006	mg/kg			WG722693	05/23/14 12:12
Dibenz(a,h)anthracene	< .006	mg/kg			WG722693	05/23/14 12:12
Fluoranthene	< .006	mg/kg			WG722693	05/23/14 12:12
Fluorene	< .006	mg/kg			WG722693	05/23/14 12:12
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG722693	05/23/14 12:12
Naphthalene	< .02	mg/kg			WG722693	05/23/14 12:12
Phenanthrene	< .006	mg/kg			WG722693	05/23/14 12:12
Pyrene	< .006	mg/kg			WG722693	05/23/14 12:12
2-Fluorobiphenyl	% Rec.		80.20	38.2-135	WG722693	05/23/14 12:12
Nitrobenzene-d5	% Rec.		74.20	28.4-151	WG722693	05/23/14 12:12
p-Terphenyl-d14	% Rec.		87.20	34.2-141	WG722693	05/23/14 12:12
Arsenic	< 1	mg/kg			WG722436	05/23/14 11:55
Barium	< .25	mg/kg			WG722436	05/23/14 11:55
Boron	< 10	mg/kg			WG722436	05/23/14 11:55
Cadmium	< .25	mg/kg			WG722436	05/23/14 11:55
Chromium	< .5	mg/kg			WG722436	05/23/14 11:55
Copper	< 1	mg/kg			WG722436	05/23/14 11:55
Lead	< .25	mg/kg			WG722436	05/23/14 11:55
Nickel	< 1	mg/kg			WG722436	05/23/14 11:55
Selenium	< 1	mg/kg			WG722436	05/23/14 11:55
Silver	< .5	mg/kg			WG722436	05/23/14 11:55
Zinc	< 1.5	mg/kg			WG722436	05/23/14 11:55
Specific Conductance	1.20	umhos/cm			WG722531	05/23/14 15:43
Benzene	< .0005	mg/kg			WG722206	05/23/14 15:34
Ethylbenzene	< .0005	mg/kg			WG722206	05/23/14 15:34
Toluene	< .005	mg/kg			WG722206	05/23/14 15:34
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG722206	05/23/14 15:34
Total Xylene	< .0015	mg/kg			WG722206	05/23/14 15:34
a,a,a-Trifluorotoluene(FID)	% Rec.		98.80	59-128	WG722206	05/23/14 15:34
a,a,a-Trifluorotoluene(PID)	% Rec.		99.20	54-144	WG722206	05/23/14 15:34
Chromium, Hexavalent	< 2	mg/kg			WG722581	05/26/14 07:24
1-Methylnaphthalene	< .02	mg/kg			WG722864	05/26/14 04:34
2-Chloronaphthalene	< .02	mg/kg			WG722864	05/26/14 04:34
2-Methylnaphthalene	< .02	mg/kg			WG722864	05/26/14 04:34
Acenaphthene	< .006	mg/kg			WG722864	05/26/14 04:34
Acenaphthylene	< .006	mg/kg			WG722864	05/26/14 04:34
Anthracene	< .006	mg/kg			WG722864	05/26/14 04:34
Benzo(a)anthracene	< .006	mg/kg			WG722864	05/26/14 04:34
Benzo(a)pyrene	< .006	mg/kg			WG722864	05/26/14 04:34
Benzo(b)fluoranthene	< .006	mg/kg			WG722864	05/26/14 04:34
Benzo(g,h,i)perylene	< .006	mg/kg			WG722864	05/26/14 04:34

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Est. 1970

May 29, 2014

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzo(k)fluoranthene	< .006	mg/kg			WG722864	05/26/14 04:34
Chrysene	< .006	mg/kg			WG722864	05/26/14 04:34
Dibenz(a,h)anthracene	< .006	mg/kg			WG722864	05/26/14 04:34
Fluoranthene	< .006	mg/kg			WG722864	05/26/14 04:34
Fluorene	< .006	mg/kg			WG722864	05/26/14 04:34
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG722864	05/26/14 04:34
Naphthalene	< .02	mg/kg			WG722864	05/26/14 04:34
Phenanthrene	< .006	mg/kg			WG722864	05/26/14 04:34
Pyrene	< .006	mg/kg			WG722864	05/26/14 04:34
2-Fluorobiphenyl		% Rec.	61.60	38.2-135	WG722864	05/26/14 04:34
Nitrobenzene-d5		% Rec.	48.70	28.4-151	WG722864	05/26/14 04:34
p-Terphenyl-d14		% Rec.	64.50	34.2-141	WG722864	05/26/14 04:34
1-Methylnaphthalene	< .02	mg/kg			WG723130	05/27/14 02:05
2-Chloronaphthalene	< .02	mg/kg			WG723130	05/27/14 02:05
2-Methylnaphthalene	< .02	mg/kg			WG723130	05/27/14 02:05
Acenaphthene	< .006	mg/kg			WG723130	05/27/14 02:05
Acenaphthylene	< .006	mg/kg			WG723130	05/27/14 02:05
Anthracene	< .006	mg/kg			WG723130	05/27/14 02:05
Benzo(a)anthracene	< .006	mg/kg			WG723130	05/27/14 02:05
Benzo(a)pyrene	< .006	mg/kg			WG723130	05/27/14 02:05
Benzo(b)fluoranthene	< .006	mg/kg			WG723130	05/27/14 02:05
Benzo(g,h,i)perylene	< .006	mg/kg			WG723130	05/27/14 02:05
Benzo(k)fluoranthene	< .006	mg/kg			WG723130	05/27/14 02:05
Chrysene	< .006	mg/kg			WG723130	05/27/14 02:05
Dibenz(a,h)anthracene	< .006	mg/kg			WG723130	05/27/14 02:05
Fluoranthene	< .006	mg/kg			WG723130	05/27/14 02:05
Fluorene	< .006	mg/kg			WG723130	05/27/14 02:05
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG723130	05/27/14 02:05
Naphthalene	< .02	mg/kg			WG723130	05/27/14 02:05
Phenanthrene	< .006	mg/kg			WG723130	05/27/14 02:05
Pyrene	< .006	mg/kg			WG723130	05/27/14 02:05
2-Fluorobiphenyl		% Rec.	68.90	38.2-135	WG723130	05/27/14 02:05
Nitrobenzene-d5		% Rec.	55.70	28.4-151	WG723130	05/27/14 02:05
p-Terphenyl-d14		% Rec.	68.10	34.2-141	WG723130	05/27/14 02:05
Benzene	< .0005	mg/kg			WG722358	05/24/14 15:21
Ethylbenzene	< .0005	mg/kg			WG722358	05/24/14 15:21
Toluene	< .005	mg/kg			WG722358	05/24/14 15:21
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG722358	05/24/14 15:21
Total Xylene	< .0015	mg/kg			WG722358	05/24/14 15:21
a,a,a-Trifluorotoluene(FID)		% Rec.	99.30	59-128	WG722358	05/24/14 15:21
a,a,a-Trifluorotoluene(PID)		% Rec.	99.60	54-144	WG722358	05/24/14 15:21
Benzene	< .0005	mg/kg			WG722610	05/26/14 13:56
Ethylbenzene	< .0005	mg/kg			WG722610	05/26/14 13:56
Toluene	< .005	mg/kg			WG722610	05/26/14 13:56
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG722610	05/26/14 13:56
Total Xylene	< .0015	mg/kg			WG722610	05/26/14 13:56
a,a,a-Trifluorotoluene(FID)		% Rec.	99.70	59-128	WG722610	05/26/14 13:56
a,a,a-Trifluorotoluene(PID)		% Rec.	99.30	54-144	WG722610	05/26/14 13:56
Specific Conductance	0.920	umhos/cm			WG722778	05/28/14 15:05

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May 29, 2014

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate	Duplicate				
Mercury	mg/kg	0.0280	0.0273	1.00	20		L700009-01	WG722041
Mercury	mg/kg	0.0	0.0118	95.0*	20		L700028-02	WG722119
pH	su	6.80	6.80	0.442	1		L700009-01	WG722086
pH	su	8.60	8.70	0.808	1		L700009-20	WG722086
pH	su	5.40	5.40	0.554	1		L700009-21	WG722326
pH	su	12.0	12.0	0.830	1		L700241-01	WG722326
Chromium,Hexavalent	mg/kg	0.0	0.0	0.0	20		L700133-05	WG722082
Chromium,Hexavalent	mg/kg	0.0	0.0	0.0	20		L699547-01	WG722082
Specific Conductance	umhos/cm	2100	2300	8.14	20		L699547-01	WG722531
Specific Conductance	umhos/cm	740.	670.	9.52	20		L700133-03	WG722531
Chromium,Hexavalent	mg/kg	0.0	0.0	0.0	20		L700643-03	WG722581
Chromium,Hexavalent	mg/kg	0.0	0.0	0.0	20		L700009-13	WG722581
ORP	mV	130.	130.	2.28	20		L700009-21	WG723115
ORP	mV	96.0	94.0	2.11	20		L700009-01	WG722772
ORP	mV	42.0	40.0	4.88	20		L700009-20	WG722772
Specific Conductance	umhos/cm	660.	630.	4.80	20		L700009-20	WG722778
Specific Conductance	umhos/cm	990.	970.	2.04	20		L700009-21	WG722778

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Mercury	mg/kg	12.4	11.3	91.0	71.6-128	WG722041
Mercury	mg/kg	12.4	10.6	85.0	71.6-128	WG722119
pH	su	5.93	5.90	99.5	98.3-101.7	WG722086
pH	su	5.93	5.90	99.5	98.3-101.7	WG722326
Chromium,Hexavalent	mg/kg	125	136.	109.	80-120	WG722082
Arsenic	mg/kg	237	237.	100.	83.1-117	WG722435
Barium	mg/kg	252	259.	103.	84.1-116	WG722435
Boron	mg/kg	118	125.	106.	74-126	WG722435
Cadmium	mg/kg	191	186.	97.0	83.2-117	WG722435
Chromium	mg/kg	128	131.	102.	81.3-118	WG722435
Copper	mg/kg	123	123.	100.	83.7-116	WG722435

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Lead	mg/kg	103	97.5	95.0	83.1-117	WG722435
Nickel	mg/kg	118	113.	96.0	82-118	WG722435
Selenium	mg/kg	110	111.	101.	78.7-122	WG722435
Silver	mg/kg	47.3	47.5	100.	66.2-134	WG722435
Zinc	mg/kg	183	183.	100.	82-118	WG722435
1-Methylnaphthalene	mg/kg	.08	0.0579	72.4	48.9-127	WG722353
2-Chloronaphthalene	mg/kg	.08	0.0596	74.5	48.8-125	WG722353
2-Methylnaphthalene	mg/kg	.08	0.0581	72.7	45.7-131	WG722353
Acenaphthene	mg/kg	.08	0.0579	72.4	48.7-127	WG722353
Acenaphthylene	mg/kg	.08	0.0586	73.3	47.9-128	WG722353
Anthracene	mg/kg	.08	0.0622	77.8	51.3-136	WG722353
Benzo(a)anthracene	mg/kg	.08	0.0707	88.3	55-126	WG722353
Benzo(a)pyrene	mg/kg	.08	0.0661	82.7	51.9-127	WG722353
Benzo(b)fluoranthene	mg/kg	.08	0.0750	93.8	54-125	WG722353
Benzo(g,h,i)perylene	mg/kg	.08	0.0665	83.1	53.8-136	WG722353
Benzo(k)fluoranthene	mg/kg	.08	0.0629	78.6	53.9-132	WG722353
Chrysene	mg/kg	.08	0.0668	83.6	55.7-133	WG722353
Dibenz(a,h)anthracene	mg/kg	.08	0.0681	85.2	52.6-137	WG722353
Fluoranthene	mg/kg	.08	0.0586	73.2	54-132	WG722353
Fluorene	mg/kg	.08	0.0581	72.7	48.7-127	WG722353
Indeno(1,2,3-cd)pyrene	mg/kg	.08	0.0707	88.4	53.8-138	WG722353
Naphthalene	mg/kg	.08	0.0545	68.1	42-127	WG722353
Phenanthrene	mg/kg	.08	0.0611	76.4	49.6-126	WG722353
Pyrene	mg/kg	.08	0.0734	91.7	54-129	WG722353
2-Fluorobiphenyl				72.90	38.2-135	WG722353
Nitrobenzene-d5				71.40	28.4-151	WG722353
p-Terphenyl-d14				88.70	34.2-141	WG722353
Acenaphthene	mg/kg	.08	0.0684	85.5	48.7-127	WG722693
Acenaphthylene	mg/kg	.08	0.0684	85.5	47.9-128	WG722693
Anthracene	mg/kg	.08	0.0718	89.7	51.3-136	WG722693
Benzo(a)anthracene	mg/kg	.08	0.0784	97.9	55-126	WG722693
Benzo(a)pyrene	mg/kg	.08	0.0816	102.	51.9-127	WG722693
Benzo(b)fluoranthene	mg/kg	.08	0.0763	95.3	54-125	WG722693
Benzo(g,h,i)perylene	mg/kg	.08	0.0845	106.	53.8-136	WG722693
Benzo(k)fluoranthene	mg/kg	.08	0.0856	107.	53.9-132	WG722693
Chrysene	mg/kg	.08	0.0817	102.	55.7-133	WG722693
Dibenz(a,h)anthracene	mg/kg	.08	0.0821	103.	52.6-137	WG722693
Fluoranthene	mg/kg	.08	0.0761	95.1	54-132	WG722693
Fluorene	mg/kg	.08	0.0700	87.6	48.7-127	WG722693
Indeno(1,2,3-cd)pyrene	mg/kg	.08	0.0843	105.	53.8-138	WG722693
Naphthalene	mg/kg	.08	0.0692	86.4	42-127	WG722693
Phenanthrene	mg/kg	.08	0.0707	88.4	49.6-126	WG722693
Pyrene	mg/kg	.08	0.0759	94.9	54-129	WG722693
2-Fluorobiphenyl				86.60	38.2-135	WG722693
Nitrobenzene-d5				69.30	28.4-151	WG722693
p-Terphenyl-d14				93.10	34.2-141	WG722693
Arsenic	mg/kg	237	225.	95.0	83.1-117	WG722436
Barium	mg/kg	252	240.	95.0	84.1-116	WG722436
Boron	mg/kg	118	109.	92.0	74-126	WG722436
Cadmium	mg/kg	191	164.	86.0	83.2-117	WG722436
Chromium	mg/kg	128	118.	92.0	81.3-118	WG722436
Copper	mg/kg	123	115.	94.0	83.7-116	WG722436
Lead	mg/kg	103	94.5	92.0	83.1-117	WG722436

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Nickel	mg/kg	118	106.	90.0	82-118	WG722436
Selenium	mg/kg	110	108.	98.0	78.7-122	WG722436
Silver	mg/kg	47.3	43.9	93.0	66.2-134	WG722436
Zinc	mg/kg	183	162.	88.0	82-118	WG722436
Specific Conductance	umhos/cm	510	510.	100.	85-115	WG722531
Benzene	mg/kg	.05	0.0489	97.7	70-130	WG722206
Ethylbenzene	mg/kg	.05	0.0495	98.9	70-130	WG722206
Toluene	mg/kg	.05	0.0485	97.0	70-130	WG722206
Total Xylene	mg/kg	.15	0.147	98.0	70-130	WG722206
a,a,a-Trifluorotoluene(FID)				99.10	59-128	WG722206
a,a,a-Trifluorotoluene(PID)				100.0	54-144	WG722206
TPH (GC/FID) Low Fraction	mg/kg	5.5	4.80	87.3	63.5-137	WG722206
a,a,a-Trifluorotoluene(FID)				96.20	59-128	WG722206
a,a,a-Trifluorotoluene(PID)				100.0	54-144	WG722206
Chromium, Hexavalent	mg/kg	125	130.	104.	80-120	WG722581
1-Methylnaphthalene	mg/kg	.08	0.0642	80.3	48.9-127	WG722864
2-Chloronaphthalene	mg/kg	.08	0.0668	83.5	48.8-125	WG722864
2-Methylnaphthalene	mg/kg	.08	0.0637	79.6	45.7-131	WG722864
Acenaphthene	mg/kg	.08	0.0627	78.4	48.7-127	WG722864
Acenaphthylene	mg/kg	.08	0.0632	79.0	47.9-128	WG722864
Anthracene	mg/kg	.08	0.0650	81.2	51.3-136	WG722864
Benzo(a)anthracene	mg/kg	.08	0.0681	85.1	55-126	WG722864
Benzo(a)pyrene	mg/kg	.08	0.0688	86.0	51.9-127	WG722864
Benzo(b)fluoranthene	mg/kg	.08	0.0720	90.0	54-125	WG722864
Benzo(g,h,i)perylene	mg/kg	.08	0.0725	90.6	53.8-136	WG722864
Benzo(k)fluoranthene	mg/kg	.08	0.0714	89.3	53.9-132	WG722864
Chrysene	mg/kg	.08	0.0709	88.7	55.7-133	WG722864
Dibenz(a,h)anthracene	mg/kg	.08	0.0689	86.1	52.6-137	WG722864
Fluoranthene	mg/kg	.08	0.0647	80.9	54-132	WG722864
Fluorene	mg/kg	.08	0.0643	80.3	48.7-127	WG722864
Indeno(1,2,3-cd)pyrene	mg/kg	.08	0.0717	89.6	53.8-138	WG722864
Naphthalene	mg/kg	.08	0.0622	77.8	42-127	WG722864
Phenanthrene	mg/kg	.08	0.0631	78.9	49.6-126	WG722864
Pyrene	mg/kg	.08	0.0660	82.5	54-129	WG722864
2-Fluorobiphenyl				83.20	38.2-135	WG722864
Nitrobenzene-d5				58.00	28.4-151	WG722864
p-Terphenyl-d14				83.90	34.2-141	WG722864
1-Methylnaphthalene	mg/kg	.08	0.0616	77.0	48.9-127	WG723130
2-Chloronaphthalene	mg/kg	.08	0.0647	80.8	48.8-125	WG723130
2-Methylnaphthalene	mg/kg	.08	0.0613	76.7	45.7-131	WG723130
Acenaphthene	mg/kg	.08	0.0581	72.7	48.7-127	WG723130
Acenaphthylene	mg/kg	.08	0.0568	71.0	47.9-128	WG723130
Anthracene	mg/kg	.08	0.0625	78.2	51.3-136	WG723130
Benzo(a)anthracene	mg/kg	.08	0.0634	79.3	55-126	WG723130
Benzo(a)pyrene	mg/kg	.08	0.0596	74.4	51.9-127	WG723130
Benzo(b)fluoranthene	mg/kg	.08	0.0605	75.6	54-125	WG723130
Benzo(g,h,i)perylene	mg/kg	.08	0.0616	77.0	53.8-136	WG723130
Benzo(k)fluoranthene	mg/kg	.08	0.0613	76.7	53.9-132	WG723130
Chrysene	mg/kg	.08	0.0655	81.9	55.7-133	WG723130

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Dibenz(a,h)anthracene	mg/kg	.08	0.0629	78.6	52.6-137	WG723130
Fluoranthene	mg/kg	.08	0.0643	80.4	54-132	WG723130
Fluorene	mg/kg	.08	0.0581	72.6	48.7-127	WG723130
Indeno(1,2,3-cd)pyrene	mg/kg	.08	0.0623	77.9	53.8-138	WG723130
Naphthalene	mg/kg	.08	0.0579	72.4	42-127	WG723130
Phenanthrene	mg/kg	.08	0.0602	75.3	49.6-126	WG723130
Pyrene	mg/kg	.08	0.0677	84.6	54-129	WG723130
2-Fluorobiphenyl				71.30	38.2-135	WG723130
Nitrobenzene-d5				63.20	28.4-151	WG723130
p-Terphenyl-d14				75.40	34.2-141	WG723130
Benzene	mg/kg	.05	0.0469	93.8	70-130	WG722358
Ethylbenzene	mg/kg	.05	0.0470	94.0	70-130	WG722358
Toluene	mg/kg	.05	0.0463	92.6	70-130	WG722358
Total Xylene	mg/kg	.15	0.140	93.2	70-130	WG722358
a,a,a-Trifluorotoluene(FID)				99.00	59-128	WG722358
a,a,a-Trifluorotoluene(PID)				101.0	54-144	WG722358
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.21	94.7	63.5-137	WG722358
a,a,a-Trifluorotoluene(FID)				98.60	59-128	WG722358
a,a,a-Trifluorotoluene(PID)				101.0	54-144	WG722358
Benzene	mg/kg	.05	0.0474	94.7	70-130	WG722610
Ethylbenzene	mg/kg	.05	0.0484	96.8	70-130	WG722610
Toluene	mg/kg	.05	0.0473	94.7	70-130	WG722610
Total Xylene	mg/kg	.15	0.145	96.5	70-130	WG722610
a,a,a-Trifluorotoluene(PID)				101.0	54-144	WG722610
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.09	92.5	63.5-137	WG722610
a,a,a-Trifluorotoluene(FID)				96.90	59-128	WG722610
ORP	mV	100	100.	100.	90-110	WG723115
ORP	mV	100	99.0	99.0	90-110	WG722772
Specific Conductance	umhos/cm	510	520.	102.	85-115	WG722778

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
pH	su	5.90	5.90	99.0	98.3-101.7	0.0	20	WG722086
pH	su	5.90	5.90	99.0	98.3-101.7	0.0	20	WG722326
Chromium, Hexavalent	mg/kg	137.	136.	110.	80-120	0.733	20	WG722082
Arsenic	mg/kg	244.	237.	103.	83.1-117	3.00	20	WG722435
Barium	mg/kg	255.	259.	101.	84.1-116	1.00	20	WG722435
Boron	mg/kg	127.	125.	107.	74-126	1.00	20	WG722435
Cadmium	mg/kg	189.	186.	99.0	83.2-117	2.00	20	WG722435
Chromium	mg/kg	132.	131.	103.	81.3-118	0.0	20	WG722435
Copper	mg/kg	125.	123.	101.	83.7-116	1.00	20	WG722435
Lead	mg/kg	103.	97.5	100.	83.1-117	5.00	20	WG722435

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Nickel	mg/kg	119.	113.	101.	82-118	5.00	20	WG722435
Selenium	mg/kg	115.	111.	104.	78.7-122	3.00	20	WG722435
Silver	mg/kg	47.5	47.5	100.	66.2-134	0.0	20	WG722435
Zinc	mg/kg	183.	183.	100.	82-118	0.0	20	WG722435
1-Methylnaphthalene	mg/kg	0.0574	0.0579	72.0	48.9-127	1.00	20	WG722353
2-Chloronaphthalene	mg/kg	0.0586	0.0596	73.0	48.8-125	1.78	20	WG722353
2-Methylnaphthalene	mg/kg	0.0574	0.0581	72.0	45.7-131	1.29	20	WG722353
Acenaphthene	mg/kg	0.0564	0.0579	70.0	48.7-127	2.65	20	WG722353
Acenaphthylene	mg/kg	0.0575	0.0586	72.0	47.9-128	1.92	20	WG722353
Anthracene	mg/kg	0.0613	0.0622	77.0	51.3-136	1.40	20	WG722353
Benzo(a)anthracene	mg/kg	0.0690	0.0707	86.0	55-126	2.42	20	WG722353
Benzo(a)pyrene	mg/kg	0.0662	0.0661	83.0	51.9-127	0.0500	20	WG722353
Benzo(b)fluoranthene	mg/kg	0.0710	0.0750	89.0	54-125	5.56	20	WG722353
Benzo(g,h,i)perylene	mg/kg	0.0662	0.0665	83.0	53.8-136	0.430	20	WG722353
Benzo(k)fluoranthene	mg/kg	0.0639	0.0629	80.0	53.9-132	1.55	20	WG722353
Chrysene	mg/kg	0.0671	0.0668	84.0	55.7-133	0.340	20	WG722353
Dibenz(a,h)anthracene	mg/kg	0.0671	0.0681	84.0	52.6-137	1.46	20	WG722353
Fluoranthene	mg/kg	0.0576	0.0586	72.0	54-132	1.66	20	WG722353
Fluorene	mg/kg	0.0572	0.0581	72.0	48.7-127	1.54	20	WG722353
Indeno(1,2,3-cd)pyrene	mg/kg	0.0694	0.0707	87.0	53.8-138	1.87	20	WG722353
Naphthalene	mg/kg	0.0537	0.0545	67.0	42-127	1.45	20	WG722353
Phenanthrene	mg/kg	0.0593	0.0611	74.0	49.6-126	2.99	20	WG722353
Pyrene	mg/kg	0.0716	0.0734	89.0	54-129	2.49	20	WG722353
2-Fluorobiphenyl				69.20	38.2-135			WG722353
Nitrobenzene-d5				69.00	28.4-151			WG722353
p-Terphenyl-d14				87.30	34.2-141			WG722353
Acenaphthene	mg/kg	0.0723	0.0684	90.0	48.7-127	5.47	20	WG722693
Acenaphthylene	mg/kg	0.0724	0.0684	90.0	47.9-128	5.71	20	WG722693
Anthracene	mg/kg	0.0776	0.0718	97.0	51.3-136	7.83	20	WG722693
Benzo(a)anthracene	mg/kg	0.0833	0.0784	104.	55-126	6.07	20	WG722693
Benzo(a)pyrene	mg/kg	0.0865	0.0816	108.	51.9-127	5.82	20	WG722693
Benzo(b)fluoranthene	mg/kg	0.0822	0.0763	103.	54-125	7.44	20	WG722693
Benzo(g,h,i)perylene	mg/kg	0.0804	0.0845	100.	53.8-136	4.94	20	WG722693
Benzo(k)fluoranthene	mg/kg	0.0932	0.0856	116.	53.9-132	8.57	20	WG722693
Chrysene	mg/kg	0.0862	0.0817	108.	55.7-133	5.32	20	WG722693
Dibenz(a,h)anthracene	mg/kg	0.0800	0.0821	100.	52.6-137	2.61	20	WG722693
Fluoranthene	mg/kg	0.0770	0.0761	96.0	54-132	1.10	20	WG722693
Fluorene	mg/kg	0.0808	0.0700	101.	48.7-127	14.3	20	WG722693
Indeno(1,2,3-cd)pyrene	mg/kg	0.0818	0.0843	102.	53.8-138	3.01	20	WG722693
Naphthalene	mg/kg	0.0742	0.0692	93.0	42-127	7.11	20	WG722693
Phenanthrene	mg/kg	0.0758	0.0707	95.0	49.6-126	6.92	20	WG722693
Pyrene	mg/kg	0.0902	0.0759	113.	54-129	17.3	20	WG722693
2-Fluorobiphenyl				89.70	38.2-135			WG722693
Nitrobenzene-d5				72.00	28.4-151			WG722693
p-Terphenyl-d14				108.0	34.2-141			WG722693
Arsenic	mg/kg	235.	225.	99.0	83.1-117	4.00	20	WG722436
Barium	mg/kg	253.	240.	100.	84.1-116	5.00	20	WG722436
Boron	mg/kg	116.	109.	98.0	74-126	6.00	20	WG722436
Cadmium	mg/kg	176.	164.	92.0	83.2-117	7.00	20	WG722436
Chromium	mg/kg	125.	118.	98.0	81.3-118	6.00	20	WG722436
Copper	mg/kg	123.	115.	100.	83.7-116	7.00	20	WG722436
Lead	mg/kg	98.5	94.5	96.0	83.1-117	4.00	20	WG722436
Nickel	mg/kg	112.	106.	95.0	82-118	6.00	20	WG722436

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Selenium	mg/kg	113.	108.	103.	78.7-122	5.00	20	WG722436
Silver	mg/kg	46.2	43.9	98.0	66.2-134	5.00	20	WG722436
Zinc	mg/kg	172.	162.	94.0	82-118	6.00	20	WG722436
Specific Conductance	umhos/	510.	510.	100.	85-115	0.0	20	WG722531
Benzene	mg/kg	0.0471	0.0489	94.0	70-130	3.63	20	WG722206
Ethylbenzene	mg/kg	0.0476	0.0495	95.0	70-130	3.79	20	WG722206
Toluene	mg/kg	0.0466	0.0485	93.0	70-130	4.12	20	WG722206
Total Xylene	mg/kg	0.141	0.147	94.0	70-130	4.04	20	WG722206
a,a,a-Trifluorotoluene(FID)				99.10	59-128			WG722206
a,a,a-Trifluorotoluene(PID)				101.0	54-144			WG722206
TPH (GC/FID) Low Fraction	mg/kg	4.93	4.80	90.0	63.5-137	2.74	20	WG722206
a,a,a-Trifluorotoluene(FID)				96.50	59-128			WG722206
a,a,a-Trifluorotoluene(PID)				99.90	54-144			WG722206
Chromium, Hexavalent	mg/kg	130.	130.	104.	80-120	0.0	20	WG722581
1-Methylnaphthalene	mg/kg	0.0549	0.0642	68.0	48.9-127	15.7	20	WG722864
2-Chloronaphthalene	mg/kg	0.0572	0.0668	71.0	48.8-125	15.5	20	WG722864
2-Methylnaphthalene	mg/kg	0.0542	0.0637	68.0	45.7-131	16.2	20	WG722864
Acenaphthene	mg/kg	0.0541	0.0627	68.0	48.7-127	14.7	20	WG722864
Acenaphthylene	mg/kg	0.0544	0.0632	68.0	47.9-128	14.9	20	WG722864
Anthracene	mg/kg	0.0559	0.0650	70.0	51.3-136	15.1	20	WG722864
Benzo(a)anthracene	mg/kg	0.0586	0.0681	73.0	55-126	15.0	20	WG722864
Benzo(a)pyrene	mg/kg	0.0590	0.0688	74.0	51.9-127	15.4	20	WG722864
Benzo(b)fluoranthene	mg/kg	0.0617	0.0720	77.0	54-125	15.5	20	WG722864
Benzo(g,h,i)perylene	mg/kg	0.0627	0.0725	78.0	53.8-136	14.5	20	WG722864
Benzo(k)fluoranthene	mg/kg	0.0615	0.0714	77.0	53.9-132	15.0	20	WG722864
Chrysene	mg/kg	0.0611	0.0709	76.0	55.7-133	15.0	20	WG722864
Dibenz(a,h)anthracene	mg/kg	0.0590	0.0689	74.0	52.6-137	15.4	20	WG722864
Fluoranthene	mg/kg	0.0550	0.0647	69.0	54-132	16.3	20	WG722864
Fluorene	mg/kg	0.0551	0.0643	69.0	48.7-127	15.3	20	WG722864
Indeno(1,2,3-cd)pyrene	mg/kg	0.0616	0.0717	77.0	53.8-138	15.1	20	WG722864
Naphthalene	mg/kg	0.0528	0.0622	66.0	42-127	16.4	20	WG722864
Phenanthrene	mg/kg	0.0537	0.0631	67.0	49.6-126	16.2	20	WG722864
Pyrene	mg/kg	0.0566	0.0660	71.0	54-129	15.4	20	WG722864
2-Fluorobiphenyl				71.50	38.2-135			WG722864
Nitrobenzene-d5				56.20	28.4-151			WG722864
p-Terphenyl-d14				72.90	34.2-141			WG722864
1-Methylnaphthalene	mg/kg	0.0605	0.0616	76.0	48.9-127	1.80	20	WG723130
2-Chloronaphthalene	mg/kg	0.0621	0.0647	78.0	48.8-125	4.01	20	WG723130
2-Methylnaphthalene	mg/kg	0.0602	0.0613	75.0	45.7-131	1.79	20	WG723130
Acenaphthene	mg/kg	0.0568	0.0581	71.0	48.7-127	2.36	20	WG723130
Acenaphthylene	mg/kg	0.0539	0.0568	67.0	47.9-128	5.18	20	WG723130
Anthracene	mg/kg	0.0610	0.0625	76.0	51.3-136	2.52	20	WG723130
Benzo(a)anthracene	mg/kg	0.0549	0.0634	69.0	55-126	14.3	20	WG723130
Benzo(a)pyrene	mg/kg	0.0575	0.0596	72.0	51.9-127	3.57	20	WG723130
Benzo(b)fluoranthene	mg/kg	0.0512	0.0605	64.0	54-125	16.6	20	WG723130
Benzo(g,h,i)perylene	mg/kg	0.0594	0.0616	74.0	53.8-136	3.52	20	WG723130
Benzo(k)fluoranthene	mg/kg	0.0677	0.0613	84.0	53.9-132	9.82	20	WG723130
Chrysene	mg/kg	0.0666	0.0655	83.0	55.7-133	1.64	20	WG723130
Dibenz(a,h)anthracene	mg/kg	0.0581	0.0629	72.0	52.6-137	7.96	20	WG723130

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Fluoranthene	mg/kg	0.0616	0.0643	77.0	54-132	4.33	20	WG723130
Fluorene	mg/kg	0.0566	0.0581	71.0	48.7-127	2.57	20	WG723130
Indeno(1,2,3-cd)pyrene	mg/kg	0.0585	0.0623	73.0	53.8-138	6.25	20	WG723130
Naphthalene	mg/kg	0.0566	0.0579	71.0	42-127	2.19	20	WG723130
Phenanthrene	mg/kg	0.0564	0.0602	70.0	49.6-126	6.58	20	WG723130
Pyrene	mg/kg	0.0563	0.0677	70.0	54-129	18.4	20	WG723130
2-Fluorobiphenyl				70.50	38.2-135			WG723130
Nitrobenzene-d5				57.10	28.4-151			WG723130
p-Terphenyl-d14				67.30	34.2-141			WG723130
Benzene	mg/kg	0.0489	0.0469	98.0	70-130	4.27	20	WG722358
Ethylbenzene	mg/kg	0.0488	0.0470	98.0	70-130	3.86	20	WG722358
Toluene	mg/kg	0.0479	0.0463	96.0	70-130	3.49	20	WG722358
Total Xylene	mg/kg	0.145	0.140	97.0	70-130	3.59	20	WG722358
a,a,a-Trifluorotoluene(FID)				98.90	59-128			WG722358
a,a,a-Trifluorotoluene(PID)				101.0	54-144			WG722358
TPH (GC/FID) Low Fraction	mg/kg	5.02	5.21	91.0	63.5-137	3.74	20	WG722358
a,a,a-Trifluorotoluene(FID)				96.50	59-128			WG722358
a,a,a-Trifluorotoluene(PID)				101.0	54-144			WG722358
Benzene	mg/kg	0.0476	0.0474	95.0	70-130	0.450	20	WG722610
Ethylbenzene	mg/kg	0.0483	0.0484	96.0	70-130	0.210	20	WG722610
Toluene	mg/kg	0.0471	0.0473	94.0	70-130	0.590	20	WG722610
Total Xylene	mg/kg	0.144	0.145	96.0	70-130	0.510	20	WG722610
a,a,a-Trifluorotoluene(PID)				102.0	54-144			WG722610
TPH (GC/FID) Low Fraction	mg/kg	4.80	5.09	87.0	63.5-137	5.74	20	WG722610
a,a,a-Trifluorotoluene(FID)				97.10	59-128			WG722610
ORP	mV	100.	100.	100.	90-110	0.0	20	WG723115
ORP	mV	99.0	99.0	99.0	90-110	0.0	20	WG722772
Specific Conductance	umhos/	520.	520.	102.	85-115	0.0	20	WG722778

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Mercury	mg/kg	0.848	0.0118	.05	170.*	80-120	L700028-02	WG722119
Mercury	mg/kg	0.500	0.0273	.5	95.0	80-120	L700009-01	WG722041
Chromium,Hexavalent	mg/kg	19.8	0.0	20	99.0	75-125	L700133-01	WG722082
Arsenic	mg/kg	59.7	7.48	50	100.	75-125	L700009-01	WG722435
Barium	mg/kg	419.	260.	50	320.*	75-125	L700009-01	WG722435
Boron	mg/kg	63.3	9.91	50	110.	75-125	L700009-01	WG722435
Cadmium	mg/kg	49.4	0.489	50	98.0	75-125	L700009-01	WG722435
Chromium	mg/kg	88.6	31.9	50	110.	75-125	L700009-01	WG722435
Copper	mg/kg	73.8	18.7	50	110.	75-125	L700009-01	WG722435
Lead	mg/kg	60.4	10.4	50	100.	75-125	L700009-01	WG722435
Nickel	mg/kg	70.0	15.6	50	110.	75-125	L700009-01	WG722435

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Selenium	mg/kg	49.1	-1.70	50	98.0	75-125	L700009-01	WG722435
Silver	mg/kg	51.1	0.795	50	100.	75-125	L700009-01	WG722435
Zinc	mg/kg	112.	44.9	50	140.*	75-125	L700009-01	WG722435
1-Methylnaphthalene	mg/kg	0.123	0.0695	.08	66.8	41.8-133	L700009-01	WG722353
2-Chloronaphthalene	mg/kg	0.0566	0.	.08	70.8	42.4-129	L700009-01	WG722353
2-Methylnaphthalene	mg/kg	0.247	0.204	.08	53.1	37.5-137	L700009-01	WG722353
Acenaphthene	mg/kg	0.0713	0.	.08	89.2	39.4-132	L700009-01	WG722353
Acenaphthylene	mg/kg	0.0606	0.	.08	75.8	41.3-132	L700009-01	WG722353
Anthracene	mg/kg	0.0856	0.0102	.08	94.3	36.7-144	L700009-01	WG722353
Benzo(a)anthracene	mg/kg	0.126	0.0550	.08	88.7	28-144	L700009-01	WG722353
Benzo(a)pyrene	mg/kg	0.115	0.0518	.08	79.6	23.8-147	L700009-01	WG722353
Benzo(b)fluoranthene	mg/kg	0.179	0.126	.08	66.2	18.2-147	L700009-01	WG722353
Benzo(g,h,i)perylene	mg/kg	0.124	0.0650	.08	73.5	9.2-155	L700009-01	WG722353
Benzo(k)fluoranthene	mg/kg	0.0884	0.0297	.08	73.3	26.5-143	L700009-01	WG722353
Chrysene	mg/kg	0.133	0.0748	.08	72.5	27.4-150	L700009-01	WG722353
Dibenz(a,h)anthracene	mg/kg	0.0944	0.0190	.08	94.2	13.8-150	L700009-01	WG722353
Fluoranthene	mg/kg	0.0879	0.0341	.08	67.3	23.2-158	L700009-01	WG722353
Fluorene	mg/kg	0.0771	0.0159	.08	76.5	30.8-139	L700009-01	WG722353
Indeno(1,2,3-cd)pyrene	mg/kg	0.111	0.0418	.08	86.4	10.7-155	L700009-01	WG722353
Naphthalene	mg/kg	0.142	0.0925	.08	61.9	34.9-133	L700009-01	WG722353
Phenanthrene	mg/kg	0.111	0.0548	.08	70.6	20.2-150	L700009-01	WG722353
Pyrene	mg/kg	0.219	0.149	.08	88.3	22.6-151	L700009-01	WG722353
2-Fluorobiphenyl					70.50	38.2-135		WG722353
Nitrobenzene-d5					73.40	28.4-151		WG722353
p-Terphenyl-d14					98.50	34.2-141		WG722353
Arsenic	mg/kg	55.8	10.6	50	90.0	75-125	L700009-20	WG722436
Barium	mg/kg	490.	388.	50	200.*	75-125	L700009-20	WG722436
Boron	mg/kg	41.2	-3.35	50	82.0	75-125	L700009-20	WG722436
Cadmium	mg/kg	42.4	0.659	50	83.0	75-125	L700009-20	WG722436
Chromium	mg/kg	70.0	28.8	50	82.0	75-125	L700009-20	WG722436
Copper	mg/kg	68.3	20.5	50	96.0	75-125	L700009-20	WG722436
Lead	mg/kg	57.5	13.8	50	87.0	75-125	L700009-20	WG722436
Nickel	mg/kg	54.7	11.5	50	86.0	75-125	L700009-20	WG722436
Selenium	mg/kg	55.7	9.73	50	92.0	75-125	L700009-20	WG722436
Silver	mg/kg	44.9	-0.908	50	90.0	75-125	L700009-20	WG722436
Zinc	mg/kg	91.0	49.2	50	84.0	75-125	L700009-20	WG722436
Benzene	mg/kg	0.233	0.000264	.05	93.0	49.7-127	L700009-01	WG722206
Ethylbenzene	mg/kg	0.230	0.000283	.05	92.0	40.8-141	L700009-01	WG722206
Toluene	mg/kg	0.230	0.000778	.05	92.0	49.8-132	L700009-01	WG722206
Total Xylene	mg/kg	0.680	0.000854	.15	90.0	41.2-140	L700009-01	WG722206
a,a,a-Trifluorotoluene(FID)					98.50	59-128		WG722206
a,a,a-Trifluorotoluene(PID)					102.0	54-144		WG722206
TPH (GC/FID) Low Fraction	mg/kg	20.3	0.0	5.5	74.0	28.5-138	L700009-01	WG722206
a,a,a-Trifluorotoluene(FID)					96.00	59-128		WG722206
a,a,a-Trifluorotoluene(PID)					101.0	54-144		WG722206
2-Chloronaphthalene	mg/kg	0.0738	0.	.08	92.2	42.4-129	L699620-08	WG722693
Acenaphthene	mg/kg	0.0910	0.0218	.08	86.5	39.4-132	L699620-08	WG722693
Acenaphthylene	mg/kg	0.0740	0.00193	.08	90.1	41.3-132	L699620-08	WG722693
Anthracene	mg/kg	0.0786	0.00360	.08	93.8	36.7-144	L699620-08	WG722693
Benzo(a)anthracene	mg/kg	0.0810	0.	.08	101.	28-144	L699620-08	WG722693
Benzo(a)pyrene	mg/kg	0.0807	0.000935	.08	99.7	23.8-147	L699620-08	WG722693

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Tax I.D. 62-0814289

Est. 1970

May 29, 2014

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzo(b)fluoranthene	mg/kg	0.0781	0.00165	.08	95.6	18.2-147	L699620-08	WG722693
Benzo(g,h,i)perylene	mg/kg	0.0843	0.000678	.08	105.	9.2-155	L699620-08	WG722693
Benzo(k)fluoranthene	mg/kg	0.0799	0.	.08	99.9	26.5-143	L699620-08	WG722693
Chrysene	mg/kg	0.0810	0.	.08	101.	27.4-150	L699620-08	WG722693
Dibenz(a,h)anthracene	mg/kg	0.0801	0.	.08	100.	13.8-150	L699620-08	WG722693
Fluoranthene	mg/kg	0.0760	0.00298	.08	91.2	23.2-158	L699620-08	WG722693
Fluorene	mg/kg	0.104	0.0301	.08	92.0	30.8-139	L699620-08	WG722693
Indeno(1,2,3-cd)pyrene	mg/kg	0.0824	0.	.08	103.	10.7-155	L699620-08	WG722693
Phenanthrene	mg/kg	0.0990	0.0263	.08	90.9	20.2-150	L699620-08	WG722693
Pyrene	mg/kg	0.0849	0.00612	.08	98.5	22.6-151	L699620-08	WG722693
2-Fluorobiphenyl					85.80	38.2-135		WG722693
p-Terphenyl-d14					93.80	34.2-141		WG722693
Chromium, Hexavalent	mg/kg	20.5	0.0	20	100.	75-125	L700643-02	WG722581
1-Methylnaphthalene	mg/kg	0.0536	0.	.08	67.0	41.8-133	L700118-02	WG722864
2-Chloronaphthalene	mg/kg	0.0551	0.	.08	68.9	42.4-129	L700118-02	WG722864
2-Methylnaphthalene	mg/kg	0.0530	0.	.08	66.3	37.5-137	L700118-02	WG722864
Acenaphthene	mg/kg	0.0510	0.	.08	63.8	39.4-132	L700118-02	WG722864
Acenaphthylene	mg/kg	0.0533	0.	.08	66.7	41.3-132	L700118-02	WG722864
Anthracene	mg/kg	0.0489	0.	.08	61.1	36.7-144	L700118-02	WG722864
Benzo(a)anthracene	mg/kg	0.0465	0.	.08	58.1	28-144	L700118-02	WG722864
Benzo(a)pyrene	mg/kg	0.0475	0.	.08	59.4	23.8-147	L700118-02	WG722864
Benzo(b)fluoranthene	mg/kg	0.0419	0.	.08	52.3	18.2-147	L700118-02	WG722864
Benzo(g,h,i)perylene	mg/kg	0.0496	0.	.08	62.0	9.2-155	L700118-02	WG722864
Benzo(k)fluoranthene	mg/kg	0.0503	0.	.08	62.8	26.5-143	L700118-02	WG722864
Chrysene	mg/kg	0.0515	0.	.08	64.4	27.4-150	L700118-02	WG722864
Dibenz(a,h)anthracene	mg/kg	0.0483	0.	.08	60.4	13.8-150	L700118-02	WG722864
Fluoranthene	mg/kg	0.0457	0.	.08	57.1	23.2-158	L700118-02	WG722864
Fluorene	mg/kg	0.0500	0.	.08	62.5	30.8-139	L700118-02	WG722864
Indeno(1,2,3-cd)pyrene	mg/kg	0.0472	0.	.08	59.0	10.7-155	L700118-02	WG722864
Naphthalene	mg/kg	0.0535	0.	.08	66.9	34.9-133	L700118-02	WG722864
Phenanthrene	mg/kg	0.0474	0.	.08	59.3	20.2-150	L700118-02	WG722864
Pyrene	mg/kg	0.0460	0.	.08	57.5	22.6-151	L700118-02	WG722864
2-Fluorobiphenyl					69.20	38.2-135		WG722864
Nitrobenzene-d5					56.70	28.4-151		WG722864
p-Terphenyl-d14					70.20	34.2-141		WG722864
1-Methylnaphthalene	mg/kg	0.0652	0.	.08	81.5	41.8-133	L700962-04	WG723130
2-Chloronaphthalene	mg/kg	0.0674	0.	.08	84.2	42.4-129	L700962-04	WG723130
2-Methylnaphthalene	mg/kg	0.0645	0.	.08	80.6	37.5-137	L700962-04	WG723130
Acenaphthene	mg/kg	0.0618	0.	.08	77.2	39.4-132	L700962-04	WG723130
Acenaphthylene	mg/kg	0.0612	0.	.08	76.6	41.3-132	L700962-04	WG723130
Anthracene	mg/kg	0.0689	0.	.08	86.1	36.7-144	L700962-04	WG723130
Benzo(a)anthracene	mg/kg	0.0634	0.	.08	79.2	28-144	L700962-04	WG723130
Benzo(a)pyrene	mg/kg	0.0660	0.	.08	82.5	23.8-147	L700962-04	WG723130
Benzo(b)fluoranthene	mg/kg	0.0617	0.	.08	77.1	18.2-147	L700962-04	WG723130
Benzo(g,h,i)perylene	mg/kg	0.0650	0.	.08	81.2	9.2-155	L700962-04	WG723130
Benzo(k)fluoranthene	mg/kg	0.0689	0.	.08	86.2	26.5-143	L700962-04	WG723130
Chrysene	mg/kg	0.0717	0.	.08	89.7	27.4-150	L700962-04	WG723130
Dibenz(a,h)anthracene	mg/kg	0.0640	0.	.08	80.0	13.8-150	L700962-04	WG723130
Fluoranthene	mg/kg	0.0662	0.	.08	82.8	23.2-158	L700962-04	WG723130
Fluorene	mg/kg	0.0620	0.	.08	77.4	30.8-139	L700962-04	WG723130
Indeno(1,2,3-cd)pyrene	mg/kg	0.0645	0.	.08	80.7	10.7-155	L700962-04	WG723130
Naphthalene	mg/kg	0.0609	0.	.08	76.2	34.9-133	L700962-04	WG723130
Phenanthrene	mg/kg	0.0620	0.	.08	77.5	20.2-150	L700962-04	WG723130

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Tax I.D. 62-0814289

Est. 1970

May 29, 2014

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Pyrene	mg/kg	0.0633	0.	.08	79.1	22.6-151	L700962-04	WG723130
2-Fluorobiphenyl					80.10	38.2-135		WG723130
Nitrobenzene-d5					70.50	28.4-151		WG723130
p-Terphenyl-d14					78.70	34.2-141		WG723130
Benzene	mg/kg	0.233	0.000258	.05	93.0	49.7-127	L700009-15	WG722358
Ethylbenzene	mg/kg	0.213	0.000351	.05	85.0	40.8-141	L700009-15	WG722358
Toluene	mg/kg	0.225	0.00101	.05	90.0	49.8-132	L700009-15	WG722358
Total Xylene	mg/kg	0.640	0.00230	.15	85.0	41.2-140	L700009-15	WG722358
a,a,a-Trifluorotoluene(FID)					98.40	59-128		WG722358
a,a,a-Trifluorotoluene(PID)					99.50	54-144		WG722358
TPH (GC/FID) Low Fraction	mg/kg	15.3	0.0	5.5	56.0	28.5-138	L700009-15	WG722358
a,a,a-Trifluorotoluene(FID)					96.30	59-128		WG722358
a,a,a-Trifluorotoluene(PID)					99.60	54-144		WG722358
Benzene	mg/kg	0.289	0.000156	.05	120.	49.7-127	L700009-14	WG722610
Ethylbenzene	mg/kg	0.287	0.000265	.05	120.	40.8-141	L700009-14	WG722610
Toluene	mg/kg	0.287	0.000981	.05	120.	49.8-132	L700009-14	WG722610
Total Xylene	mg/kg	0.859	0.00149	.15	110.	41.2-140	L700009-14	WG722610
a,a,a-Trifluorotoluene(FID)					99.20	59-128		WG722610
TPH (GC/FID) Low Fraction	mg/kg	23.9	0.0	5.5	87.0	28.5-138	L700009-14	WG722610
a,a,a-Trifluorotoluene(FID)					96.70	59-128		WG722610

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Mercury	mg/kg	0.425	0.848	82.6	80-120	67.0*	20	L700028-02	WG722119
Mercury	mg/kg	0.549	0.500	104.	80-120	9.00	20	L700009-01	WG722041
Chromium,Hexavalent	mg/kg	19.8	19.8	99.0	75-125	0.0	20	L700133-01	WG722082
Arsenic	mg/kg	60.5	59.7	106.	75-125	1.00	20	L700009-01	WG722435
Barium	mg/kg	374.	419.	230.*	75-125	11.0	20	L700009-01	WG722435
Boron	mg/kg	62.9	63.3	106.	75-125	1.00	20	L700009-01	WG722435
Cadmium	mg/kg	49.4	49.4	97.7	75-125	0.0	20	L700009-01	WG722435
Chromium	mg/kg	87.2	88.6	110.	75-125	2.00	20	L700009-01	WG722435
Copper	mg/kg	74.4	73.8	112.	75-125	1.00	20	L700009-01	WG722435
Lead	mg/kg	60.7	60.4	100.	75-125	0.0	20	L700009-01	WG722435
Nickel	mg/kg	67.9	70.0	104.	75-125	3.00	20	L700009-01	WG722435
Selenium	mg/kg	48.7	49.1	101.	75-125	1.00	20	L700009-01	WG722435
Silver	mg/kg	51.3	51.1	101.	75-125	0.0	20	L700009-01	WG722435
Zinc	mg/kg	108.	112.	126.*	75-125	4.00	20	L700009-01	WG722435
1-Methylnaphthalene	mg/kg	0.128	0.123	73.0	41.8-133	3.95	20.9	L700009-01	WG722353
2-Chloronaphthalene	mg/kg	0.0532	0.0566	66.4	42.4-129	6.34	20	L700009-01	WG722353
2-Methylnaphthalene	mg/kg	0.265	0.247	75.8	37.5-137	7.11	20.4	L700009-01	WG722353
Acenaphthene	mg/kg	0.0702	0.0713	87.8	39.4-132	1.59	20	L700009-01	WG722353
Acenaphthylene	mg/kg	0.0626	0.0606	78.3	41.3-132	3.20	20	L700009-01	WG722353
Anthracene	mg/kg	0.0855	0.0856	94.2	36.7-144	0.170	20.7	L700009-01	WG722353
Benzo(a)anthracene	mg/kg	0.122	0.126	84.0	28-144	3.02	24.7	L700009-01	WG722353
Benzo(a)pyrene	mg/kg	0.120	0.115	85.3	23.8-147	3.85	25.3	L700009-01	WG722353
Benzo(b)fluoranthene	mg/kg	0.200	0.179	92.6	18.2-147	11.1	29.5	L700009-01	WG722353

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Benzo(g,h,i)perylene	mg/kg	0.127	0.124	77.7	9.2-155	2.71	29.2	L700009-01		WG722353
Benzo(k)fluoranthene	mg/kg	0.0812	0.0884	64.4	26.5-143	8.45	26.1	L700009-01		WG722353
Chrysene	mg/kg	0.134	0.133	74.4	27.4-150	1.10	25.7	L700009-01		WG722353
Dibenz(a,h)anthracene	mg/kg	0.0921	0.0944	91.3	13.8-150	2.44	25.8	L700009-01		WG722353
Fluoranthene	mg/kg	0.0838	0.0879	62.2	23.2-158	4.75	26	L700009-01		WG722353
Fluorene	mg/kg	0.0766	0.0771	75.9	30.8-139	0.630	20	L700009-01		WG722353
Indeno(1,2,3-cd)pyrene	mg/kg	0.110	0.111	85.6	10.7-155	0.530	26.9	L700009-01		WG722353
Naphthalene	mg/kg	0.148	0.142	70.0	34.9-133	4.45	20.4	L700009-01		WG722353
Phenanthrene	mg/kg	0.114	0.111	73.6	20.2-150	2.19	24.6	L700009-01		WG722353
Pyrene	mg/kg	0.229	0.219	99.9	22.6-151	4.14	25.1	L700009-01		WG722353
2-Fluorobiphenyl				68.20	38.2-135					WG722353
Nitrobenzene-d5				75.30	28.4-151					WG722353
p-Terphenyl-d14				94.80	34.2-141					WG722353
Arsenic	mg/kg	58.0	55.8	94.8	75-125	4.00	20	L700009-20		WG722436
Barium	mg/kg	476.	490.	177.*	75-125	3.00	20	L700009-20		WG722436
Boron	mg/kg	44.4	41.2	95.4	75-125	7.00	20	L700009-20		WG722436
Cadmium	mg/kg	42.5	42.4	83.7	75-125	0.0	20	L700009-20		WG722436
Chromium	mg/kg	71.2	70.0	84.8	75-125	2.00	20	L700009-20		WG722436
Copper	mg/kg	66.6	68.3	92.3	75-125	3.00	20	L700009-20		WG722436
Lead	mg/kg	57.8	57.5	88.0	75-125	1.00	20	L700009-20		WG722436
Nickel	mg/kg	55.9	54.7	88.8	75-125	2.00	20	L700009-20		WG722436
Selenium	mg/kg	54.8	55.7	90.1	75-125	2.00	20	L700009-20		WG722436
Silver	mg/kg	45.5	44.9	92.9	75-125	1.00	20	L700009-20		WG722436
Zinc	mg/kg	91.3	91.0	84.3	75-125	0.0	20	L700009-20		WG722436
Benzene	mg/kg	0.236	0.233	94.2	49.7-127	1.27	23.5	L700009-01		WG722206
Ethylbenzene	mg/kg	0.220	0.230	87.9	40.8-141	4.32	23.8	L700009-01		WG722206
Toluene	mg/kg	0.225	0.230	89.6	49.8-132	2.38	23.5	L700009-01		WG722206
Total Xylene	mg/kg	0.652	0.680	86.8	41.2-140	4.23	23.7	L700009-01		WG722206
a,a,a-Trifluorotoluene (FID)				98.10	59-128					WG722206
a,a,a-Trifluorotoluene (PID)				101.0	54-144					WG722206
TPH (GC/FID) Low Fraction	mg/kg	19.9	20.3	72.4	28.5-138	1.96	23.6	L700009-01		WG722206
a,a,a-Trifluorotoluene (FID)				96.20	59-128					WG722206
a,a,a-Trifluorotoluene (PID)				99.80	54-144					WG722206
2-Chloronaphthalene	mg/kg	0.0739	0.0738	92.4	42.4-129	0.140	20	L699620-08		WG722693
Acenaphthene	mg/kg	0.0895	0.0910	84.6	39.4-132	1.61	20	L699620-08		WG722693
Acenaphthylene	mg/kg	0.0737	0.0740	89.7	41.3-132	0.450	20	L699620-08		WG722693
Anthracene	mg/kg	0.0800	0.0786	95.5	36.7-144	1.74	20.7	L699620-08		WG722693
Benzo(a)anthracene	mg/kg	0.0834	0.0810	104.	28-144	2.82	24.7	L699620-08		WG722693
Benzo(a)pyrene	mg/kg	0.0838	0.0807	104.	23.8-147	3.77	25.3	L699620-08		WG722693
Benzo(b)fluoranthene	mg/kg	0.0805	0.0781	98.6	18.2-147	3.00	29.5	L699620-08		WG722693
Benzo(g,h,i)perylene	mg/kg	0.0878	0.0843	109.	9.2-155	4.05	29.2	L699620-08		WG722693
Benzo(k)fluoranthene	mg/kg	0.0826	0.0799	103.	26.5-143	3.33	26.1	L699620-08		WG722693
Chrysene	mg/kg	0.0830	0.0810	104.	27.4-150	2.44	25.7	L699620-08		WG722693
Dibenz(a,h)anthracene	mg/kg	0.0835	0.0801	104.	13.8-150	4.24	25.8	L699620-08		WG722693
Fluoranthene	mg/kg	0.0814	0.0760	98.1	23.2-158	6.95	26	L699620-08		WG722693
Fluorene	mg/kg	0.103	0.104	91.4	30.8-139	0.400	20	L699620-08		WG722693
Indeno(1,2,3-cd)pyrene	mg/kg	0.0858	0.0824	107.	10.7-155	4.00	26.9	L699620-08		WG722693
Phenanthrene	mg/kg	0.101	0.0990	93.5	20.2-150	2.08	24.6	L699620-08		WG722693
Pyrene	mg/kg	0.0903	0.0849	105.	22.6-151	6.15	25.1	L699620-08		WG722693
2-Fluorobiphenyl				83.10	38.2-135					WG722693
p-Terphenyl-d14				96.90	34.2-141					WG722693

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Tax I.D. 62-0814289

Est. 1970

May 29, 2014

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Chromium,Hexavalent	mg/kg	20.6	20.5	103.	75-125	0.487	20	L700643-02	WG722581
1-Methylnaphthalene	mg/kg	0.0566	0.0536	70.7	41.8-133	5.50	20.9	L700118-02	WG722864
2-Chloronaphthalene	mg/kg	0.0574	0.0551	71.8	42.4-129	4.08	20	L700118-02	WG722864
2-Methylnaphthalene	mg/kg	0.0559	0.0530	69.9	37.5-137	5.35	20.4	L700118-02	WG722864
Acenaphthene	mg/kg	0.0532	0.0510	66.5	39.4-132	4.25	20	L700118-02	WG722864
Acenaphthylene	mg/kg	0.0551	0.0533	68.8	41.3-132	3.21	20	L700118-02	WG722864
Anthracene	mg/kg	0.0517	0.0489	64.6	36.7-144	5.57	20.7	L700118-02	WG722864
Benzo(a)anthracene	mg/kg	0.0492	0.0465	61.4	28-144	5.64	24.7	L700118-02	WG722864
Benzo(a)pyrene	mg/kg	0.0510	0.0475	63.8	23.8-147	7.10	25.3	L700118-02	WG722864
Benzo(b)fluoranthene	mg/kg	0.0460	0.0419	57.5	18.2-147	9.39	29.5	L700118-02	WG722864
Benzo(g,h,i)perylene	mg/kg	0.0515	0.0496	64.3	9.2-155	3.66	29.2	L700118-02	WG722864
Benzo(k)fluoranthene	mg/kg	0.0547	0.0503	68.4	26.5-143	8.41	26.1	L700118-02	WG722864
Chrysene	mg/kg	0.0529	0.0515	66.1	27.4-150	2.65	25.7	L700118-02	WG722864
Dibenz(a,h)anthracene	mg/kg	0.0499	0.0483	62.4	13.8-150	3.32	25.8	L700118-02	WG722864
Fluoranthene	mg/kg	0.0497	0.0457	62.1	23.2-158	8.41	26	L700118-02	WG722864
Fluorene	mg/kg	0.0529	0.0500	66.1	30.8-139	5.68	20	L700118-02	WG722864
Indeno(1,2,3-cd)pyrene	mg/kg	0.0500	0.0472	62.5	10.7-155	5.78	26.9	L700118-02	WG722864
Naphthalene	mg/kg	0.0563	0.0535	70.4	34.9-133	5.12	20.4	L700118-02	WG722864
Phenanthrene	mg/kg	0.0511	0.0474	63.8	20.2-150	7.43	24.6	L700118-02	WG722864
Pyrene	mg/kg	0.0498	0.0460	62.3	22.6-151	8.05	25.1	L700118-02	WG722864
2-Fluorobiphenyl				69.50	38.2-135				WG722864
Nitrobenzene-d5				57.60	28.4-151				WG722864
p-Terphenyl-d14				70.40	34.2-141				WG722864
1-Methylnaphthalene	mg/kg	0.0645	0.0652	80.6	41.8-133	1.07	20.9	L700962-04	WG723130
2-Chloronaphthalene	mg/kg	0.0669	0.0674	83.6	42.4-129	0.770	20	L700962-04	WG723130
2-Methylnaphthalene	mg/kg	0.0639	0.0645	79.8	37.5-137	0.900	20.4	L700962-04	WG723130
Acenaphthene	mg/kg	0.0612	0.0618	76.5	39.4-132	0.930	20	L700962-04	WG723130
Acenaphthylene	mg/kg	0.0608	0.0612	76.0	41.3-132	0.690	20	L700962-04	WG723130
Anthracene	mg/kg	0.0676	0.0689	84.4	36.7-144	1.90	20.7	L700962-04	WG723130
Benzo(a)anthracene	mg/kg	0.0620	0.0634	77.5	28-144	2.28	24.7	L700962-04	WG723130
Benzo(a)pyrene	mg/kg	0.0645	0.0660	80.6	23.8-147	2.25	25.3	L700962-04	WG723130
Benzo(b)fluoranthene	mg/kg	0.0581	0.0617	72.6	18.2-147	5.91	29.5	L700962-04	WG723130
Benzo(g,h,i)perylene	mg/kg	0.0636	0.0650	79.5	9.2-155	2.13	29.2	L700962-04	WG723130
Benzo(k)fluoranthene	mg/kg	0.0698	0.0689	87.2	26.5-143	1.22	26.1	L700962-04	WG723130
Chrysene	mg/kg	0.0707	0.0717	88.4	27.4-150	1.37	25.7	L700962-04	WG723130
Dibenz(a,h)anthracene	mg/kg	0.0626	0.0640	78.3	13.8-150	2.20	25.8	L700962-04	WG723130
Fluoranthene	mg/kg	0.0651	0.0662	81.4	23.2-158	1.71	26	L700962-04	WG723130
Fluorene	mg/kg	0.0607	0.0620	75.8	30.8-139	2.08	20	L700962-04	WG723130
Indeno(1,2,3-cd)pyrene	mg/kg	0.0630	0.0645	78.8	10.7-155	2.38	26.9	L700962-04	WG723130
Naphthalene	mg/kg	0.0601	0.0609	75.2	34.9-133	1.28	20.4	L700962-04	WG723130
Phenanthrene	mg/kg	0.0608	0.0620	76.0	20.2-150	1.88	24.6	L700962-04	WG723130
Pyrene	mg/kg	0.0620	0.0633	77.5	22.6-151	2.07	25.1	L700962-04	WG723130
2-Fluorobiphenyl				76.50	38.2-135				WG723130
Nitrobenzene-d5				72.10	28.4-151				WG723130
p-Terphenyl-d14				74.30	34.2-141				WG723130
Benzene	mg/kg	0.231	0.233	92.5	49.7-127	0.570	23.5	L700009-15	WG722358
Ethylbenzene	mg/kg	0.201	0.213	80.1	40.8-141	6.15	23.8	L700009-15	WG722358
Toluene	mg/kg	0.215	0.225	85.7	49.8-132	4.39	23.5	L700009-15	WG722358
Total Xylene	mg/kg	0.596	0.640	79.2	41.2-140	7.03	23.7	L700009-15	WG722358
a,a,a-Trifluorotoluene(FID)				98.20	59-128				WG722358
a,a,a-Trifluorotoluene(PID)				100.0	54-144				WG722358
TPH (GC/FID) Low Fraction	mg/kg	15.4	15.3	55.8	28.5-138	0.650	23.6	L700009-15	WG722358
a,a,a-Trifluorotoluene(FID)				96.00	59-128				WG722358

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
a,a,a-Trifluorotoluene(PID)				99.10	54-144					
Benzene	mg/kg	0.199	0.289	79.5	49.7-127	36.9*	23.5	L700009-14	WG722610	
Ethylbenzene	mg/kg	0.189	0.287	75.6	40.8-141	41.1*	23.8	L700009-14	WG722610	
Toluene	mg/kg	0.192	0.287	76.5	49.8-132	39.7*	23.5	L700009-14	WG722610	
Total Xylene	mg/kg	0.582	0.859	77.4	41.2-140	38.5*	23.7	L700009-14	WG722610	
a,a,a-Trifluorotoluene(FID)				99.20	59-128					WG722610
TPH (GC/FID) Low Fraction	mg/kg	21.8	23.9	79.2	28.5-138	9.28	23.6	L700009-14	WG722610	
a,a,a-Trifluorotoluene(FID)				97.00	59-128					WG722610

Post Spike

Serial Dilution

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Serial Dilution

Batch number /Run number / Sample number cross reference

WG721619: R2925686 R2927034: L700009-01 02 03 04 05 06 07 08 09  
WG722062: R2925687 R2925768: L700009-10 11 12 13 14 15 16 17  
WG722041: R2925726: L700009-01 02 03 04 05 06 07 08 09 10 11  
WG722119: R2925727: L700009-12 13 14 15 16 17 18 19 20 21  
WG722086: R2926248: L700009-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20  
WG722326: R2926554: L700009-21  
WG722082: R2926619: L700009-01 02 03 04 05 06 07 08 09 10 11 12  
WG722435: R2926840: L700009-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19  
WG722585: R2927036 R2927465: L700009-18 19 20 21  
WG722353: R2927068 R2928177: L700009-01 02 03 04 05 06 07  
WG722693: R2927172 R2928178: L700009-10 11  
WG722436: R2927267: L700009-20 21  
WG722531: R2927314: L700009-01 02 03 04 05 06 07  
WG722206: R2927393: L700009-01 02 03 04 05 06 07 08 09 10 11  
WG722681: R2927945: L700009-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20  
WG722581: R2928186: L700009-13 14 15 16 17 18 19 20 21  
WG722864: R2928192 R2928467 R2928657 R2929425: L700009-12 13 14 15 16 17 18 19 20 21  
WG723130: R2928588: L700009-08  
WG723097: R2928618: L700009-21  
WG722358: R2928650: L700009-15 17 18  
WG722610: R2928774: L700009-12 13 14 16 19 20 21  
WG723115: R2929527: L700009-21  
WG722772: R2929533: L700009-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20  
WG722778: R2929669: L700009-08 09 10 11 12 13 14 15 16 17 18 19 20 21

\* \* 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.