

EnCana Oil & Gas - Parachute, CO

Sample Delivery Group: L798254
Samples Received: 11/03/2015
Project Number: PK36
Description: PK36 spill Response
Site: PK36
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris McCord
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



20151031-PK36 (POR) L798254-01 Solid

			Collected by WT and CM	Collected date/time 10/31/15 09:35	Received date/time 11/03/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG826370	1	11/03/15 16:51	11/04/15 14:41	LTB
Calculated Results	WG826375	1	11/03/15 15:45	11/04/15 10:44	CCE
Mercury by Method 7471A	WG826383	1	11/03/15 16:19	11/04/15 08:40	CHM
Metals (ICP) by Method 6010B	WG826370	1	11/03/15 16:51	11/04/15 00:46	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG826462	1	11/03/15 20:06	11/04/15 09:54	KMP
Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO	WG826450	1	11/03/15 16:51	11/03/15 22:07	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG826419	5	11/03/15 14:13	11/03/15 22:30	LRL
Wet Chemistry by Method 2580 B-2011	WG826485	1	11/04/15 01:41	11/04/15 01:42	MZ
Wet Chemistry by Method 3060A/7196A	WG826402	1	11/03/15 14:30	11/04/15 10:35	JEH
Wet Chemistry by Method 9045D	WG826401	1	11/04/15 10:41	11/04/15 10:41	SJM
Wet Chemistry by Method 9050AMod	WG826495	1	11/04/15 13:22	11/04/15 13:22	AMC

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Gl

⁷Al

⁸Sc

20151031-PK36 (POR) 1FT L798254-02 Solid

			Collected by WT and CM	Collected date/time 10/31/15 09:45	Received date/time 11/03/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG826370	1	11/03/15 16:51	11/04/15 14:41	LTB
Calculated Results	WG826375	1	11/03/15 15:45	11/04/15 10:44	CCE
Mercury by Method 7471A	WG826383	1	11/03/15 16:19	11/04/15 08:42	CHM
Metals (ICP) by Method 6010B	WG826370	1	11/03/15 16:51	11/04/15 00:58	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG826462	1	11/03/15 20:06	11/04/15 08:27	KMP
Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO	WG826450	1	11/03/15 16:51	11/03/15 22:18	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG826419	5	11/03/15 14:13	11/03/15 22:51	LRL
Wet Chemistry by Method 2580 B-2011	WG826485	1	11/04/15 01:41	11/04/15 01:42	MZ
Wet Chemistry by Method 3060A/7196A	WG826402	1	11/03/15 14:30	11/04/15 10:35	JEH
Wet Chemistry by Method 9045D	WG826401	1	11/04/15 10:41	11/04/15 10:41	SJM
Wet Chemistry by Method 9050AMod	WG826495	1	11/04/15 13:22	11/04/15 13:22	AMC

20151031-PK36 (EXT-S01) L798254-03 Solid

			Collected by WT and CM	Collected date/time 10/31/15 10:10	Received date/time 11/03/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG826370	1	11/03/15 16:51	11/04/15 14:41	LTB
Calculated Results	WG826375	1	11/03/15 15:45	11/04/15 10:44	CCE
Mercury by Method 7471A	WG826383	1	11/03/15 16:19	11/04/15 08:45	CHM
Metals (ICP) by Method 6010B	WG826370	1	11/03/15 16:51	11/04/15 01:01	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG826462	1	11/03/15 20:06	11/04/15 08:48	KMP
Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO	WG826450	1	11/03/15 16:51	11/03/15 22:29	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG826419	5	11/03/15 14:13	11/03/15 23:12	LRL
Wet Chemistry by Method 2580 B-2011	WG826485	1	11/04/15 01:41	11/04/15 01:42	MZ
Wet Chemistry by Method 3060A/7196A	WG826402	1	11/03/15 14:30	11/04/15 10:36	JEH
Wet Chemistry by Method 9045D	WG826401	1	11/04/15 10:41	11/04/15 10:41	SJM
Wet Chemistry by Method 9050AMod	WG826495	1	11/04/15 13:22	11/04/15 13:22	AMC

20151031-PK36 (EXT-S01) 6IN L798254-04 Solid

			Collected by WT and CM	Collected date/time 10/31/15 10:20	Received date/time 11/03/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG826370	1	11/03/15 16:51	11/04/15 14:41	LTB
Calculated Results	WG826375	1	11/03/15 15:45	11/04/15 10:44	CCE
Mercury by Method 7471A	WG826383	1	11/03/15 16:19	11/04/15 08:48	CHM
Metals (ICP) by Method 6010B	WG826370	1	11/03/15 16:51	11/04/15 01:04	LTB



20151031-PK36 (EXT-S01) 6IN L798254-04 Solid

Collected by
WT and CMCollected date/time
10/31/15 10:20Received date/time
11/03/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG826462	1	11/03/15 20:06	11/04/15 09:53	KMP
Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO	WG826450	1	11/03/15 16:51	11/03/15 22:40	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG826419	5	11/03/15 14:13	11/03/15 23:34	LRL
Wet Chemistry by Method 2580 B-2011	WG826485	1	11/04/15 01:41	11/04/15 01:42	MZ
Wet Chemistry by Method 3060A/7196A	WG826402	1	11/03/15 14:30	11/04/15 10:39	JEH
Wet Chemistry by Method 9045D	WG826401	1	11/04/15 10:41	11/04/15 10:41	SJM
Wet Chemistry by Method 9050AMod	WG826495	1	11/04/15 13:22	11/04/15 13:22	AMC

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

20151031-PK36 (EXT-S02) L798254-05 Solid

Collected by
WT and CMCollected date/time
10/31/15 10:45Received date/time
11/03/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG826370	1	11/03/15 16:51	11/04/15 14:41	LTB
Calculated Results	WG826375	1	11/03/15 15:45	11/04/15 10:44	CCE
Mercury by Method 7471A	WG826383	1	11/03/15 16:19	11/04/15 08:50	CHM
Metals (ICP) by Method 6010B	WG826370	1	11/03/15 16:51	11/04/15 01:07	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG826462	1	11/03/15 20:06	11/04/15 10:14	KMP
Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO	WG826450	1	11/03/15 16:51	11/04/15 09:49	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG826419	5	11/03/15 14:13	11/03/15 23:55	LRL
Wet Chemistry by Method 2580 B-2011	WG826485	1	11/04/15 01:41	11/04/15 01:42	MZ
Wet Chemistry by Method 3060A/7196A	WG826402	1	11/03/15 14:30	11/04/15 10:39	JEH
Wet Chemistry by Method 9045D	WG826401	1	11/04/15 10:41	11/04/15 10:41	SJM
Wet Chemistry by Method 9050AMod	WG826495	1	11/04/15 13:22	11/04/15 13:22	AMC

20151031-PK36 (EXT-N01) L798254-06 Solid

Collected by
WT and CMCollected date/time
10/31/15 10:55Received date/time
11/03/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG826370	1	11/03/15 16:51	11/04/15 14:41	LTB
Calculated Results	WG826375	1	11/03/15 15:45	11/04/15 10:44	CCE
Mercury by Method 7471A	WG826383	1	11/03/15 16:19	11/04/15 08:53	CHM
Metals (ICP) by Method 6010B	WG826370	1	11/03/15 16:51	11/04/15 01:10	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG826462	1	11/03/15 20:06	11/04/15 10:15	KMP
Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO	WG826450	1	11/03/15 16:51	11/03/15 23:02	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG826419	5	11/03/15 14:13	11/04/15 00:17	LRL
Wet Chemistry by Method 2580 B-2011	WG826485	1	11/04/15 01:41	11/04/15 01:42	MZ
Wet Chemistry by Method 3060A/7196A	WG826402	1	11/03/15 14:30	11/04/15 10:43	JEH
Wet Chemistry by Method 9045D	WG826401	1	11/04/15 10:41	11/04/15 10:41	SJM
Wet Chemistry by Method 9050AMod	WG826495	1	11/04/15 13:22	11/04/15 13:22	AMC

20151031-PK36 (EXT-N01) 8IN L798254-07 Solid

Collected by
WT and CMCollected date/time
10/31/15 11:05Received date/time
11/03/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG826370	1	11/03/15 16:51	11/04/15 14:41	LTB
Calculated Results	WG826375	1	11/03/15 15:45	11/04/15 10:44	CCE
Mercury by Method 7471A	WG826383	1	11/03/15 16:19	11/04/15 08:55	CHM
Metals (ICP) by Method 6010B	WG826370	1	11/03/15 16:51	11/04/15 01:13	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG826462	1	11/03/15 20:06	11/04/15 09:11	KMP
Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO	WG826450	1	11/03/15 16:51	11/03/15 23:14	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG826419	5	11/03/15 14:13	11/04/15 00:38	LRL
Wet Chemistry by Method 2580 B-2011	WG826485	1	11/04/15 01:41	11/04/15 01:42	MZ



20151031-PK36 (EXT-N01) 8IN L798254-07 Solid

Collected by
WT and CMCollected date/time
10/31/15 11:05Received date/time
11/03/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Wet Chemistry by Method 3060A/7196A	WG826402	1	11/03/15 14:30	11/04/15 10:46	JEH
Wet Chemistry by Method 9045D	WG826401	1	11/04/15 10:41	11/04/15 10:41	SJM
Wet Chemistry by Method 9050AMod	WG826495	1	11/04/15 13:22	11/04/15 13:22	AMC

¹Cp²Tc³Ss⁴Cn⁵Sr⁶Gl⁷Al⁸Sc

20151031-PK36 (EXT-N02) L798254-08 Solid

Collected by
WT and CMCollected date/time
10/31/15 11:15Received date/time
11/03/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Calculated Results	WG826370	1	11/03/15 16:51	11/04/15 14:41	LTB
Calculated Results	WG826375	1	11/03/15 15:45	11/04/15 10:44	CCE
Mercury by Method 7471A	WG826383	1	11/03/15 16:19	11/04/15 08:58	CHM
Metals (ICP) by Method 6010B	WG826370	1	11/03/15 16:51	11/04/15 01:16	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG826462	1	11/03/15 20:06	11/04/15 09:32	KMP
Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO	WG826450	1	11/03/15 16:51	11/03/15 23:25	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG826419	5	11/03/15 14:13	11/04/15 00:59	LRL
Wet Chemistry by Method 2580 B-2011	WG826485	1	11/04/15 01:41	11/04/15 01:42	MZ
Wet Chemistry by Method 3060A/7196A	WG826402	1	11/03/15 14:30	11/04/15 10:49	JEH
Wet Chemistry by Method 9045D	WG826401	1	11/04/15 10:41	11/04/15 10:41	SJM
Wet Chemistry by Method 9050AMod	WG826495	1	11/04/15 13:22	11/04/15 13:22	AMC



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chris McCord
Technical Service Representative





Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	36.1		1	11/04/2015 10:44	WG826375

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Gl⁷ Al⁸ Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	14.2		2.00	1	11/04/2015 14:41	WG826370

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	86		1	11/04/2015 01:42	WG826485

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	11/04/2015 10:35	WG826402

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.71		1	11/04/2015 10:41	WG826401

Sample Narrative:

9045D L798254-01 WG826401: 7.71 at 23.5c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	3260		1	11/04/2015 13:22	WG826495

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/04/2015 08:40	WG826383

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.79		2.00	1	11/04/2015 00:46	WG826370
Barium	236		0.500	1	11/04/2015 00:46	WG826370
Cadmium	ND		0.500	1	11/04/2015 00:46	WG826370
Chromium	14.2		1.00	1	11/04/2015 00:46	WG826370
Copper	13.9		2.00	1	11/04/2015 00:46	WG826370
Lead	10.5		0.500	1	11/04/2015 00:46	WG826370
Nickel	13.9		2.00	1	11/04/2015 00:46	WG826370
Selenium	ND		2.00	1	11/04/2015 00:46	WG826370
Silver	ND		1.00	1	11/04/2015 00:46	WG826370
Zinc	41.0		5.00	1	11/04/2015 00:46	WG826370



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0259		0.00250	5	11/03/2015 22:30	WG826419
Toluene	0.144	<u>J6</u>	0.0250	5	11/03/2015 22:30	WG826419
Ethylbenzene	0.0134		0.00250	5	11/03/2015 22:30	WG826419
Total Xylene	0.469		0.00750	5	11/03/2015 22:30	WG826419
TPH (GC/FID) Low Fraction	3.90		0.500	5	11/03/2015 22:30	WG826419
(S) a,a,a-Trifluorotoluene(FID)	97.2		59.0-128		11/03/2015 22:30	WG826419
(S) a,a,a-Trifluorotoluene(PID)	91.1		54.0-144		11/03/2015 22:30	WG826419

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	7.99		4.00	1	11/03/2015 22:07	WG826450
(S) o-Terphenyl	73.7		50.0-150		11/03/2015 22:07	WG826450

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/04/2015 09:54	WG826462
Acenaphthene	ND		0.00600	1	11/04/2015 09:54	WG826462
Acenaphthylene	ND		0.00600	1	11/04/2015 09:54	WG826462
Benzo(a)anthracene	ND		0.00600	1	11/04/2015 09:54	WG826462
Benzo(a)pyrene	ND		0.00600	1	11/04/2015 09:54	WG826462
Benzo(b)fluoranthene	ND		0.00600	1	11/04/2015 09:54	WG826462
Benzo(g,h,i)perylene	ND		0.00600	1	11/04/2015 09:54	WG826462
Benzo(k)fluoranthene	ND		0.00600	1	11/04/2015 09:54	WG826462
Chrysene	ND		0.00600	1	11/04/2015 09:54	WG826462
Dibenz(a,h)anthracene	ND		0.00600	1	11/04/2015 09:54	WG826462
Fluoranthene	ND		0.00600	1	11/04/2015 09:54	WG826462
Fluorene	0.00951		0.00600	1	11/04/2015 09:54	WG826462
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/04/2015 09:54	WG826462
Naphthalene	0.0369		0.0200	1	11/04/2015 09:54	WG826462
Phenanthrene	0.0146		0.00600	1	11/04/2015 09:54	WG826462
Pyrene	ND		0.00600	1	11/04/2015 09:54	WG826462
1-Methylnaphthalene	0.0504		0.0200	1	11/04/2015 09:54	WG826462
2-Methylnaphthalene	0.104		0.0200	1	11/04/2015 09:54	WG826462
2-Chloronaphthalene	ND		0.0200	1	11/04/2015 09:54	WG826462
(S) p-Terphenyl-d14	47.9		32.2-131		11/04/2015 09:54	WG826462
(S) Nitrobenzene-d5	96.4		22.1-146		11/04/2015 09:54	WG826462
(S) 2-Fluorobiphenyl	66.6		40.6-122		11/04/2015 09:54	WG826462



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	30.3		1	11/04/2015 10:44	WG826375

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	17.3		2.00	1	11/04/2015 14:41	WG826370

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	66		1	11/04/2015 01:42	WG826485

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	11/04/2015 10:35	WG826402

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.22		1	11/04/2015 10:41	WG826401

Sample Narrative:

9045D L798254-02 WG826401: 8.22 at 24.0c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	2890		1	11/04/2015 13:22	WG826495

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0219		0.0200	1	11/04/2015 08:42	WG826383

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	14.4		2.00	1	11/04/2015 00:58	WG826370
Barium	275		0.500	1	11/04/2015 00:58	WG826370
Cadmium	ND		0.500	1	11/04/2015 00:58	WG826370
Chromium	17.3		1.00	1	11/04/2015 00:58	WG826370
Copper	15.8		2.00	1	11/04/2015 00:58	WG826370
Lead	12.6		0.500	1	11/04/2015 00:58	WG826370
Nickel	16.0		2.00	1	11/04/2015 00:58	WG826370
Selenium	ND		2.00	1	11/04/2015 00:58	WG826370
Silver	ND		1.00	1	11/04/2015 00:58	WG826370
Zinc	42.6		5.00	1	11/04/2015 00:58	WG826370



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00450		0.00250	5	11/03/2015 22:51	WG826419
Toluene	ND		0.0250	5	11/03/2015 22:51	WG826419
Ethylbenzene	0.00269		0.00250	5	11/03/2015 22:51	WG826419
Total Xylene	0.0644		0.00750	5	11/03/2015 22:51	WG826419
TPH (GC/FID) Low Fraction	0.684		0.500	5	11/03/2015 22:51	WG826419
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	95.6		59.0-128		11/03/2015 22:51	WG826419
(S) <i>a,a,a</i> -Trifluorotoluene(PID)	89.3		54.0-144		11/03/2015 22:51	WG826419

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	11/03/2015 22:18	WG826450
(S) <i>o</i> -Terphenyl	65.3		50.0-150		11/03/2015 22:18	WG826450

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/04/2015 08:27	WG826462
Acenaphthene	ND		0.00600	1	11/04/2015 08:27	WG826462
Acenaphthylene	ND		0.00600	1	11/04/2015 08:27	WG826462
Benzo(a)anthracene	ND		0.00600	1	11/04/2015 08:27	WG826462
Benzo(a)pyrene	ND		0.00600	1	11/04/2015 08:27	WG826462
Benzo(b)fluoranthene	ND		0.00600	1	11/04/2015 08:27	WG826462
Benzo(g,h,i)perylene	ND		0.00600	1	11/04/2015 08:27	WG826462
Benzo(k)fluoranthene	ND		0.00600	1	11/04/2015 08:27	WG826462
Chrysene	ND		0.00600	1	11/04/2015 08:27	WG826462
Dibenz(a,h)anthracene	ND		0.00600	1	11/04/2015 08:27	WG826462
Fluoranthene	ND		0.00600	1	11/04/2015 08:27	WG826462
Fluorene	ND		0.00600	1	11/04/2015 08:27	WG826462
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/04/2015 08:27	WG826462
Naphthalene	ND		0.0200	1	11/04/2015 08:27	WG826462
Phenanthrene	ND		0.00600	1	11/04/2015 08:27	WG826462
Pyrene	ND		0.00600	1	11/04/2015 08:27	WG826462
1-Methylnaphthalene	ND		0.0200	1	11/04/2015 08:27	WG826462
2-Methylnaphthalene	ND		0.0200	1	11/04/2015 08:27	WG826462
2-Chloronaphthalene	ND		0.0200	1	11/04/2015 08:27	WG826462
(S) <i>p</i> -Terphenyl-d14	53.8		32.2-131		11/04/2015 08:27	WG826462
(S) Nitrobenzene-d5	95.6		22.1-146		11/04/2015 08:27	WG826462
(S) 2-Fluorobiphenyl	76.5		40.6-122		11/04/2015 08:27	WG826462



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.57		1	11/04/2015 10:44	WG826375

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	21.4		2.00	1	11/04/2015 14:41	WG826370

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	81		1	11/04/2015 01:42	WG826485

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	11/04/2015 10:36	WG826402

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.90		1	11/04/2015 10:41	WG826401

Sample Narrative:

9045D L798254-03 WG826401: 7.90 at 24.0c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	965		1	11/04/2015 13:22	WG826495

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/04/2015 08:45	WG826383

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	12.7		2.00	1	11/04/2015 01:01	WG826370
Barium	245		0.500	1	11/04/2015 01:01	WG826370
Cadmium	0.519		0.500	1	11/04/2015 01:01	WG826370
Chromium	21.4		1.00	1	11/04/2015 01:01	WG826370
Copper	15.9		2.00	1	11/04/2015 01:01	WG826370
Lead	12.5		0.500	1	11/04/2015 01:01	WG826370
Nickel	17.5		2.00	1	11/04/2015 01:01	WG826370
Selenium	ND		2.00	1	11/04/2015 01:01	WG826370
Silver	ND		1.00	1	11/04/2015 01:01	WG826370
Zinc	43.5		5.00	1	11/04/2015 01:01	WG826370



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	11/03/2015 23:12	WG826419
Toluene	ND		0.0250	5	11/03/2015 23:12	WG826419
Ethylbenzene	ND		0.00250	5	11/03/2015 23:12	WG826419
Total Xylene	ND		0.00750	5	11/03/2015 23:12	WG826419
TPH (GC/FID) Low Fraction	ND		0.500	5	11/03/2015 23:12	WG826419
(S) a,a,a-Trifluorotoluene(FID)	98.1		59.0-128		11/03/2015 23:12	WG826419
(S) a,a,a-Trifluorotoluene(PID)	90.7		54.0-144		11/03/2015 23:12	WG826419

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	16.0		4.00	1	11/03/2015 22:29	WG826450
(S) o-Terphenyl	98.6		50.0-150		11/03/2015 22:29	WG826450

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/04/2015 08:48	WG826462
Acenaphthene	ND		0.00600	1	11/04/2015 08:48	WG826462
Acenaphthylene	ND		0.00600	1	11/04/2015 08:48	WG826462
Benzo(a)anthracene	ND		0.00600	1	11/04/2015 08:48	WG826462
Benzo(a)pyrene	ND		0.00600	1	11/04/2015 08:48	WG826462
Benzo(b)fluoranthene	ND		0.00600	1	11/04/2015 08:48	WG826462
Benzo(g,h,i)perylene	ND		0.00600	1	11/04/2015 08:48	WG826462
Benzo(k)fluoranthene	ND		0.00600	1	11/04/2015 08:48	WG826462
Chrysene	ND		0.00600	1	11/04/2015 08:48	WG826462
Dibenz(a,h)anthracene	ND		0.00600	1	11/04/2015 08:48	WG826462
Fluoranthene	ND		0.00600	1	11/04/2015 08:48	WG826462
Fluorene	ND		0.00600	1	11/04/2015 08:48	WG826462
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/04/2015 08:48	WG826462
Naphthalene	ND		0.0200	1	11/04/2015 08:48	WG826462
Phenanthrene	ND		0.00600	1	11/04/2015 08:48	WG826462
Pyrene	ND		0.00600	1	11/04/2015 08:48	WG826462
1-Methylnaphthalene	ND		0.0200	1	11/04/2015 08:48	WG826462
2-Methylnaphthalene	ND		0.0200	1	11/04/2015 08:48	WG826462
2-Chloronaphthalene	ND		0.0200	1	11/04/2015 08:48	WG826462
(S) p-Terphenyl-d14	59.6		32.2-131		11/04/2015 08:48	WG826462
(S) Nitrobenzene-d5	98.2		22.1-146		11/04/2015 08:48	WG826462
(S) 2-Fluorobiphenyl	79.5		40.6-122		11/04/2015 08:48	WG826462



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.36		1	11/04/2015 10:44	WG826375

¹ Cp² Tc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	19.1		2.00	1	11/04/2015 14:41	WG826370

³ Ss⁴ Cn

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	83		1	11/04/2015 01:42	WG826485

⁵ Sr⁶ Gl

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	11/04/2015 10:39	WG826402

⁷ Al⁸ Sc

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.88		1	11/04/2015 10:41	WG826401

Sample Narrative:

9045D L798254-04 WG826401: 7.88 at 24.1c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	2150		1	11/04/2015 13:22	WG826495

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/04/2015 08:48	WG826383

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	13.1		2.00	1	11/04/2015 01:04	WG826370
Barium	250		0.500	1	11/04/2015 01:04	WG826370
Cadmium	0.520		0.500	1	11/04/2015 01:04	WG826370
Chromium	19.1		1.00	1	11/04/2015 01:04	WG826370
Copper	17.2		2.00	1	11/04/2015 01:04	WG826370
Lead	12.8		0.500	1	11/04/2015 01:04	WG826370
Nickel	16.1		2.00	1	11/04/2015 01:04	WG826370
Selenium	ND		2.00	1	11/04/2015 01:04	WG826370
Silver	ND		1.00	1	11/04/2015 01:04	WG826370
Zinc	43.7		5.00	1	11/04/2015 01:04	WG826370



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	11/03/2015 23:34	WG826419
Toluene	ND		0.0250	5	11/03/2015 23:34	WG826419
Ethylbenzene	ND		0.00250	5	11/03/2015 23:34	WG826419
Total Xylene	ND		0.00750	5	11/03/2015 23:34	WG826419
TPH (GC/FID) Low Fraction	ND		0.500	5	11/03/2015 23:34	WG826419
(S) a,a,a-Trifluorotoluene(FID)	97.9		59.0-128		11/03/2015 23:34	WG826419
(S) a,a,a-Trifluorotoluene(PID)	91.3		54.0-144		11/03/2015 23:34	WG826419

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	14.8		4.00	1	11/03/2015 22:40	WG826450
(S) o-Terphenyl	93.1		50.0-150		11/03/2015 22:40	WG826450

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/04/2015 09:53	WG826462
Acenaphthene	ND		0.00600	1	11/04/2015 09:53	WG826462
Acenaphthylene	ND		0.00600	1	11/04/2015 09:53	WG826462
Benzo(a)anthracene	ND		0.00600	1	11/04/2015 09:53	WG826462
Benzo(a)pyrene	ND		0.00600	1	11/04/2015 09:53	WG826462
Benzo(b)fluoranthene	ND		0.00600	1	11/04/2015 09:53	WG826462
Benzo(g,h,i)perylene	ND		0.00600	1	11/04/2015 09:53	WG826462
Benzo(k)fluoranthene	ND		0.00600	1	11/04/2015 09:53	WG826462
Chrysene	ND		0.00600	1	11/04/2015 09:53	WG826462
Dibenz(a,h)anthracene	ND		0.00600	1	11/04/2015 09:53	WG826462
Fluoranthene	ND		0.00600	1	11/04/2015 09:53	WG826462
Fluorene	ND		0.00600	1	11/04/2015 09:53	WG826462
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/04/2015 09:53	WG826462
Naphthalene	ND		0.0200	1	11/04/2015 09:53	WG826462
Phenanthrene	ND		0.00600	1	11/04/2015 09:53	WG826462
Pyrene	ND		0.00600	1	11/04/2015 09:53	WG826462
1-Methylnaphthalene	ND		0.0200	1	11/04/2015 09:53	WG826462
2-Methylnaphthalene	ND		0.0200	1	11/04/2015 09:53	WG826462
2-Chloronaphthalene	ND		0.0200	1	11/04/2015 09:53	WG826462
(S) p-Terphenyl-d14	69.6		32.2-131		11/04/2015 09:53	WG826462
(S) Nitrobenzene-d5	95.2		22.1-146		11/04/2015 09:53	WG826462
(S) 2-Fluorobiphenyl	84.0		40.6-122		11/04/2015 09:53	WG826462



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	32.7		1	11/04/2015 10:44	WG826375

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	17.3		2.00	1	11/04/2015 14:41	WG826370

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	53		1	11/04/2015 01:42	WG826485

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	11/04/2015 10:39	WG826402

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.38		1	11/04/2015 10:41	WG826401

Sample Narrative:

9045D L798254-05 WG826401: 8.38 at 24.0c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	2750		1	11/04/2015 13:22	WG826495

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/04/2015 08:50	WG826383

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	8.61		2.00	1	11/04/2015 01:07	WG826370
Barium	289		0.500	1	11/04/2015 01:07	WG826370
Cadmium	ND		0.500	1	11/04/2015 01:07	WG826370
Chromium	17.3		1.00	1	11/04/2015 01:07	WG826370
Copper	15.7		2.00	1	11/04/2015 01:07	WG826370
Lead	11.9		0.500	1	11/04/2015 01:07	WG826370
Nickel	15.0		2.00	1	11/04/2015 01:07	WG826370
Selenium	ND		2.00	1	11/04/2015 01:07	WG826370
Silver	ND		1.00	1	11/04/2015 01:07	WG826370
Zinc	46.4		5.00	1	11/04/2015 01:07	WG826370



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	11/03/2015 23:55	WG826419
Toluene	ND		0.0250	5	11/03/2015 23:55	WG826419
Ethylbenzene	ND		0.00250	5	11/03/2015 23:55	WG826419
Total Xylene	ND		0.00750	5	11/03/2015 23:55	WG826419
TPH (GC/FID) Low Fraction	ND		0.500	5	11/03/2015 23:55	WG826419
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	97.3		59.0-128		11/03/2015 23:55	WG826419
(S) <i>a,a,a</i> -Trifluorotoluene(PID)	88.8		54.0-144		11/03/2015 23:55	WG826419

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	11/04/2015 09:49	WG826450
(S) <i>o</i> -Terphenyl	74.1		50.0-150		11/04/2015 09:49	WG826450

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/04/2015 10:14	WG826462
Acenaphthene	ND		0.00600	1	11/04/2015 10:14	WG826462
Acenaphthylene	ND		0.00600	1	11/04/2015 10:14	WG826462
Benzo(a)anthracene	ND		0.00600	1	11/04/2015 10:14	WG826462
Benzo(a)pyrene	ND		0.00600	1	11/04/2015 10:14	WG826462
Benzo(b)fluoranthene	ND		0.00600	1	11/04/2015 10:14	WG826462
Benzo(g,h,i)perylene	ND		0.00600	1	11/04/2015 10:14	WG826462
Benzo(k)fluoranthene	ND		0.00600	1	11/04/2015 10:14	WG826462
Chrysene	ND		0.00600	1	11/04/2015 10:14	WG826462
Dibenz(a,h)anthracene	ND		0.00600	1	11/04/2015 10:14	WG826462
Fluoranthene	ND		0.00600	1	11/04/2015 10:14	WG826462
Fluorene	ND		0.00600	1	11/04/2015 10:14	WG826462
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/04/2015 10:14	WG826462
Naphthalene	ND		0.0200	1	11/04/2015 10:14	WG826462
Phenanthrene	ND		0.00600	1	11/04/2015 10:14	WG826462
Pyrene	ND		0.00600	1	11/04/2015 10:14	WG826462
1-Methylnaphthalene	ND		0.0200	1	11/04/2015 10:14	WG826462
2-Methylnaphthalene	ND		0.0200	1	11/04/2015 10:14	WG826462
2-Chloronaphthalene	ND		0.0200	1	11/04/2015 10:14	WG826462
(S) <i>p</i> -Terphenyl-d14	60.9		32.2-131		11/04/2015 10:14	WG826462
(S) Nitrobenzene-d5	99.7		22.1-146		11/04/2015 10:14	WG826462
(S) 2-Fluorobiphenyl	76.8		40.6-122		11/04/2015 10:14	WG826462



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	31.7		1	11/04/2015 10:44	WG826375

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	11.0		2.00	1	11/04/2015 14:41	WG826370

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	58		1	11/04/2015 01:42	WG826485

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	2.16		2.00	1	11/04/2015 10:43	WG826402

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.90		1	11/04/2015 10:41	WG826401

Sample Narrative:

9045D L798254-06 WG826401: 7.90 at 24.0c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	2970		1	11/04/2015 13:22	WG826495

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/04/2015 08:53	WG826383

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.34		2.00	1	11/04/2015 01:10	WG826370
Barium	327		0.500	1	11/04/2015 01:10	WG826370
Cadmium	ND		0.500	1	11/04/2015 01:10	WG826370
Chromium	13.1		1.00	1	11/04/2015 01:10	WG826370
Copper	15.0		2.00	1	11/04/2015 01:10	WG826370
Lead	11.0		0.500	1	11/04/2015 01:10	WG826370
Nickel	13.4		2.00	1	11/04/2015 01:10	WG826370
Selenium	ND		2.00	1	11/04/2015 01:10	WG826370
Silver	ND		1.00	1	11/04/2015 01:10	WG826370
Zinc	45.2		5.00	1	11/04/2015 01:10	WG826370



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	11/04/2015 00:17	WG826419
Toluene	ND		0.0250	5	11/04/2015 00:17	WG826419
Ethylbenzene	ND		0.00250	5	11/04/2015 00:17	WG826419
Total Xylene	ND		0.00750	5	11/04/2015 00:17	WG826419
TPH (GC/FID) Low Fraction	ND		0.500	5	11/04/2015 00:17	WG826419
(S) a,a,a-Trifluorotoluene(FID)	98.1		59.0-128		11/04/2015 00:17	WG826419
(S) a,a,a-Trifluorotoluene(PID)	89.1		54.0-144		11/04/2015 00:17	WG826419

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	14.9		4.00	1	11/03/2015 23:02	WG826450
(S) o-Terphenyl	64.9		50.0-150		11/03/2015 23:02	WG826450

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/04/2015 10:15	WG826462
Acenaphthene	ND		0.00600	1	11/04/2015 10:15	WG826462
Acenaphthylene	ND		0.00600	1	11/04/2015 10:15	WG826462
Benzo(a)anthracene	ND		0.00600	1	11/04/2015 10:15	WG826462
Benzo(a)pyrene	ND		0.00600	1	11/04/2015 10:15	WG826462
Benzo(b)fluoranthene	ND		0.00600	1	11/04/2015 10:15	WG826462
Benzo(g,h,i)perylene	ND		0.00600	1	11/04/2015 10:15	WG826462
Benzo(k)fluoranthene	ND		0.00600	1	11/04/2015 10:15	WG826462
Chrysene	ND		0.00600	1	11/04/2015 10:15	WG826462
Dibenz(a,h)anthracene	ND		0.00600	1	11/04/2015 10:15	WG826462
Fluoranthene	ND		0.00600	1	11/04/2015 10:15	WG826462
Fluorene	ND		0.00600	1	11/04/2015 10:15	WG826462
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/04/2015 10:15	WG826462
Naphthalene	ND		0.0200	1	11/04/2015 10:15	WG826462
Phenanthrene	ND		0.00600	1	11/04/2015 10:15	WG826462
Pyrene	ND		0.00600	1	11/04/2015 10:15	WG826462
1-Methylnaphthalene	ND		0.0200	1	11/04/2015 10:15	WG826462
2-Methylnaphthalene	ND		0.0200	1	11/04/2015 10:15	WG826462
2-Chloronaphthalene	ND		0.0200	1	11/04/2015 10:15	WG826462
(S) p-Terphenyl-d14	51.6		32.2-131		11/04/2015 10:15	WG826462
(S) Nitrobenzene-d5	93.8		22.1-146		11/04/2015 10:15	WG826462
(S) 2-Fluorobiphenyl	69.0		40.6-122		11/04/2015 10:15	WG826462



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.31		1	11/04/2015 10:44	WG826375

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	15.7		2.00	1	11/04/2015 14:41	WG826370

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	68		1	11/04/2015 01:42	WG826485

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	11/04/2015 10:46	WG826402

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.74		1	11/04/2015 10:41	WG826401

Sample Narrative:

9045D L798254-07 WG826401: 7.74 at 23.9c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	1840		1	11/04/2015 13:22	WG826495

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/04/2015 08:55	WG826383

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.03		2.00	1	11/04/2015 01:13	WG826370
Barium	223		0.500	1	11/04/2015 01:13	WG826370
Cadmium	ND		0.500	1	11/04/2015 01:13	WG826370
Chromium	15.7		1.00	1	11/04/2015 01:13	WG826370
Copper	15.4		2.00	1	11/04/2015 01:13	WG826370
Lead	11.4		0.500	1	11/04/2015 01:13	WG826370
Nickel	12.3		2.00	1	11/04/2015 01:13	WG826370
Selenium	ND		2.00	1	11/04/2015 01:13	WG826370
Silver	ND		1.00	1	11/04/2015 01:13	WG826370
Zinc	40.2		5.00	1	11/04/2015 01:13	WG826370



Collected date/time: 10/31/15 11:05

L798254

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	11/04/2015 00:38	WG826419
Toluene	ND		0.0250	5	11/04/2015 00:38	WG826419
Ethylbenzene	ND		0.00250	5	11/04/2015 00:38	WG826419
Total Xylene	ND		0.00750	5	11/04/2015 00:38	WG826419
TPH (GC/FID) Low Fraction	ND		0.500	5	11/04/2015 00:38	WG826419
(S) a,a,a-Trifluorotoluene(FID)	97.4		59.0-128		11/04/2015 00:38	WG826419
(S) a,a,a-Trifluorotoluene(PID)	90.4		54.0-144		11/04/2015 00:38	WG826419

1
Cp2
Tc3
Ss4
Cn5
Sr6
Gl7
Al8
Sc

Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	10.4		4.00	1	11/03/2015 23:14	WG826450
(S) o-Terphenyl	77.6		50.0-150		11/03/2015 23:14	WG826450

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/04/2015 09:11	WG826462
Acenaphthene	ND		0.00600	1	11/04/2015 09:11	WG826462
Acenaphthylene	ND		0.00600	1	11/04/2015 09:11	WG826462
Benzo(a)anthracene	ND		0.00600	1	11/04/2015 09:11	WG826462
Benzo(a)pyrene	ND		0.00600	1	11/04/2015 09:11	WG826462
Benzo(b)fluoranthene	ND		0.00600	1	11/04/2015 09:11	WG826462
Benzo(g,h,i)perylene	ND		0.00600	1	11/04/2015 09:11	WG826462
Benzo(k)fluoranthene	ND		0.00600	1	11/04/2015 09:11	WG826462
Chrysene	ND		0.00600	1	11/04/2015 09:11	WG826462
Dibenz(a,h)anthracene	ND		0.00600	1	11/04/2015 09:11	WG826462
Fluoranthene	ND		0.00600	1	11/04/2015 09:11	WG826462
Fluorene	ND		0.00600	1	11/04/2015 09:11	WG826462
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/04/2015 09:11	WG826462
Naphthalene	ND		0.0200	1	11/04/2015 09:11	WG826462
Phenanthrene	ND		0.00600	1	11/04/2015 09:11	WG826462
Pyrene	ND		0.00600	1	11/04/2015 09:11	WG826462
1-Methylnaphthalene	ND		0.0200	1	11/04/2015 09:11	WG826462
2-Methylnaphthalene	ND		0.0200	1	11/04/2015 09:11	WG826462
2-Chloronaphthalene	ND		0.0200	1	11/04/2015 09:11	WG826462
(S) p-Terphenyl-d14	55.7		32.2-131		11/04/2015 09:11	WG826462
(S) Nitrobenzene-d5	102		22.1-146		11/04/2015 09:11	WG826462
(S) 2-Fluorobiphenyl	76.4		40.6-122		11/04/2015 09:11	WG826462



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.374		1	11/04/2015 10:44	WG826375

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Gl⁷ Al⁸ Sc

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	12.4		2.00	1	11/04/2015 14:41	WG826370

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	67		1	11/04/2015 01:42	WG826485

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.00	1	11/04/2015 10:49	WG826402

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.48		1	11/04/2015 10:41	WG826401

Sample Narrative:

9045D L798254-08 WG826401: 7.48 at 23.5c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	397		1	11/04/2015 13:22	WG826495

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/04/2015 08:58	WG826383

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.84		2.00	1	11/04/2015 01:16	WG826370
Barium	217		0.500	1	11/04/2015 01:16	WG826370
Cadmium	0.525		0.500	1	11/04/2015 01:16	WG826370
Chromium	12.4		1.00	1	11/04/2015 01:16	WG826370
Copper	11.8		2.00	1	11/04/2015 01:16	WG826370
Lead	9.98		0.500	1	11/04/2015 01:16	WG826370
Nickel	12.8		2.00	1	11/04/2015 01:16	WG826370
Selenium	ND		2.00	1	11/04/2015 01:16	WG826370
Silver	ND		1.00	1	11/04/2015 01:16	WG826370
Zinc	39.1		5.00	1	11/04/2015 01:16	WG826370



Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	11/04/2015 00:59	WG826419
Toluene	ND		0.0250	5	11/04/2015 00:59	WG826419
Ethylbenzene	ND		0.00250	5	11/04/2015 00:59	WG826419
Total Xylene	ND		0.00750	5	11/04/2015 00:59	WG826419
TPH (GC/FID) Low Fraction	ND		0.500	5	11/04/2015 00:59	WG826419
(S) a,a,a-Trifluorotoluene(FID)	97.6		59.0-128		11/04/2015 00:59	WG826419
(S) a,a,a-Trifluorotoluene(PID)	91.1		54.0-144		11/04/2015 00:59	WG826419

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015D/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	17.3		4.00	1	11/03/2015 23:25	WG826450
(S) o-Terphenyl	81.9		50.0-150		11/03/2015 23:25	WG826450

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/04/2015 09:32	WG826462
Acenaphthene	ND		0.00600	1	11/04/2015 09:32	WG826462
Acenaphthylene	ND		0.00600	1	11/04/2015 09:32	WG826462
Benzo(a)anthracene	ND		0.00600	1	11/04/2015 09:32	WG826462
Benzo(a)pyrene	ND		0.00600	1	11/04/2015 09:32	WG826462
Benzo(b)fluoranthene	ND		0.00600	1	11/04/2015 09:32	WG826462
Benzo(g,h,i)perylene	ND		0.00600	1	11/04/2015 09:32	WG826462
Benzo(k)fluoranthene	ND		0.00600	1	11/04/2015 09:32	WG826462
Chrysene	ND		0.00600	1	11/04/2015 09:32	WG826462
Dibenz(a,h)anthracene	ND		0.00600	1	11/04/2015 09:32	WG826462
Fluoranthene	ND		0.00600	1	11/04/2015 09:32	WG826462
Fluorene	ND		0.00600	1	11/04/2015 09:32	WG826462
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/04/2015 09:32	WG826462
Naphthalene	ND		0.0200	1	11/04/2015 09:32	WG826462
Phenanthrene	ND		0.00600	1	11/04/2015 09:32	WG826462
Pyrene	ND		0.00600	1	11/04/2015 09:32	WG826462
1-Methylnaphthalene	ND		0.0200	1	11/04/2015 09:32	WG826462
2-Methylnaphthalene	ND		0.0200	1	11/04/2015 09:32	WG826462
2-Chloronaphthalene	ND		0.0200	1	11/04/2015 09:32	WG826462
(S) p-Terphenyl-d14	61.4		32.2-131		11/04/2015 09:32	WG826462
(S) Nitrobenzene-d5	96.6		22.1-146		11/04/2015 09:32	WG826462
(S) 2-Fluorobiphenyl	78.8		40.6-122		11/04/2015 09:32	WG826462



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
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J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
----	---

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Gl

⁷ Al

⁸ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

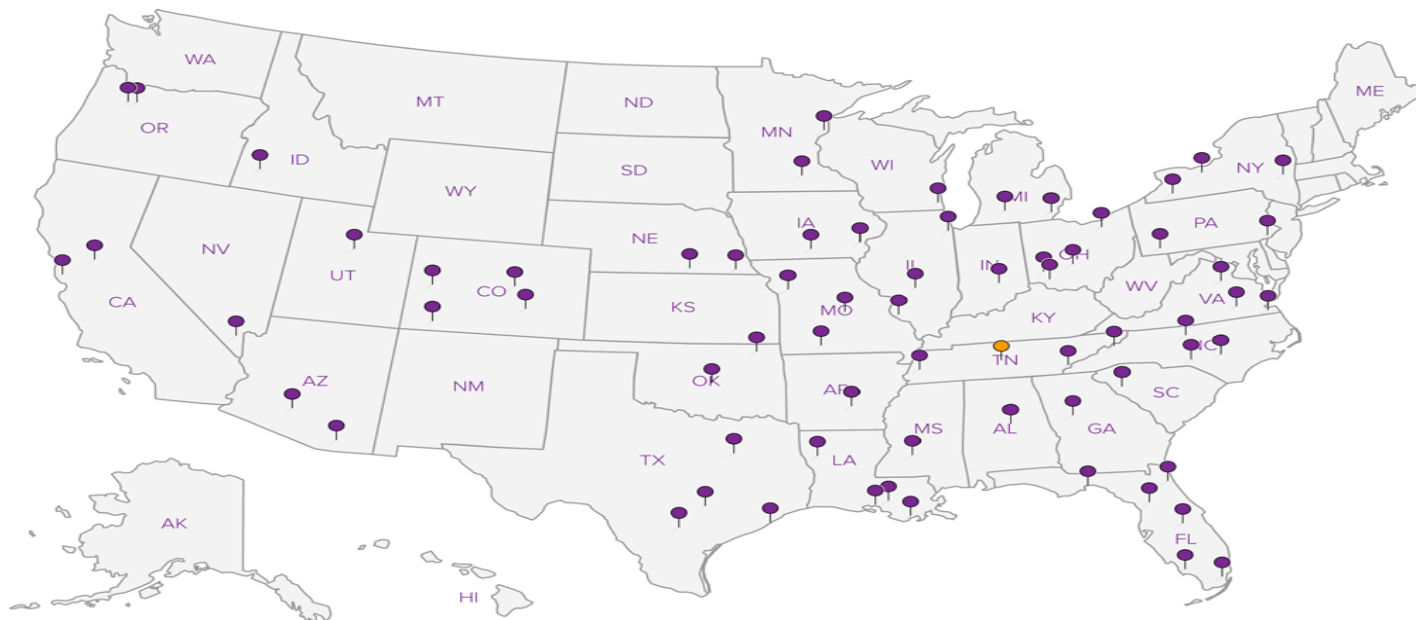
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
Canada	1461.01	DOD	1461.01
EPA–Crypto	TN00003	USDA	S-67674

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Encana Oil & Gas (USA)
143 Diamond Avenue
Parachute, CO 81635
ENCANACO-LTENV

Billing Information:

Brett Middleton
143 Diamond Avenue
Parachute, CO 81635
970-285-2653

Report to:

Brett Middleton

Email to:

brett.middleton@encana.com

Analysis/Container/Preservative

Chain of Custody
Page 1 of 1



12065 Lebanon Road
Mt. Juliet, TN 37122

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

C211

CoCode (lab use only)

Template/Prelogin

Shipped Via:

Remarks/Contaminant

Sample # (lab only)

Project Description: PK36 Spill Response
City/State Collected: Parachute, CO
Phone: 970-285-2653
FAX: 970-285-2653
Client Project #: PK36
ESC Key: ENCANACO-LTENV
Collected by: WT and CM
Site/Facility ID#: PK36
P.O.#: Middleton

Collected by (signature):

Rush? (Lab MUST Be Notified)

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

Date Results Needed:

Email? ☐ No ☒ Yes

FAX? ☒ No ☐ Yes

Immediately Packed on Ice N ☒

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BTEX	TPH (GRO + DRO)	Table 910-1 PAHs 8270 SIM	pH, EC, SAR	As, Ba, Cd, Cr III, Cr VI, Cu, Pb, Hg, Ni, Se, Ag, Zn	Remarks/Contaminant	Sample # (lab only)
20151031 - PK36 (POR)	Grab	SS	Surface	10/31/15	0935	3	X	X	X	X	X		798254-01
20151031 - PK36 (POR)	Grab	SS	1'	10/31/15	0945	3	X	X	X	X	X		02
20151031 - PK36 (EXT-S01)	Grab	SS	Surface	10/31/15	1010	3	X	X	X	X	X		03
20151031 - PK36 (EXT-S01)	Grab	SS	6"	10/31/15	1020	3	X	X	X	X	X		04
20151031 - PK36 (EXT-S02)	Grab	SS	Surface	10/31/15	1045	3	X	X	X	X	X		05
20151031 - PK36 (EXT-N01)	Grab	SS	Surface	10/31/15	1055	3	X	X	X	X	X		06
20151031 - PK36 (EXT-N01)	Grab	SS	8"	10/31/15	1105	3	X	X	X	X	X		07
20151031 - PK36 (EXT-N02)	Grab	SS	Surface	10/31/15	1115	3	X	X	X	X	X		08

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

Remarks:

pH Temp

Flow Other

Relinquished by: (Signature)	Date: 11/2/15	Time: 1530	Received by: (Signature)	Samples returned via: <input checked="" type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier	Condition: (lab use only)
Relinquished by: (Signature)	Date: 11/2/15	Time: 1700	Received by: (Signature)	Temp: 24°C	Bottles Received: 48
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/03/15	Time: 0900
				pH Checked:	NCF:

Encana Oil & Gas (USA)
143 Diamond Avenue
Parachute, CO 81635
ENCANACO-LTENV

Billing Information:

Brett Middleton
143 Diamond Avenue
Parachute, CO 81635
970-285-2653

Report to:

Brett Middleton

Email to:

brett.middleton@encana.com

Analysis/Container/Preservative

Chain of Custody
Page 1 of 1



12065 Lebanon Road
Mt. Juliet, TN 37122

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Project Description: PK36 Spill Response
City/State Collected: Parachute, CO
Phone: 970-285-2653
FAX: 970-285-2653
Client Project #: PK36
ESC Key: ENCANACO-LTENV
Collected by: CM and WT
Site/Facility ID#: PK36
P.O.#: Middleton

Collected by (signature):

[Signature]

Rush? (Lab MUST Be Notified)

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

Date Results Needed:

Email? ☐ No ☒ Yes

FAX? ☒ No ☐ Yes

No.
of
Cntrs

Immediately Packed on Ice N ☒ Y ☒

CoCode ENCANACO (lab use only)

Template/Prelogin

Shipped Via:

Remarks/Contaminant

Sample # (lab only)

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BTEX	TDS	Chloride, Sulfate									
20151031 - PK36 (SPRG-S01)	Grab	GW		10-31-15	1200	5	X	X	X									798254-09
20151031 - PK36 (SW-S01)	Grab	GW		10-31-15	1230	5	X	X	X									10
20151031 - PK36 (SPRG-N01)	Grab	GW		10-31-15	1255	5	X	X	X									11
20151031 - PK36 (SW-N01)	Grab	GW		10-31-15	1310	5	X	X	X									12
20151031 - PK36 (SW-N02)	Grab	GW		10-31-15	1325	4	X	X	X									13

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature) <i>[Signature]</i>	Date: 11-2-15	Time: 1530	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) <i>[Signature]</i>
Relinquished by: (Signature) <i>[Signature]</i>	Date: 11/2/15	Time: 1700	Received by: (Signature) <i>[Signature]</i>	Temp: 2.4°	Bottles Received: 458
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 11/03/15	Time: 0900
				CoC Seals Intact: <input type="checkbox"/> Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA	
				pH Checked:	NCF: