

API# 085-06047

Location ID 313641

Document 2526048

Colorado Oil & Gas Conservation

Sample Delivery Group: L826838
Samples Received: 04/01/2016
Project Number: SNV #11-32
Description: Redwine Pit
Site: 313641
Report To: Jim Hughes
707 Wapiti Court, Ste 204
Rifle, CO 81650

Entire Report Reviewed By:



Brian Ford
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.



¹Cp: Cover Page	1
²Tc: Table of Contents	2
³Ss: Sample Summary	3
⁴Cn: Case Narrative	5
⁵Sr: Sample Results	6
330161440 L826838-01	6
330161455 L826838-02	8
330161151 L826838-03	10
330161440 L826838-04	12
330161455 L826838-05	13
330161151 L826838-06	14
⁶Qc: Quality Control Summary	15
Wet Chemistry by Method 3060A/7196A	15
Wet Chemistry by Method 9045D	16
Wet Chemistry by Method 9050AMod	17
Wet Chemistry by Method 9056A	18
Mercury by Method 7471A	19
Metals (ICP) by Method 6010B	20
Volatile Organic Compounds (GC) by Method 8015/8021	23
Semi-Volatile Organic Compounds (GC) by Method 3546/DRO	27
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	28
⁷Gl: Glossary of Terms	31
⁸Al: Accreditations & Locations	32
⁹Sc: Chain of Custody	33



SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



330161440 L826838-01 Solid

Collected by
Jim Hughes

Collected date/time
03/30/16 14:40

Received date/time
04/01/16 09:00

¹ Cp

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG861281	1	04/02/16 07:20	04/04/16 10:18	WBD
Calculated Results	WG861480	1	04/02/16 11:19	04/03/16 16:14	WBD
Mercury by Method 7471A	WG861324	1	04/01/16 18:19	04/02/16 07:49	TRB
Metals (ICP) by Method 6010B	WG861281	1	04/02/16 07:20	04/02/16 16:23	WBD
Metals (ICP) by Method 6010B	WG861281	5	04/02/16 07:20	04/02/16 18:09	WBD
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG861411	1	04/02/16 07:12	04/04/16 06:12	KMP
Semi-Volatile Organic Compounds (GC) by Method 3546/DRO	WG861639	2.5	04/04/16 10:54	04/05/16 03:45	JM
Volatile Organic Compounds (GC) by Method 8015/8021	WG861678	25	04/04/16 09:13	04/04/16 12:46	JAH
Wet Chemistry by Method 3060A/7196A	WG861018	1	04/01/16 15:24	04/04/16 10:18	AMC
Wet Chemistry by Method 9045D	WG861280	1	04/01/16 16:53	04/01/16 16:53	MAJ
Wet Chemistry by Method 9050AMod	WG861304	1	04/02/16 09:22	04/02/16 09:22	SAM
Wet Chemistry by Method 9056A	WG861473	1	04/04/16 09:00	04/04/16 19:06	CM

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

330161455 L826838-02 Solid

Collected by
Jim Hughes

Collected date/time
03/30/16 14:55

Received date/time
04/01/16 09:00

⁸ Al

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG861281	1	04/02/16 07:20	04/04/16 10:19	WBD
Calculated Results	WG861480	1	04/02/16 11:19	04/03/16 18:12	WBD
Mercury by Method 7471A	WG861324	1	04/01/16 18:19	04/02/16 07:52	TRB
Metals (ICP) by Method 6010B	WG861281	1	04/02/16 07:20	04/02/16 16:26	WBD
Metals (ICP) by Method 6010B	WG861281	50	04/02/16 07:20	04/03/16 15:18	WBD
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG861411	1	04/02/16 07:12	04/04/16 06:32	KMP
Semi-Volatile Organic Compounds (GC) by Method 3546/DRO	WG861639	2.5	04/04/16 10:54	04/05/16 03:56	JM
Volatile Organic Compounds (GC) by Method 8015/8021	WG861915	5	04/05/16 09:15	04/05/16 14:57	ACG
Wet Chemistry by Method 3060A/7196A	WG861018	1	04/01/16 15:24	04/04/16 10:19	AMC
Wet Chemistry by Method 9045D	WG861280	1	04/01/16 16:53	04/01/16 16:53	MAJ
Wet Chemistry by Method 9050AMod	WG861304	1	04/02/16 09:22	04/02/16 09:22	SAM
Wet Chemistry by Method 9056A	WG861473	1	04/04/16 09:00	04/04/16 19:29	CM

⁹ Sc

330161151 L826838-03 Solid

Collected by
Jim Hughes

Collected date/time
03/30/16 15:15

Received date/time
04/01/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG861281	1	04/02/16 07:20	04/04/16 10:19	WBD
Calculated Results	WG861480	1	04/02/16 11:19	04/03/16 18:15	WBD
Mercury by Method 7471A	WG861324	1	04/01/16 18:19	04/02/16 07:54	TRB
Metals (ICP) by Method 6010B	WG861281	1	04/02/16 07:20	04/02/16 16:35	WBD
Metals (ICP) by Method 6010B	WG861281	50	04/02/16 07:20	04/03/16 15:21	WBD
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG861411	1	04/02/16 07:12	04/04/16 06:53	KMP
Semi-Volatile Organic Compounds (GC) by Method 3546/DRO	WG861639	2.5	04/04/16 10:54	04/05/16 04:07	JM
Volatile Organic Compounds (GC) by Method 8015/8021	WG862017	5	04/05/16 13:09	04/05/16 14:05	JAH
Wet Chemistry by Method 3060A/7196A	WG861018	1	04/01/16 15:24	04/04/16 10:19	AMC
Wet Chemistry by Method 9045D	WG861280	1	04/01/16 16:53	04/01/16 16:53	MAJ
Wet Chemistry by Method 9050AMod	WG861304	1	04/02/16 09:22	04/02/16 09:22	SAM
Wet Chemistry by Method 9056A	WG861473	1	04/04/16 09:00	04/04/16 19:51	CM

ACCOUNT:

Colorado Oil & Gas Conservation

PROJECT:

SNV #11-32

SDG:

L826838

DATE/TIME:

04/05/16 16:20

PAGE:

3 of 33



330161440 L826838-04 Waste

Collected by
Jim HughesCollected date/time
03/30/16 14:40Received date/time
04/01/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG861680	1	04/04/16 07:32	04/04/16 11:26	LTB
Preparation by Method 1311	WG861525	1	04/02/16 11:02	04/02/16 11:03	BG

¹Cp²Tc³Ss

330161455 L826838-05 Waste

Collected by
Jim HughesCollected date/time
03/30/16 14:55Received date/time
04/01/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG861680	1	04/04/16 07:32	04/04/16 11:30	LTB
Preparation by Method 1311	WG861525	1	04/02/16 11:02	04/02/16 11:03	BG

⁴Cn⁵Sr⁶Qc

330161151 L826838-06 Waste

Collected by
Jim HughesCollected date/time
03/30/16 15:15Received date/time
04/01/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG861680	1	04/04/16 07:32	04/04/16 11:39	LTB
Preparation by Method 1311	WG861525	1	04/02/16 11:02	04/02/16 11:03	BG

⁷Gl⁸Al⁹Sc



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.

Brian Ford
Technical Service Representative

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

ESC Sample ID	Project Sample ID	Method
L826838-01	330161440	9045D
L826838-02	330161455	9045D
L826838-03	330161151	9045D

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

330161440

Collected date/time: 03/30/16 14:40

SAMPLE RESULTS - 01

L826838

ONE LAB. NATIONWIDE.



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	14.3		1	04/03/2016 16:14	WG861480

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	41.9		2.00	1	04/04/2016 10:18	WG861281

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	04/04/2016 10:18	WG861018

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.72		1	04/01/2016 16:53	WG861280

Sample Narrative:

9045D L826838-01 WG861280: 7.72 at 23.3c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	1300		1	04/02/2016 09:22	WG861304

Wet Chemistry by Method 9056A

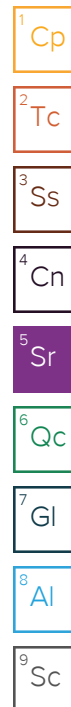
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	307		10.0	1	04/04/2016 19:06	WG861473
Sulfate	ND		50.0	1	04/04/2016 19:06	WG861473

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	04/02/2016 07:49	WG861324

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	04/02/2016 16:23	WG861281
Barium	6690		2.50	5	04/02/2016 18:09	WG861281
Cadmium	ND		0.500	1	04/02/2016 16:23	WG861281
Chromium	41.9		1.00	1	04/02/2016 16:23	WG861281
Copper	13.5		2.00	1	04/02/2016 16:23	WG861281
Lead	11.7		0.500	1	04/02/2016 16:23	WG861281
Nickel	20.0		2.00	1	04/02/2016 16:23	WG861281
Selenium	ND		2.00	1	04/02/2016 16:23	WG861281
Silver	ND		1.00	1	04/02/2016 16:23	WG861281
Zinc	45.8		5.00	1	04/02/2016 16:23	WG861281





Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0214	<u>J3</u>	0.0125	25	04/04/2016 12:46	WG861678
Toluene	ND	<u>J3</u>	0.125	25	04/04/2016 12:46	WG861678
Ethylbenzene	ND	<u>J3</u>	0.0125	25	04/04/2016 12:46	WG861678
Total Xylene	0.0500	<u>J3</u>	0.0375	25	04/04/2016 12:46	WG861678
TPH (GC/FID) Low Fraction	ND		2.50	25	04/04/2016 12:46	WG861678
(S) a,a,a-Trifluorotoluene(FID)	100		59.0-128		04/04/2016 12:46	WG861678
(S) a,a,a-Trifluorotoluene(PID)	103		54.0-144		04/04/2016 12:46	WG861678

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method 3546/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	52.4		10.0	2.5	04/05/2016 03:45	WG861639
(S) o-Terphenyl	80.0		50.0-150		04/05/2016 03:45	WG861639

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	04/04/2016 06:12	WG861411
Acenaphthene	ND		0.00600	1	04/04/2016 06:12	WG861411
Acenaphthylene	ND		0.00600	1	04/04/2016 06:12	WG861411
Benzo(a)anthracene	ND		0.00600	1	04/04/2016 06:12	WG861411
Benzo(a)pyrene	ND		0.00600	1	04/04/2016 06:12	WG861411
Benzo(b)fluoranthene	ND		0.00600	1	04/04/2016 06:12	WG861411
Benzo(g,h,i)perylene	ND		0.00600	1	04/04/2016 06:12	WG861411
Benzo(k)fluoranthene	ND		0.00600	1	04/04/2016 06:12	WG861411
Chrysene	ND		0.00600	1	04/04/2016 06:12	WG861411
Dibenz(a,h)anthracene	ND		0.00600	1	04/04/2016 06:12	WG861411
Fluoranthene	ND		0.00600	1	04/04/2016 06:12	WG861411
Fluorene	ND		0.00600	1	04/04/2016 06:12	WG861411
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	04/04/2016 06:12	WG861411
Naphthalene	ND		0.0200	1	04/04/2016 06:12	WG861411
Phenanthrene	ND		0.00600	1	04/04/2016 06:12	WG861411
Pyrene	ND		0.00600	1	04/04/2016 06:12	WG861411
1-Methylnaphthalene	ND		0.0200	1	04/04/2016 06:12	WG861411
2-Methylnaphthalene	ND		0.0200	1	04/04/2016 06:12	WG861411
2-Chloronaphthalene	ND		0.0200	1	04/04/2016 06:12	WG861411
(S) p-Terphenyl-d14	49.5		32.2-131		04/04/2016 06:12	WG861411
(S) Nitrobenzene-d5	62.7		22.1-146		04/04/2016 06:12	WG861411
(S) 2-Fluorobiphenyl	48.8		40.6-122		04/04/2016 06:12	WG861411

330161455

Collected date/time: 03/30/16 14:55

SAMPLE RESULTS - 02

L826838

ONE LAB. NATIONWIDE.



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	33.3		1	04/03/2016 18:12	WG861480

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	18.2		2.00	1	04/04/2016 10:19	WG861281

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	04/04/2016 10:19	WG861018

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.34		1	04/01/2016 16:53	WG861280

Sample Narrative:

9045D L826838-02 WG861280: 9.34 at 23.6c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	2110		1	04/02/2016 09:22	WG861304

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	728		10.0	1	04/04/2016 19:29	WG861473
Sulfate	273		50.0	1	04/04/2016 19:29	WG861473

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0421		0.0200	1	04/02/2016 07:52	WG861324

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	04/02/2016 16:26	WG861281
Barium	36700		25.0	50	04/03/2016 15:18	WG861281
Cadmium	ND		0.500	1	04/02/2016 16:26	WG861281
Chromium	18.2		1.00	1	04/02/2016 16:26	WG861281
Copper	13.1		2.00	1	04/02/2016 16:26	WG861281
Lead	13.4		0.500	1	04/02/2016 16:26	WG861281
Nickel	11.2		2.00	1	04/02/2016 16:26	WG861281
Selenium	ND		2.00	1	04/02/2016 16:26	WG861281
Silver	ND		1.00	1	04/02/2016 16:26	WG861281
Zinc	37.7		5.00	1	04/02/2016 16:26	WG861281

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc



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	04/05/2016 14:57	WG861915
Toluene	ND		0.0250	5	04/05/2016 14:57	WG861915
Ethylbenzene	ND		0.00250	5	04/05/2016 14:57	WG861915
Total Xylene	ND		0.00750	5	04/05/2016 14:57	WG861915
TPH (GC/FID) Low Fraction	ND		0.500	5	04/05/2016 14:57	WG861915
(S) a,a,a-Trifluorotoluene(FID)	98.5		59.0-128		04/05/2016 14:57	WG861915
(S) a,a,a-Trifluorotoluene(PID)	104		54.0-144		04/05/2016 14:57	WG861915

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method 3546/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		10.0	2.5	04/05/2016 03:56	WG861639
(S) o-Terphenyl	72.0		50.0-150		04/05/2016 03:56	WG861639

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	04/04/2016 06:32	WG861411
Acenaphthene	ND		0.00600	1	04/04/2016 06:32	WG861411
Acenaphthylene	ND		0.00600	1	04/04/2016 06:32	WG861411
Benzo(a)anthracene	ND		0.00600	1	04/04/2016 06:32	WG861411
Benzo(a)pyrene	ND		0.00600	1	04/04/2016 06:32	WG861411
Benzo(b)fluoranthene	ND		0.00600	1	04/04/2016 06:32	WG861411
Benzo(g,h,i)perylene	ND		0.00600	1	04/04/2016 06:32	WG861411
Benzo(k)fluoranthene	ND		0.00600	1	04/04/2016 06:32	WG861411
Chrysene	ND		0.00600	1	04/04/2016 06:32	WG861411
Dibenz(a,h)anthracene	ND		0.00600	1	04/04/2016 06:32	WG861411
Fluoranthene	ND		0.00600	1	04/04/2016 06:32	WG861411
Fluorene	ND		0.00600	1	04/04/2016 06:32	WG861411
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	04/04/2016 06:32	WG861411
Naphthalene	ND		0.0200	1	04/04/2016 06:32	WG861411
Phenanthrene	ND		0.00600	1	04/04/2016 06:32	WG861411
Pyrene	ND		0.00600	1	04/04/2016 06:32	WG861411
1-Methylnaphthalene	ND		0.0200	1	04/04/2016 06:32	WG861411
2-Methylnaphthalene	ND		0.0200	1	04/04/2016 06:32	WG861411
2-Chloronaphthalene	ND		0.0200	1	04/04/2016 06:32	WG861411
(S) p-Terphenyl-d14	57.9		32.2-131		04/04/2016 06:32	WG861411
(S) Nitrobenzene-d5	65.2		22.1-146		04/04/2016 06:32	WG861411
(S) 2-Fluorobiphenyl	50.0		40.6-122		04/04/2016 06:32	WG861411

330161151

Collected date/time: 03/30/16 15:15

SAMPLE RESULTS - 03

L826838

ONE LAB. NATIONWIDE.



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	38.8		1	04/03/2016 18:15	WG861480

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	12.7		2.00	1	04/04/2016 10:19	WG861281

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	04/04/2016 10:19	WG861018

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.09		1	04/01/2016 16:53	WG861280

Sample Narrative:

9045D L826838-03 WG861280: 8.09 at 23.4c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	2740		1	04/02/2016 09:22	WG861304

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	782		10.0	1	04/04/2016 19:51	WG861473
Sulfate	304		50.0	1	04/04/2016 19:51	WG861473

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0411		0.0200	1	04/02/2016 07:54	WG861324

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	04/02/2016 16:35	WG861281
Barium	35800		25.0	50	04/03/2016 15:21	WG861281
Cadmium	ND		0.500	1	04/02/2016 16:35	WG861281
Chromium	12.7		1.00	1	04/02/2016 16:35	WG861281
Copper	11.7		2.00	1	04/02/2016 16:35	WG861281
Lead	11.5		0.500	1	04/02/2016 16:35	WG861281
Nickel	7.92		2.00	1	04/02/2016 16:35	WG861281
Selenium	ND		2.00	1	04/02/2016 16:35	WG861281
Silver	ND		1.00	1	04/02/2016 16:35	WG861281
Zinc	25.8		5.00	1	04/02/2016 16:35	WG861281

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc



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	04/05/2016 14:05	WG862017
Toluene	ND		0.0250	5	04/05/2016 14:05	WG862017
Ethylbenzene	ND		0.00250	5	04/05/2016 14:05	WG862017
Total Xylene	ND		0.00750	5	04/05/2016 14:05	WG862017
TPH (GC/FID) Low Fraction	ND		0.500	5	04/05/2016 14:05	WG862017
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	99.1		59.0-128		04/05/2016 14:05	WG862017
(S) <i>a,a,a</i> -Trifluorotoluene(PID)	93.0		54.0-144		04/05/2016 14:05	WG862017

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method 3546/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	15.9		10.0	2.5	04/05/2016 04:07	WG861639
(S) <i>o</i> -Terphenyl	71.6		50.0-150		04/05/2016 04:07	WG861639

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	04/04/2016 06:53	WG861411
Acenaphthene	ND		0.00600	1	04/04/2016 06:53	WG861411
Acenaphthylene	ND		0.00600	1	04/04/2016 06:53	WG861411
Benzo(a)anthracene	ND		0.00600	1	04/04/2016 06:53	WG861411
Benzo(a)pyrene	ND		0.00600	1	04/04/2016 06:53	WG861411
Benzo(b)fluoranthene	ND		0.00600	1	04/04/2016 06:53	WG861411
Benzo(g,h,i)perylene	ND		0.00600	1	04/04/2016 06:53	WG861411
Benzo(k)fluoranthene	ND		0.00600	1	04/04/2016 06:53	WG861411
Chrysene	ND		0.00600	1	04/04/2016 06:53	WG861411
Dibenz(a,h)anthracene	ND		0.00600	1	04/04/2016 06:53	WG861411
Fluoranthene	ND		0.00600	1	04/04/2016 06:53	WG861411
Fluorene	ND		0.00600	1	04/04/2016 06:53	WG861411
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	04/04/2016 06:53	WG861411
Naphthalene	ND		0.0200	1	04/04/2016 06:53	WG861411
Phenanthrene	ND		0.00600	1	04/04/2016 06:53	WG861411
Pyrene	ND		0.00600	1	04/04/2016 06:53	WG861411
1-Methylnaphthalene	ND		0.0200	1	04/04/2016 06:53	WG861411
2-Methylnaphthalene	ND		0.0200	1	04/04/2016 06:53	WG861411
2-Chloronaphthalene	ND		0.0200	1	04/04/2016 06:53	WG861411
(S) <i>p</i> -Terphenyl-d14	52.3		32.2-131		04/04/2016 06:53	WG861411
(S) Nitrobenzene-d5	55.2		22.1-146		04/04/2016 06:53	WG861411
(S) 2-Fluorobiphenyl	47.6		40.6-122		04/04/2016 06:53	WG861411



Preparation by Method 1311

	Result	<u>Qualifier</u>	Prep date / time	<u>Batch</u>
Analyte				
TCLP Extraction	-		4/2/2016 11:02:13 AM	WG861525

Metals (ICP) by Method 6010B

	Result	<u>Qualifier</u>	RDL	Limit	Dilution	Analysis date / time	<u>Batch</u>
Analyte	mg/l		mg/l	mg/l			
Boron	ND		9.00		1	04/04/2016 11:26	WG861680

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		4/2/2016 11:02:13 AM	WG861525

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Boron	ND		9.00		1	04/04/2016 11:30	WG861680

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Preparation by Method 1311

	Result	<u>Qualifier</u>	Prep date / time	<u>Batch</u>
Analyte				
TCLP Extraction	-		4/2/2016 11:02:13 AM	WG861525

Metals (ICP) by Method 6010B

	Result	<u>Qualifier</u>	RDL	Limit	Dilution	Analysis date / time	<u>Batch</u>
Analyte	mg/l		mg/l	mg/l			
Boron	ND		9.00		1	04/04/2016 11:39	WG861680

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3125970-1 04/04/16 10:03

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Chromium,Hexavalent	U		0.640	2.00

Original Sample (OS) • Duplicate (DUP)

(OS) L826725-10 04/04/16 10:18 • (DUP) R3125970-8 04/04/16 10:18

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3125970-2 04/04/16 10:05 • (LCSD) R3125970-3 04/04/16 10:05

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Chromium,Hexavalent	56.9	46.4	46.6	82.0	82.0	80.0-120			0.000	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Original Sample (OS) • Duplicate (DUP)

(OS) L826834-01 04/01/16 16:53 • (DUP) WG861280-1 04/01/16 16:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.82	8.82	1	0.000		1

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG861280-2 04/01/16 16:53 • (LCSD) WG861280-3 04/01/16 16:53

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.43	6.41	6.42	99.7	99.8	98.5-102			0.156	1

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) WG861304-5 04/02/16 09:22

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	1.73			

Original Sample (OS) • Duplicate (DUP)

(OS) L826838-01 04/02/16 09:22 • (DUP) WG861304-8 04/02/16 09:22

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1300	1300	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG861304-6 04/02/16 09:22 • (LCSD) WG861304-7 04/02/16 09:22

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Specific Conductance	653	660	663	101	102	90.0-110			0.454	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3126209-3 04/04/16 11:20

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Chloride	U		0.795	10.0
Sulfate	U		0.57	50.0

Original Sample (OS) • Duplicate (DUP)

(OS) L826991-02 04/05/16 02:44 • (DUP) R3126209-7 04/05/16 03:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chloride	88.6	98.6	1	11		15
Sulfate	12.0	7.28	1	49	J P1	15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3126209-4 04/04/16 11:43 • (LCSD) R3126209-5 04/04/16 12:06

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Chloride	200	201	201	100	100	80-120			0	15
Sulfate	200	206	206	103	103	80-120			0	15

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3125801-1 04/02/16 07:01

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0028	0.0200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3125801-2 04/02/16 07:03 • (LCSD) R3125801-3 04/02/16 07:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Mercury	0.300	0.277	0.281	92	94	80-120			1	20

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826817-01 04/02/16 07:08 • (MS) R3125801-4 04/02/16 07:11 • (MSD) R3125801-5 04/02/16 07:14

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Mercury	0.300	0.00278	0.288	0.293	95	97	1	75-125			2	20



Method Blank (MB)

(MB) R3125824-2 04/02/16 15:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.65	2.00
Barium	U		0.17	0.500
Cadmium	U		0.07	0.500
Chromium	U		0.14	1.00
Copper	U		0.53	2.00
Lead	U		0.19	0.500
Nickel	U		0.49	2.00
Selenium	U		0.74	2.00
Silver	U		0.28	1.00
Zinc	U		0.59	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3125824-3 04/02/16 15:27 • (LCSD) R3125824-4 04/02/16 15:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	94.4	100	94	100	80-120			6	20
Barium	100	97.7	104	98	104	80-120			6	20
Cadmium	100	94.1	99.6	94	100	80-120			6	20
Chromium	100	92.5	98.5	93	98	80-120			6	20
Copper	100	94.3	100	94	100	80-120			6	20
Lead	100	94.2	99.8	94	100	80-120			6	20
Nickel	100	94.1	99.6	94	100	80-120			6	20
Selenium	100	95.8	101	96	101	80-120			6	20
Silver	100	90.5	95.4	91	95	80-120			5	20
Zinc	100	93.8	99.3	94	99	80-120			6	20

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826839-06 04/02/16 15:32 • (MS) R3125824-6 04/02/16 15:41 • (MSD) R3125824-7 04/02/16 15:44

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	11.1	109	98.7	98	88	1	75-125			10	20
Barium	100	134	226	195	92	60	1	75-125		J6	15	20
Cadmium	100	1.22	99.5	90.4	98	89	1	75-125			10	20



[L826838-01,02,03](#)

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826839-06 04/02/16 15:32 • (MS) R3125824-6 04/02/16 15:41 • (MSD) R3125824-7 04/02/16 15:44

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium	100	7.06	95.1	88.0	88	81	1	75-125			8	20
Copper	100	80.1	183	159	103	79	1	75-125			14	20
Lead	100	120	186	163	66	43	1	75-125	J6	J6	13	20
Nickel	100	8.08	106	95.5	98	87	1	75-125			10	20
Selenium	100	0.527	101	93.0	100	92	1	75-125			8	20
Silver	100	0.344	98.8	91.3	98	91	1	75-125			8	20
Zinc	100	80.4	162	143	82	63	1	75-125		J6	12	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3125990-1 04/04/16 10:16

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron	U		3	9.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3125990-2 04/04/16 10:18 • (LCSD) R3125990-3 04/04/16 10:21

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Boron	10.0	9.34	9.38	93	94	80-120			0	20

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826148-02 04/04/16 10:24 • (MS) R3125990-5 04/04/16 10:39 • (MSD) R3125990-6 04/04/16 10:42

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	10.0	0.0559	9.56	9.79	95	97	1	75-125			2	20



Method Blank (MB)

(MB) R3126031-5 04/03/16 20:41

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	U		0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	101			59.0-128
(S) a,a,a-Trifluorotoluene(PID)	103			54.0-144

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3126031-1 04/03/16 18:56 • (LCSD) R3126031-2 04/03/16 19:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0486	0.0491	97.3	98.2	70.0-130			0.960	20
Toluene	0.0500	0.0526	0.0519	105	104	70.0-130			1.40	20
Ethylbenzene	0.0500	0.0533	0.0537	107	107	70.0-130			0.830	20
Total Xylene	0.150	0.165	0.166	110	111	70.0-130			0.620	20
(S) a,a,a-Trifluorotoluene(PID)				102	102	54.0-144				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3126031-3 04/03/16 19:38 • (LCSD) R3126031-4 04/03/16 19:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.05	4.96	91.7	90.1	63.5-137			1.77	20
(S) a,a,a-Trifluorotoluene(FID)				99.8	100	59.0-128				

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826838-01 04/04/16 12:46 • (MS) R3126031-6 04/04/16 08:27 • (MSD) R3126031-7 04/04/16 08:48

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0214	1.12	1.52	87.9	120	25	49.7-127		J3	30.3	23.5
Toluene	0.0500	0.0103	1.21	1.62	95.6	128	25	49.8-132		J3	29.1	23.5
Ethylbenzene	0.0500	0.0104	1.24	1.67	98.0	133	25	40.8-141		J3	29.9	23.8



Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826838-01 04/04/16 12:46 • (MS) R3126031-6 04/04/16 08:27 • (MSD) R3126031-7 04/04/16 08:48

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Total Xylene	0.150	0.0500	3.83	5.16	101	136	25	41.2-140		J3	29.6	23.7
(S) a,a,a-Trifluorotoluene(PID)					102	102		54.0-144				

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826838-01 04/04/16 12:46 • (MS) R3126031-8 04/04/16 09:08 • (MSD) R3126031-9 04/04/16 09:29

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	155	164	113	119	25	28.5-138			5.76	23.6
(S) a,a,a-Trifluorotoluene(FID)					98.6	98.3		59.0-128				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc



Method Blank (MB)

(MB) R3126422-5 04/05/16 04:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000332		0.000150	0.00500
Ethylbenzene	0.000117		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	98.6			59.0-128
(S) a,a,a-Trifluorotoluene(PID)	104			54.0-144

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3126422-1 04/05/16 02:14 • (LCSD) R3126422-2 04/05/16 02:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0436	0.0439	87.2	87.9	70.0-130			0.800	20
Toluene	0.0500	0.0431	0.0434	86.3	86.7	70.0-130			0.510	20
Ethylbenzene	0.0500	0.0441	0.0447	88.1	89.5	70.0-130			1.52	20
Total Xylene	0.150	0.130	0.133	86.9	88.4	70.0-130			1.68	20
(S) a,a,a-Trifluorotoluene(PID)				103	103	54.0-144				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3126422-3 04/05/16 02:58 • (LCSD) R3126422-4 04/05/16 03:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	6.09	6.18	111	112	63.5-137			1.53	20
(S) a,a,a-Trifluorotoluene(FID)				105	105	59.0-128				



Method Blank (MB)

(MB) R3126402-5 04/05/16 13:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000308		0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	101			59.0-128
(S) a,a,a-Trifluorotoluene(PID)	96.1			54.0-144

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3126402-1 04/05/16 11:17 • (LCSD) R3126402-2 04/05/16 11:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0490	0.0511	98.0	102	70.0-130			4.30	20
Toluene	0.0500	0.0481	0.0499	96.1	99.7	70.0-130			3.64	20
Ethylbenzene	0.0500	0.0501	0.0522	100	104	70.0-130			4.10	20
Total Xylene	0.150	0.153	0.158	102	105	70.0-130			2.88	20
(S) a,a,a-Trifluorotoluene(PID)				104	105	54.0-144				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3126402-3 04/05/16 11:59 • (LCSD) R3126402-4 04/05/16 12:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	6.50	6.56	118	119	63.5-137			1.00	20
(S) a,a,a-Trifluorotoluene(FID)				102	102	59.0-128				



Method Blank (MB)

(MB) R3126318-1 04/05/16 00:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	73.7			50.0-150

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3126318-2 04/05/16 00:33 • (LCSD) R3126318-3 04/05/16 00:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	60.0	51.6	50.0	86.0	83.4	50.0-150			3.10	20
(S) o-Terphenyl				96.7	89.8	50.0-150				

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826828-01 04/05/16 02:03 • (MS) R3126318-4 04/05/16 02:15 • (MSD) R3126318-5 04/05/16 02:26

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	60.0	7.36	54.7	52.2	78.8	74.7	1	50.0-150			4.60	20
(S) o-Terphenyl					80.6	76.0		50.0-150				



Method Blank (MB)

(MB) R3125981-3 04/04/16 01:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	0.00255		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) p-Terphenyl-d14	67.5			32.2-131
(S) Nitrobenzene-d5	69.8			22.1-146
(S) 2-Fluorobiphenyl	71.8			40.6-122

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3125981-1 04/04/16 01:10 • (LCSD) R3125981-2 04/04/16 01:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0650	0.0665	81.2	83.1	50.3-130			2.33	20
Acenaphthene	0.0800	0.0655	0.0673	81.9	84.2	52.4-120			2.74	20
Acenaphthylene	0.0800	0.0638	0.0657	79.8	82.1	49.6-120			2.88	20
Benzo(a)anthracene	0.0800	0.0634	0.0641	79.2	80.1	46.7-125			1.13	20
Benzo(a)pyrene	0.0800	0.0563	0.0586	70.4	73.3	42.3-119			4.05	20
Benzo(b)fluoranthene	0.0800	0.0627	0.0663	78.4	82.9	43.6-124			5.56	20
Benzo(g,h,i)perylene	0.0800	0.0614	0.0645	76.7	80.6	45.1-132			4.90	20
Benzo(k)fluoranthene	0.0800	0.0682	0.0690	85.3	86.2	46.1-131			1.11	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3125981-1 04/04/16 01:10 • (LCSD) R3125981-2 04/04/16 01:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chrysene	0.0800	0.0669	0.0685	83.7	85.6	49.5-131			2.26	20
Dibenz(a,h)anthracene	0.0800	0.0646	0.0670	80.7	83.7	44.8-133			3.64	20
Fluoranthene	0.0800	0.0665	0.0681	83.1	85.2	49.3-128			2.48	20
Fluorene	0.0800	0.0645	0.0663	80.6	82.9	50.6-121			2.84	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0651	0.0678	81.3	84.8	46.1-135			4.14	20
Naphthalene	0.0800	0.0641	0.0652	80.1	81.5	49.6-115			1.80	20
Phenanthrene	0.0800	0.0661	0.0674	82.6	84.3	48.8-121			2.00	20
Pyrene	0.0800	0.0741	0.0754	92.6	94.2	44.7-130			1.71	20
1-Methylnaphthalene	0.0800	0.0665	0.0687	83.2	85.8	50.6-122			3.12	20
2-Methylnaphthalene	0.0800	0.0651	0.0672	81.4	84.0	50.4-120			3.11	20
2-Chloronaphthalene	0.0800	0.0622	0.0640	77.8	80.0	53.9-121			2.88	20
(S) p-Terphenyl-d14				72.7	56.6	32.2-131				
(S) Nitrobenzene-d5				78.9	62.0	22.1-146				
(S) 2-Fluorobiphenyl				77.8	61.6	40.6-122				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826530-01 04/04/16 04:49 • (MS) R3125981-4 04/04/16 05:10 • (MSD) R3125981-5 04/04/16 05:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	ND	0.0543	0.0527	67.9	65.9	1	26.5-141			3.08	21.2
Acenaphthene	0.0800	ND	0.0575	0.0562	71.9	70.2	1	31.9-130			2.35	20
Acenaphthylene	0.0800	ND	0.0594	0.0589	74.3	73.6	1	33.7-129			0.950	20
Benzo(a)anthracene	0.0800	0.000638	0.0475	0.0454	58.6	55.9	1	18.3-136			4.58	24.6
Benzo(a)pyrene	0.0800	ND	0.0492	0.0468	61.6	58.4	1	16.9-135			5.19	25.2
Benzo(b)fluoranthene	0.0800	0.000644	0.0411	0.0397	50.5	48.8	1	10.0-134			3.50	30.9
Benzo(g,h,i)perylene	0.0800	ND	0.0405	0.0381	50.6	47.6	1	14.1-140			6.18	25.5
Benzo(k)fluoranthene	0.0800	ND	0.0487	0.0456	60.8	57.0	1	18.2-138			6.60	25.6
Chrysene	0.0800	ND	0.0530	0.0509	66.2	63.7	1	17.1-145			3.90	24.2
Dibenz(a,h)anthracene	0.0800	ND	0.0490	0.0471	61.2	58.9	1	18.5-138			3.89	24.3
Fluoranthene	0.0800	0.000981	0.0520	0.0484	63.8	59.3	1	15.4-144			7.05	27.1
Fluorene	0.0800	ND	0.0553	0.0538	69.2	67.2	1	23.5-136			2.82	20
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0432	0.0410	54.1	51.2	1	14.5-142			5.36	25.8
Naphthalene	0.0800	0.00521	0.0630	0.0627	72.3	71.9	1	29.2-128			0.520	20
Phenanthrene	0.0800	0.00110	0.0543	0.0526	66.5	64.4	1	20.1-134			3.24	23.6
Pyrene	0.0800	0.00131	0.0567	0.0542	69.3	66.1	1	11.0-148			4.55	26.1

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L826530-01 04/04/16 04:49 • (MS) R3125981-4 04/04/16 05:10 • (MSD) R3125981-5 04/04/16 05:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
1-Methylnaphthalene	0.0800	0.000715	0.0607	0.0613	75.0	75.7	1	28.4-137			0.950	20
2-Methylnaphthalene	0.0800	0.00174	0.0601	0.0603	72.9	73.2	1	26.6-137			0.420	20
2-Chloronaphthalene	0.0800	ND	0.0563	0.0550	70.3	68.7	1	38.6-126			2.33	20
(S) p-Terphenyl-d14					61.2	57.9		32.2-131				
(S) Nitrobenzene-d5					80.8	77.0		22.1-146				
(S) 2-Fluorobiphenyl					67.2	62.7		40.6-122				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



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
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ 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**.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

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		

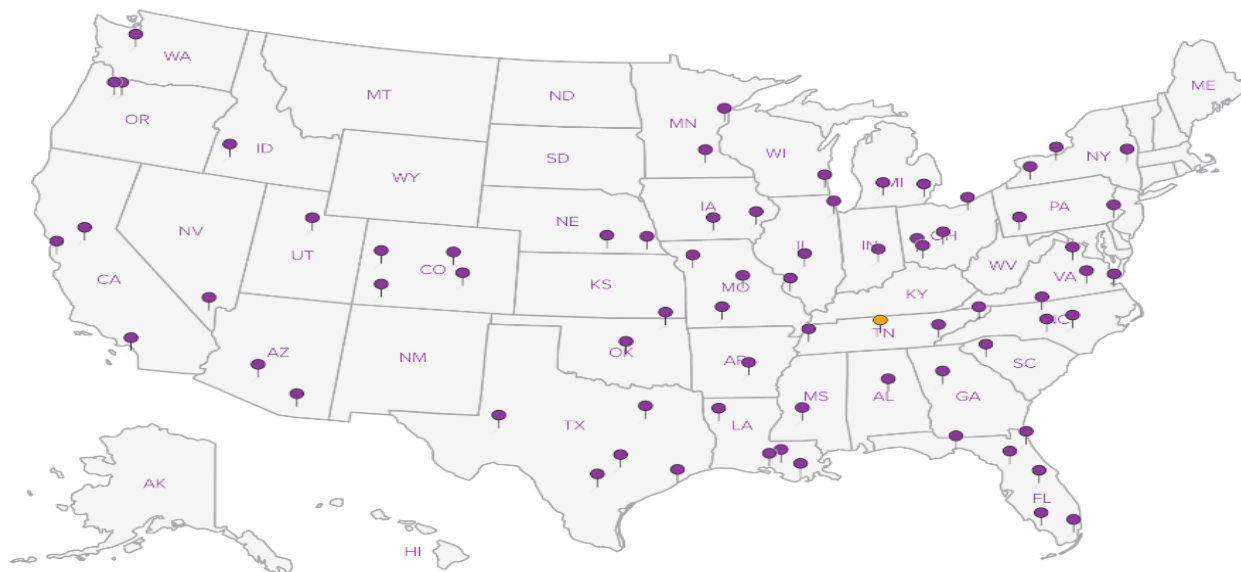
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

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

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.**



[illegible]