

Laramie Energy - Grand Junction, CO

Sample Delivery Group: L1145752
Samples Received: 10/03/2019
Project Number:
Description: Kobe Flange - Ditch

Report To: Matt Kasten
760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

Entire Report Reviewed By:

Chris Ward

Chris Ward
Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





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¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



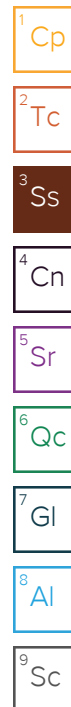
KOBE FLANGE-DITCH UP L1145752-01 GW

Collected by
Matt Kasten

Collected date/time
10/02/19 12:00

Received date/time
10/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method BART	WG1357353	1	10/14/19 09:23	10/14/19 09:23	CFM	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG1356912	1	10/06/19 10:53	10/06/19 14:57	TH	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1357278	1	10/04/19 15:48	10/04/19 15:48	GB	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1357057	1	10/03/19 19:51	10/03/19 19:51	AJC	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1358558	1	10/03/19 12:56	10/07/19 11:28	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1357334	1	10/04/19 11:38	10/04/19 11:38	EEM	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1356959	1	10/03/19 16:09	10/03/19 16:09	AKA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	1	10/03/19 14:47	10/03/19 14:47	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	10	10/03/19 15:42	10/03/19 15:42	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1356357	1	10/03/19 18:40	10/04/19 00:33	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1358339	1	10/06/19 21:48	10/06/19 21:48	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1357333	1	10/04/19 12:39	10/04/19 12:39	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1357950	1	10/05/19 10:05	10/05/19 10:05	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1356886	1	10/03/19 20:54	10/06/19 05:03	JN	Mt. Juliet, TN



KOBE FLANGE-DITCH POR L1145752-02 GW

Collected by
Matt Kasten

Collected date/time
10/02/19 12:15

Received date/time
10/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method BART	WG1357353	1	10/14/19 09:23	10/14/19 09:23	CFM	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG1356912	1	10/06/19 10:53	10/06/19 14:57	TH	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1357278	1	10/04/19 16:03	10/04/19 16:03	GB	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1357057	1	10/03/19 19:52	10/03/19 19:52	AJC	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1358558	1	10/03/19 12:56	10/07/19 11:29	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1357334	1	10/04/19 11:38	10/04/19 11:38	EEM	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1356959	1	10/03/19 16:09	10/03/19 16:09	AKA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	1	10/03/19 15:55	10/03/19 15:55	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	10	10/03/19 16:08	10/03/19 16:08	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1356357	1	10/03/19 18:40	10/04/19 00:36	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1357774	1	10/05/19 13:46	10/05/19 13:46	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1357333	1	10/04/19 12:41	10/04/19 12:41	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1357950	1	10/05/19 10:26	10/05/19 10:26	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1356886	1	10/03/19 20:54	10/06/19 05:23	JN	Mt. Juliet, TN

KOBE FLANGE-DITCH DOWN L1145752-03 GW

Collected by
Matt Kasten

Collected date/time
10/02/19 12:25

Received date/time
10/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method BART	WG1357353	1	10/14/19 09:23	10/14/19 09:23	CFM	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG1356912	1	10/06/19 10:53	10/06/19 14:57	TH	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1357278	1	10/04/19 16:18	10/04/19 16:18	GB	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1357057	1	10/03/19 19:54	10/03/19 19:54	AJC	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1358558	1	10/03/19 12:56	10/07/19 12:04	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1357334	1	10/04/19 11:38	10/04/19 11:38	EEM	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1356959	1	10/03/19 16:09	10/03/19 16:09	AKA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	1	10/03/19 16:21	10/03/19 16:21	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	10	10/03/19 16:34	10/03/19 16:34	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1356357	1	10/03/19 18:40	10/04/19 00:38	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1357774	1	10/05/19 14:08	10/05/19 14:08	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1357333	1	10/04/19 12:43	10/04/19 12:43	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1357950	1	10/05/19 10:46	10/05/19 10:46	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1356886	1	10/03/19 20:54	10/06/19 05:43	JN	Mt. Juliet, TN

ACCOUNT:

Laramie Energy - Grand Junction, CO

PROJECT:

SDG:

L1145752

DATE/TIME:

10/14/19 10:58

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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



KOBE FLANGE-DITCH BOX E L1145752-04 GW

Collected by
Matt Kasten

Collected date/time
10/02/19 12:45

Received date/time
10/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method BART	WG1357353	1	10/14/19 09:23	10/14/19 09:23	CFM	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG1356912	1	10/06/19 10:53	10/06/19 14:57	TH	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1357278	1	10/04/19 16:25	10/04/19 16:25	GB	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1357057	1	10/03/19 19:55	10/03/19 19:55	AJC	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1358558	1	10/03/19 12:56	10/07/19 11:33	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1357334	1	10/04/19 11:38	10/04/19 11:38	EEM	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1356959	1	10/03/19 16:09	10/03/19 16:09	AKA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	1	10/03/19 16:47	10/03/19 16:47	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	10	10/03/19 17:00	10/03/19 17:00	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1356357	1	10/03/19 18:40	10/04/19 00:41	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1357774	1	10/05/19 14:30	10/05/19 14:30	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1357333	1	10/04/19 12:48	10/04/19 12:48	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1357950	1	10/05/19 11:06	10/05/19 11:06	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1356886	1	10/03/19 20:54	10/06/19 06:03	JN	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

KOBE FLANGE-DITCH BOX S L1145752-05 GW

Collected by
Matt Kasten

Collected date/time
10/02/19 12:50

Received date/time
10/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method BART	WG1357353	1	10/14/19 09:23	10/14/19 09:23	CFM	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG1356912	1	10/06/19 10:53	10/06/19 14:57	TH	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG1357278	1	10/04/19 16:32	10/04/19 16:32	GB	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1357057	1	10/03/19 19:57	10/03/19 19:57	AJC	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1358558	1	10/03/19 12:56	10/07/19 11:34	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1357334	1	10/04/19 11:38	10/04/19 11:38	EEM	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1356959	1	10/03/19 16:09	10/03/19 16:09	AKA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	1	10/03/19 17:13	10/03/19 17:13	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1356698	10	10/03/19 17:26	10/03/19 17:26	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1356357	1	10/03/19 18:40	10/04/19 00:44	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1357774	1	10/05/19 14:53	10/05/19 14:53	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1357333	1	10/04/19 12:51	10/04/19 12:51	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1357950	1	10/05/19 11:27	10/05/19 11:27	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1356886	1	10/03/19 20:54	10/06/19 06:23	JN	Mt. Juliet, TN

KOBE FLANGE-DITCH END L1145752-06 GW

Collected by
Matt Kasten

Collected date/time
10/02/19 13:10

Received date/time
10/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1357774	1	10/05/19 15:15	10/05/19 15:15	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1357950	1	10/05/19 11:47	10/05/19 11:47	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1356886	1	10/03/19 20:54	10/06/19 06:44	JN	Mt. Juliet, TN

ACCOUNT:

Laramie Energy - Grand Junction, CO

PROJECT:

SDG:

L1145752

DATE/TIME:

10/14/19 10:58

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All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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 Ward
Project Manager

Project Narrative

The following reactions were observed on one or more samples within this SDG.

BL Blackened Liquid
BR Brown Ring
FO Foam
BB Blackened Base
BT Blackening around Ball
SR Slime Ring around Ball
PB Pale Blue Glow in UV Light

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Microbiology by Method BART

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Iron Related Bacteria	Present		1	10/14/2019 09:23	WG1357353
Slime Forming Bacteria	Present		1	10/14/2019 09:23	WG1357353
Sulfate Reducing Bacteria	Present		1	10/14/2019 09:23	WG1357353

Sample Narrative:

L1145752-01 WG1357353: Approximate IRB population=35,000cfu/ml. Reactions=FO/BR/BL

L1145752-01 WG1357353: Approximate SLYM population= 2500 cfu/ml. Reactions=PB/SR

L1145752-01 WG1357353: Approximate SRB population= 500,000 cfu/ml. Reactions= BT/BB

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1180		20.0	1	10/06/2019 14:57	WG1356912

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	532		20.0	1	10/04/2019 15:48	WG1357278
Alkalinity,Carbonate	ND		20.0	1	10/04/2019 15:48	WG1357278

Sample Narrative:

L1145752-01 WG1357278: Endpoint pH 4.5

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		0.100	1	10/03/2019 19:51	WG1357057

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Phosphorus,Total	ND		0.100	1	10/07/2019 11:28	WG1358558

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.19	T8	1	10/04/2019 11:38	WG1357334

Sample Narrative:

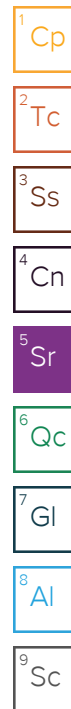
L1145752-01 WG1357334: 8.19 at 20C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1700		10.0	1	10/03/2019 16:09	WG1356959

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Bromide	ND		10.0	10	10/03/2019 15:42	WG1356698
Chloride	20.7		1.00	1	10/03/2019 14:47	WG1356698
Fluoride	0.738		0.100	1	10/03/2019 14:47	WG1356698



KOBÉ FLANGE-DITCH UP

Collected date/time: 10/02/19 12:00

SAMPLE RESULTS - 01

L1145752

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Nitrate as (N)	ND		0.100	1	10/03/2019 14:47	WG1356698
Sulfate	571		50.0	10	10/03/2019 15:42	WG1356698

Sample Narrative:

L1145752-01 WG1356698: report Br @ dilution due to high SO4

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	0.0547		0.00500	1	10/04/2019 00:33	WG1356357
Boron	0.283		0.200	1	10/04/2019 00:33	WG1356357
Calcium	110		1.00	1	10/04/2019 00:33	WG1356357
Iron	0.755		0.100	1	10/04/2019 00:33	WG1356357
Magnesium	101		1.00	1	10/04/2019 00:33	WG1356357
Manganese	0.0913		0.0100	1	10/04/2019 00:33	WG1356357
Potassium	4.19		1.00	1	10/04/2019 00:33	WG1356357
Selenium	ND		0.0100	1	10/04/2019 00:33	WG1356357
Sodium	201		1.00	1	10/04/2019 00:33	WG1356357
Strontium	1.84		0.0100	1	10/04/2019 00:33	WG1356357

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/06/2019 21:48	WG1358339
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	95.1		78.0-120		10/06/2019 21:48	WG1358339

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Methane	ND		0.0100	1	10/04/2019 12:39	WG1357333
Ethane	ND		0.0130	1	10/04/2019 12:39	WG1357333
Ethene	ND		0.0130	1	10/04/2019 12:39	WG1357333

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/05/2019 10:05	WG1357950
Toluene	ND		0.00100	1	10/05/2019 10:05	WG1357950
Ethylbenzene	ND		0.00100	1	10/05/2019 10:05	WG1357950
Total Xylenes	ND		0.00300	1	10/05/2019 10:05	WG1357950
(S) <i>Toluene-d8</i>	104		80.0-120		10/05/2019 10:05	WG1357950
(S) <i>4-Bromofluorobenzene</i>	104		77.0-126		10/05/2019 10:05	WG1357950
(S) <i>1,2-Dichloroethane-d4</i>	108		70.0-130		10/05/2019 10:05	WG1357950

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		0.100	1	10/06/2019 05:03	WG1356886
(S) <i>o</i> -Terphenyl	75.3		31.0-160		10/06/2019 05:03	WG1356886

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



Microbiology by Method BART

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Iron Related Bacteria	Present		1	10/14/2019 09:23	WG1357353
Slime Forming Bacteria	Present		1	10/14/2019 09:23	WG1357353
Sulfate Reducing Bacteria	Present		1	10/14/2019 09:23	WG1357353

Sample Narrative:

L1145752-02 WG1357353: Approximate IRB population=35,000cfu/ml. Reactions=FO/BR/BL

L1145752-02 WG1357353: Approximate SLYM population= 2500 cfu/ml. Reactions=PB/SR

L1145752-02 WG1357353: Approximate SRB population= 500,000 cfu/ml. Reactions= BT/BB

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1240		20.0	1	10/06/2019 14:57	WG1356912

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	538		20.0	1	10/04/2019 16:03	WG1357278
Alkalinity,Carbonate	ND		20.0	1	10/04/2019 16:03	WG1357278

Sample Narrative:

L1145752-02 WG1357278: Endpoint pH 4.5

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		0.100	1	10/03/2019 19:52	WG1357057

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Phosphorus,Total	ND		0.100	1	10/07/2019 11:29	WG1358558

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.24	T8	1	10/04/2019 11:38	WG1357334

Sample Narrative:

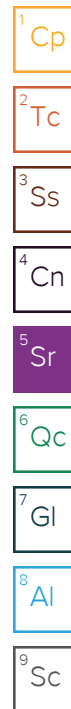
L1145752-02 WG1357334: 8.24 at 20.6C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1640		10.0	1	10/03/2019 16:09	WG1356959

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Bromide	ND		10.0	10	10/03/2019 16:08	WG1356698
Chloride	20.3		1.00	1	10/03/2019 15:55	WG1356698
Fluoride	0.726		0.100	1	10/03/2019 15:55	WG1356698





Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Nitrate as (N)	ND		0.100	1	10/03/2019 15:55	WG1356698
Sulfate	585		50.0	10	10/03/2019 16:08	WG1356698

Sample Narrative:

L1145752-02 WG1356698: report Br @ dilution due to high SO4

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	0.0568		0.00500	1	10/04/2019 00:36	WG1356357
Boron	0.284		0.200	1	10/04/2019 00:36	WG1356357
Calcium	109		1.00	1	10/04/2019 00:36	WG1356357
Iron	0.806		0.100	1	10/04/2019 00:36	WG1356357
Magnesium	101		1.00	1	10/04/2019 00:36	WG1356357
Manganese	0.0914		0.0100	1	10/04/2019 00:36	WG1356357
Potassium	4.22		1.00	1	10/04/2019 00:36	WG1356357
Selenium	ND		0.0100	1	10/04/2019 00:36	WG1356357
Sodium	200		1.00	1	10/04/2019 00:36	WG1356357
Strontium	1.83		0.0100	1	10/04/2019 00:36	WG1356357

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/05/2019 13:46	WG1357774
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	104		78.0-120		10/05/2019 13:46	WG1357774

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Methane	ND		0.0100	1	10/04/2019 12:41	WG1357333
Ethane	ND		0.0130	1	10/04/2019 12:41	WG1357333
Ethene	ND		0.0130	1	10/04/2019 12:41	WG1357333

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/05/2019 10:26	WG1357950
Toluene	ND		0.00100	1	10/05/2019 10:26	WG1357950
Ethylbenzene	ND		0.00100	1	10/05/2019 10:26	WG1357950
Total Xylenes	ND		0.00300	1	10/05/2019 10:26	WG1357950
(S) <i>Toluene-d8</i>	105		80.0-120		10/05/2019 10:26	WG1357950
(S) <i>4-Bromofluorobenzene</i>	104		77.0-126		10/05/2019 10:26	WG1357950
(S) <i>1,2-Dichloroethane-d4</i>	109		70.0-130		10/05/2019 10:26	WG1357950

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		0.100	1	10/06/2019 05:23	WG1356886
(S) <i>o</i> -Terphenyl	73.7		31.0-160		10/06/2019 05:23	WG1356886

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



Microbiology by Method BART

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Iron Related Bacteria	Present		1	10/14/2019 09:23	WG1357353
Slime Forming Bacteria	Present		1	10/14/2019 09:23	WG1357353
Sulfate Reducing Bacteria	Present		1	10/14/2019 09:23	WG1357353

Sample Narrative:

L1145752-03 WG1357353: Approximate IRB population=35,000cfu/ml. Reactions=FO/BR/BL

L1145752-03 WG1357353: Approximate SLYM population= 2500 cfu/ml. Reactions=PB/SR

L1145752-03 WG1357353: Approximate SRB population= 500,000 cfu/ml. Reactions= BT/BB

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	1200		20.0	1	10/06/2019 14:57	WG1356912

Wet Chemistry by Method 2320 B-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	529		20.0	1	10/04/2019 16:18	WG1357278
Alkalinity,Carbonate	ND		20.0	1	10/04/2019 16:18	WG1357278

Sample Narrative:

L1145752-03 WG1357278: Endpoint pH 4.5

Wet Chemistry by Method 353.2

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		0.100	1	10/03/2019 19:54	WG1357057

Wet Chemistry by Method 365.4

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Phosphorus,Total	ND		0.100	1	10/07/2019 12:04	WG1358558

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.24	T8	1	10/04/2019 11:38	WG1357334

Sample Narrative:

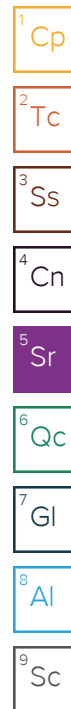
L1145752-03 WG1357334: 8.24 at 20.6C

Wet Chemistry by Method 9050A

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1660		10.0	1	10/03/2019 16:09	WG1356959

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Bromide	ND		10.0	10	10/03/2019 16:34	WG1356698
Chloride	20.5		1.00	1	10/03/2019 16:21	WG1356698
Fluoride	0.729		0.100	1	10/03/2019 16:21	WG1356698





Collected date/time: 10/02/19 12:25

L1145752

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Nitrate as (N)	ND		0.100	1	10/03/2019 16:21	WG1356698
Sulfate	604		50.0	10	10/03/2019 16:34	WG1356698

Sample Narrative:

L1145752-03 WG1356698: report Br @ dilution due to high SO4

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	0.0556		0.00500	1	10/04/2019 00:38	WG1356357
Boron	0.287		0.200	1	10/04/2019 00:38	WG1356357
Calcium	110		1.00	1	10/04/2019 00:38	WG1356357
Iron	0.787		0.100	1	10/04/2019 00:38	WG1356357
Magnesium	102		1.00	1	10/04/2019 00:38	WG1356357
Manganese	0.0877		0.0100	1	10/04/2019 00:38	WG1356357
Potassium	4.23		1.00	1	10/04/2019 00:38	WG1356357
Selenium	ND		0.0100	1	10/04/2019 00:38	WG1356357
Sodium	202		1.00	1	10/04/2019 00:38	WG1356357
Strontium	1.85		0.0100	1	10/04/2019 00:38	WG1356357

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/05/2019 14:08	WG1357774
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	103		78.0-120		10/05/2019 14:08	WG1357774

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Methane	ND		0.0100	1	10/04/2019 12:43	WG1357333
Ethane	ND		0.0130	1	10/04/2019 12:43	WG1357333
Ethene	ND		0.0130	1	10/04/2019 12:43	WG1357333

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/05/2019 10:46	WG1357950
Toluene	ND		0.00100	1	10/05/2019 10:46	WG1357950
Ethylbenzene	ND		0.00100	1	10/05/2019 10:46	WG1357950
Total Xylenes	ND		0.00300	1	10/05/2019 10:46	WG1357950
(S) <i>Toluene-d8</i>	102		80.0-120		10/05/2019 10:46	WG1357950
(S) <i>4-Bromofluorobenzene</i>	103		77.0-126		10/05/2019 10:46	WG1357950
(S) <i>1,2-Dichloroethane-d4</i>	108		70.0-130		10/05/2019 10:46	WG1357950

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		0.100	1	10/06/2019 05:43	WG1356886
(S) <i>o</i> -Terphenyl	73.2		31.0-160		10/06/2019 05:43	WG1356886

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



Collected date/time: 10/02/19 12:45

L1145752

Microbiology by Method BART

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Iron Related Bacteria	Present		1	10/14/2019 09:23	WG1357353
Slime Forming Bacteria	Present		1	10/14/2019 09:23	WG1357353
Sulfate Reducing Bacteria	Present		1	10/14/2019 09:23	WG1357353

Sample Narrative:

L1145752-04 WG1357353: Approximate IRB population=35,000cfu/ml. Reactions=FO/BR/BL

L1145752-04 WG1357353: Approximate SLYM population= 67,000 cfu/ml. Reactions=PB/SR

L1145752-04 WG1357353: Approximate SRB population= 500,000 cfu/ml. Reactions= BT/BB

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1200		20.0	1	10/06/2019 14:57	WG1356912

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	494		20.0	1	10/04/2019 16:25	WG1357278
Alkalinity,Carbonate	ND		20.0	1	10/04/2019 16:25	WG1357278

Sample Narrative:

L1145752-04 WG1357278: Endpoint pH 4.5

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		0.100	1	10/03/2019 19:55	WG1357057

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Phosphorus,Total	ND		0.100	1	10/07/2019 11:33	WG1358558

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.27	T8	1	10/04/2019 11:38	WG1357334

Sample Narrative:

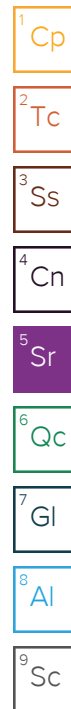
L1145752-04 WG1357334: 8.27 at 20.7C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1690		10.0	1	10/03/2019 16:09	WG1356959

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Bromide	ND		10.0	10	10/03/2019 17:00	WG1356698
Chloride	22.7		1.00	1	10/03/2019 16:47	WG1356698
Fluoride	0.704		0.100	1	10/03/2019 16:47	WG1356698





Collected date/time: 10/02/19 12:45

L1145752

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Nitrate as (N)	ND		0.100	1	10/03/2019 16:47	WG1356698
Sulfate	583		50.0	10	10/03/2019 17:00	WG1356698

Sample Narrative:

L1145752-04 WG1356698: report Br @ dilution due to high SO4

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	0.137		0.00500	1	10/04/2019 00:41	WG1356357
Boron	0.291		0.200	1	10/04/2019 00:41	WG1356357
Calcium	99.4		1.00	1	10/04/2019 00:41	WG1356357
Iron	1.14		0.100	1	10/04/2019 00:41	WG1356357
Magnesium	101		1.00	1	10/04/2019 00:41	WG1356357
Manganese	0.0228		0.0100	1	10/04/2019 00:41	WG1356357
Potassium	4.47		1.00	1	10/04/2019 00:41	WG1356357
Selenium	ND		0.0100	1	10/04/2019 00:41	WG1356357
Sodium	202		1.00	1	10/04/2019 00:41	WG1356357
Strontium	2.17		0.0100	1	10/04/2019 00:41	WG1356357

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/05/2019 14:30	WG1357774
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	104		78.0-120		10/05/2019 14:30	WG1357774

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Methane	ND		0.0100	1	10/04/2019 12:48	WG1357333
Ethane	ND		0.0130	1	10/04/2019 12:48	WG1357333
Ethene	ND		0.0130	1	10/04/2019 12:48	WG1357333

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/05/2019 11:06	WG1357950
Toluene	ND		0.00100	1	10/05/2019 11:06	WG1357950
Ethylbenzene	ND		0.00100	1	10/05/2019 11:06	WG1357950
Total Xylenes	ND		0.00300	1	10/05/2019 11:06	WG1357950
(S) Toluene-d8	103		80.0-120		10/05/2019 11:06	WG1357950
(S) 4-Bromofluorobenzene	104		77.0-126		10/05/2019 11:06	WG1357950
(S) 1,2-Dichloroethane-d4	109		70.0-130		10/05/2019 11:06	WG1357950

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		0.100	1	10/06/2019 06:03	WG1356886
(S) <i>o</i> -Terphenyl	71.1		31.0-160		10/06/2019 06:03	WG1356886

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



Collected date/time: 10/02/19 12:50

L1145752

Microbiology by Method BART

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Iron Related Bacteria	Present		1	10/14/2019 09:23	WG1357353
Slime Forming Bacteria	Present		1	10/14/2019 09:23	WG1357353
Sulfate Reducing Bacteria	Present		1	10/14/2019 09:23	WG1357353

Sample Narrative:

L1145752-05 WG1357353: Approximate IRB population=35,000cfu/ml. Reactions=FO/BR/BL

L1145752-05 WG1357353: Approximate SLYM population= 67,000 cfu/ml. Reactions=PB/SR

L1145752-05 WG1357353: Approximate SRB population= 500,000 cfu/ml. Reactions= BT/BB

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1170		20.0	1	10/06/2019 14:57	WG1356912

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	503		20.0	1	10/04/2019 16:32	WG1357278
Alkalinity,Carbonate	ND		20.0	1	10/04/2019 16:32	WG1357278

Sample Narrative:

L1145752-05 WG1357278: Endpoint pH 4.5

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		0.100	1	10/03/2019 19:57	WG1357057

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Phosphorus,Total	ND		0.100	1	10/07/2019 11:34	WG1358558

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.28	T8	1	10/04/2019 11:38	WG1357334

Sample Narrative:

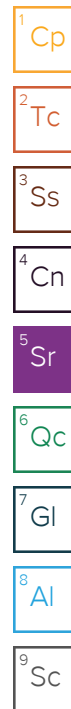
L1145752-05 WG1357334: 8.28 at 20.6C

Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1650		10.0	1	10/03/2019 16:09	WG1356959

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Bromide	ND		10.0	10	10/03/2019 17:26	WG1356698
Chloride	22.7		1.00	1	10/03/2019 17:13	WG1356698
Fluoride	0.690		0.100	1	10/03/2019 17:13	WG1356698





Collected date/time: 10/02/19 12:50

L1145752

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Nitrate as (N)	ND		0.100	1	10/03/2019 17:13	WG1356698
Sulfate	558		50.0	10	10/03/2019 17:26	WG1356698

Sample Narrative:

L1145752-05 WG1356698: report Br @ dilution due to high SO4

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Barium	0.135		0.00500	1	10/04/2019 00:44	WG1356357
Boron	0.292		0.200	1	10/04/2019 00:44	WG1356357
Calcium	99.3		1.00	1	10/04/2019 00:44	WG1356357
Iron	1.21		0.100	1	10/04/2019 00:44	WG1356357
Magnesium	101		1.00	1	10/04/2019 00:44	WG1356357
Manganese	0.0226		0.0100	1	10/04/2019 00:44	WG1356357
Potassium	4.50		1.00	1	10/04/2019 00:44	WG1356357
Selenium	ND		0.0100	1	10/04/2019 00:44	WG1356357
Sodium	203		1.00	1	10/04/2019 00:44	WG1356357
Strontium	2.18		0.0100	1	10/04/2019 00:44	WG1356357

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/05/2019 14:53	WG1357774
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	104		78.0-120		10/05/2019 14:53	WG1357774

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Methane	ND		0.0100	1	10/04/2019 12:51	WG1357333
Ethane	ND		0.0130	1	10/04/2019 12:51	WG1357333
Ethene	ND		0.0130	1	10/04/2019 12:51	WG1357333

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/05/2019 11:27	WG1357950
Toluene	ND		0.00100	1	10/05/2019 11:27	WG1357950
Ethylbenzene	ND		0.00100	1	10/05/2019 11:27	WG1357950
Total Xylenes	ND		0.00300	1	10/05/2019 11:27	WG1357950
(S) <i>Toluene-d8</i>	103		80.0-120		10/05/2019 11:27	WG1357950
(S) <i>4-Bromofluorobenzene</i>	108		77.0-126		10/05/2019 11:27	WG1357950
(S) <i>1,2-Dichloroethane-d4</i>	110		70.0-130		10/05/2019 11:27	WG1357950

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		0.100	1	10/06/2019 06:23	WG1356886
(S) <i>o</i> -Terphenyl	76.3		31.0-160		10/06/2019 06:23	WG1356886

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



Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/05/2019 15:15	WG1357774
(S) a,a,a-Trifluorotoluene(FID)	104		78.0-120		10/05/2019 15:15	WG1357774

1
Cp2
Tc3
Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/05/2019 11:47	WG1357950
Toluene	ND		0.00100	1	10/05/2019 11:47	WG1357950
Ethylbenzene	ND		0.00100	1	10/05/2019 11:47	WG1357950
Total Xylenes	ND		0.00300	1	10/05/2019 11:47	WG1357950
(S) Toluene-d8	103		80.0-120		10/05/2019 11:47	WG1357950
(S) 4-Bromofluorobenzene	103		77.0-126		10/05/2019 11:47	WG1357950
(S) 1,2-Dichloroethane-d4	109		70.0-130		10/05/2019 11:47	WG1357950

4
Cn5
Sr6
Qc7
Gl

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		0.100	1	10/06/2019 06:44	WG1356886
(S) o-Terphenyl	75.3		31.0-160		10/06/2019 06:44	WG1356886

8
Al9
Sc

Method Blank (MB)

(MB) R3457887-1 10/04/19 12:41

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Alkalinity,Bicarbonate	4.13	J	2.71	20.0
Alkalinity,Carbonate	U		2.71	20.0

Sample Narrative:
BLANK: Endpoint pH 4.5

L1144959-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1144959-01 10/04/19 14:00 • (DUP) R3457887-2 10/04/19 14:08

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	U	0.000	1	0.000		20
Alkalinity,Carbonate	U	0.000	1	0.000		20

Sample Narrative:
OS: Endpoint pH 4.5 headspace
DUP: Endpoint pH 4.5

L1145752-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145752-01 10/04/19 15:48 • (DUP) R3457887-4 10/04/19 15:56

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	532	537	1	0.824		20
Alkalinity,Carbonate	ND	0.000	1	0.000		20

Sample Narrative:
OS: Endpoint pH 4.5
DUP: Endpoint pH 4.5

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Method Blank (MB)

(MB) R3457514-1 10/03/19 19:07

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Nitrate-Nitrite	U		0.0197	0.100

L1144856-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1144856-01 10/03/19 19:10 • (DUP) R3457514-3 10/03/19 19:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate-Nitrite	17.1	17.0	5	0.951		20

L1145171-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145171-01 10/03/19 19:39 • (DUP) R3457514-6 10/03/19 19:40

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate-Nitrite	0.738	0.758	1	2.67		20

Laboratory Control Sample (LCS)

(LCS) R3457514-2 10/03/19 19:09

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Nitrate-Nitrite	4.00	4.08	102	90.0-110	

L1144923-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1144923-01 10/03/19 19:15 • (MS) R3457514-4 10/03/19 19:16 • (MSD) R3457514-5 10/03/19 19:18

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate-Nitrite	2.50	21.2	45.0	44.6	95.4	94.0	10	90.0-110			0.785	20

L1145402-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1145402-01 10/03/19 19:42 • (MS) R3457514-7 10/03/19 19:49

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate-Nitrite	2.50	ND	2.68	107	1	90.0-110	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3458360-1 10/07/19 11:25

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Phosphorus,Total	U		0.0350	0.100

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L1145461-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1145461-02 10/07/19 12:01 • (DUP) R3458360-7 10/07/19 12:03

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	4.75	4.75	1	0.000		20

L1145446-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1145446-02 10/07/19 12:05 • (DUP) R3458360-8 10/07/19 12:06

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	4.04	4.38	1	8.08		20

Laboratory Control Sample (LCS)

(LCS) R3458360-2 10/07/19 11:30

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Phosphorus,Total	2.00	1.87	93.5	90.0-110	

L1145535-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1145535-01 10/07/19 11:41 • (MS) R3458360-4 10/07/19 11:42

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Phosphorus,Total	2.50	7.85	7.79	0.000	1	90.0-110	E J6

L1145459-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1145459-01 10/07/19 11:56 • (MS) R3458360-5 10/07/19 11:57 • (MSD) R3458360-6 10/07/19 11:59

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	1.17	3.34	3.42	86.8	90.0	1	90.0-110	J6		2.37	20



L1145136-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145136-01 10/04/19 11:38 • (DUP) R3457729-2 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.41	7.42	1	0.135		1

Sample Narrative:

OS: 7.41 at 18.2C

DUP: 7.42 at 18.3C



L1145574-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145574-01 10/04/19 11:38 • (DUP) R3457729-3 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.13	8.11	1	0.246		1

Sample Narrative:

OS: 8.13 at 19.1C

DUP: 8.11 at 19.3C

L1145620-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145620-01 10/04/19 11:38 • (DUP) R3457729-4 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.12	8.11	1	0.123		1

Sample Narrative:

OS: 8.12 at 20.2C

DUP: 8.11 at 20.5C

L1145625-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145625-01 10/04/19 11:38 • (DUP) R3457729-5 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.08	8.11	1	0.371		1

Sample Narrative:

L1145625-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145625-01 10/04/19 11:38 • (DUP) R3457729-5 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
OS: 8.08 at 20.4C						
DUP: 8.11 at 20.6C						

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1145625-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1145625-02 10/04/19 11:38 • (DUP) R3457729-6 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.11	8.07	1	0.494		1

Sample Narrative:

OS: 8.11 at 20.3C
DUP: 8.07 at 20.4C

L1145661-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1145661-02 10/04/19 11:38 • (DUP) R3457729-7 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	6.70	6.74	1	0.595		1

Sample Narrative:

OS: 6.7 at 20.9C
DUP: 6.74 at 20.9C

L1145675-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145675-01 10/04/19 11:38 • (DUP) R3457729-8 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.79	7.81	1	0.256		1

Sample Narrative:

OS: 7.79 at 21.1C
DUP: 7.81 at 21C

L1145675-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1145675-02 10/04/19 11:38 • (DUP) R3457729-9 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	4.98	5.00	1	0.401		1

Sample Narrative:
OS: 4.98 at 21C
DUP: 5 at 21C

L1145698-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145698-01 10/04/19 11:38 • (DUP) R3457729-10 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.42	7.41	1	0.135		1

Sample Narrative:
OS: 7.42 at 20.2C
DUP: 7.41 at 20.2C

L1145752-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145752-01 10/04/19 11:38 • (DUP) R3457729-11 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.19	8.20	1	0.122		1

Sample Narrative:
OS: 8.19 at 20C
DUP: 8.2 at 20C

L1145752-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1145752-02 10/04/19 11:38 • (DUP) R3457729-12 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.24	8.21	1	0.365		1

Sample Narrative:

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



L1145752-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1145752-02 10/04/19 11:38 • (DUP) R3457729-12 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
OS: 8.24 at 20.6C						
DUP: 8.21 at 20.6C						

¹Cp

²Tc

³Ss

⁴Cn

L1145752-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1145752-03 10/04/19 11:38 • (DUP) R3457729-13 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH						
	8.24	8.22	1	0.243		1

⁵Sr

⁶Qc

Sample Narrative:

OS: 8.24 at 20.6C

DUP: 8.22 at 20.7C

⁷Gl

⁸Al

L1145752-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1145752-04 10/04/19 11:38 • (DUP) R3457729-14 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH						
	8.27	8.26	1	0.121		1

⁹Sc

Sample Narrative:

OS: 8.27 at 20.7C

DUP: 8.26 at 20.8C

L1145752-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1145752-05 10/04/19 11:38 • (DUP) R3457729-15 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH						
	8.28	8.28	1	0.000		1

Sample Narrative:

OS: 8.28 at 20.6C

DUP: 8.28 at 20.7C



L1145868-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145868-01 10/04/19 11:38 • (DUP) R3457729-16 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	6.89	6.90	1	0.145		1

Sample Narrative:

OS: 6.89 at 20.6C

DUP: 6.9 at 20.6C



L1145868-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1145868-02 10/04/19 11:38 • (DUP) R3457729-17 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	6.69	6.70	1	0.149		1

Sample Narrative:

OS: 6.69 at 20.6C

DUP: 6.7 at 20.7C

L1145868-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1145868-03 10/04/19 11:38 • (DUP) R3457729-18 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	6.77	6.76	1	0.148		1

Sample Narrative:

OS: 6.77 at 20.6C

DUP: 6.76 at 20.6C

L1145876-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1145876-06 10/04/19 11:38 • (DUP) R3457729-19 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	12.3	12.3	1	0.000		1

Sample Narrative:

L1145876-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1145876-06 10/04/19 11:38 • (DUP) R3457729-19 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
OS: 12.28 at 25.8C						
DUP: 12.28 at 25.9C						

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1146114-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1146114-01 10/04/19 11:38 • (DUP) R3457729-20 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.08	8.06	1	0.248		1

Sample Narrative:

OS: 8.08 at 20.2C
DUP: 8.06 at 20.5C

L1146154-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1146154-02 10/04/19 11:38 • (DUP) R3457729-21 10/04/19 11:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.17	8.18	1	0.122		1

Sample Narrative:

OS: 8.17 at 20.8C
DUP: 8.18 at 21.5C

Laboratory Control Sample (LCS)

(LCS) R3457729-1 10/04/19 11:38

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.98	99.8	99.0-101	

Sample Narrative:

LCS: 9.98 at 21C

Method Blank (MB)

(MB) R3457444-1 10/03/19 16:09

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	U		10.0	10.0

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1144893-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1144893-06 10/03/19 16:09 • (DUP) R3457444-3 10/03/19 16:09

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	umhos/cm	umhos/cm		%		%
Specific Conductance	19000	19000	1	0.210		20

L1145436-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1145436-04 10/03/19 16:09 • (DUP) R3457444-4 10/03/19 16:09

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	umhos/cm	umhos/cm		%		%
Specific Conductance	542	545	1	0.552		20

Laboratory Control Sample (LCS)

(LCS) R3457444-2 10/03/19 16:09

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	umhos/cm	umhos/cm	%	%	
Specific Conductance	393	389	99.0	85.0-115	

Method Blank (MB)

(MB) R3457626-1 10/03/19 09:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.0790	1.00
Chloride	U		0.0519	1.00
Fluoride	U		0.00990	0.100
Nitrate	U		0.0227	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L1145726-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1145726-01 10/03/19 13:15 • (DUP) R3457626-3 10/03/19 13:28

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	4.71	4.65	20	1.19	┐	15
Chloride	618	611	20	1.15		15
Fluoride	0.316	0.302	20	4.69	┐	15
Nitrate	12.4	12.3	20	0.803		15
Sulfate	1430	1410	20	1.37		15

L1145756-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1145756-24 10/03/19 17:40 • (DUP) R3457626-6 10/03/19 18:19

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	0.442	0.431	1	2.61	┐	15
Chloride	95.4	93.6	1	1.88		15
Fluoride	0.301	0.298	1	0.935		15
Nitrate	0.433	0.430	1	0.649		15
Sulfate	66.7	65.5	1	1.81		15

Laboratory Control Sample (LCS)

(LCS) R3457626-2 10/03/19 09:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromide	40.0	39.7	99.2	80.0-120	
Chloride	40.0	39.2	97.9	80.0-120	
Fluoride	8.00	7.90	98.8	80.0-120	
Nitrate	8.00	7.98	99.7	80.0-120	



Laboratory Control Sample (LCS)

(LCS) R3457626-2 10/03/19 09:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Sulfate	40.0	39.6	98.9	80.0-120	

L1145744-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1145744-01 10/03/19 14:07 • (MS) R3457626-4 10/03/19 14:21 • (MSD) R3457626-5 10/03/19 14:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Bromide	50.0	ND	50.4	50.1	100	99.6	1	80.0-120			0.774	15
Chloride	50.0	129	173	172	88.7	86.9	1	80.0-120	E	E	0.529	15
Fluoride	5.00	0.110	5.21	5.19	102	102	1	80.0-120			0.364	15
Nitrate	5.00	0.780	5.87	5.82	102	101	1	80.0-120			0.891	15
Sulfate	50.0	44.7	93.3	93.0	97.2	96.7	1	80.0-120			0.262	15

L1145760-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1145760-01 10/03/19 19:50 • (MS) R3457626-7 10/03/19 20:03

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Bromide	50.0	0.275	50.9	101	1	80.0-120	
Chloride	50.0	18.6	68.8	100	1	80.0-120	
Fluoride	5.00	0.0406	5.23	104	1	80.0-120	
Nitrate	5.00	0.104	5.22	102	1	80.0-120	
Sulfate	50.0	18.2	68.3	100	1	80.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3457568-1 10/03/19 23:27

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Barium	U		0.00170	0.00500
Boron	U		0.0126	0.200
Calcium	U		0.0463	1.00
Iron	U		0.0141	0.100
Magnesium	U		0.0111	1.00
Manganese	U		0.00120	0.0100
Potassium	U		0.102	1.00
Selenium	U		0.00740	0.0100
Sodium	0.105	⬇	0.0985	1.00
Strontium	U		0.00170	0.0100

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) R3457568-2 10/03/19 23:29 • (LCSD) R3457568-3 10/03/19 23:31

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 %
Barium	1.00	0.996	0.996	99.6	99.6	80.0-120			0.0207	20
Boron	1.00	0.970	0.952	97.0	95.2	80.0-120			1.93	20
Calcium	10.0	9.62	9.61	96.2	96.1	80.0-120			0.123	20
Iron	10.0	9.75	9.68	97.5	96.8	80.0-120			0.747	20
Magnesium	10.0	9.76	9.62	97.6	96.2	80.0-120			1.44	20
Manganese	1.00	0.966	0.963	96.6	96.3	80.0-120			0.358	20
Potassium	10.0	10.0	9.93	100	99.3	80.0-120			0.690	20
Selenium	1.00	0.953	0.954	95.3	95.4	80.0-120			0.148	20
Sodium	10.0	10.1	10.1	101	101	80.0-120			0.0132	20
Strontium	1.00	0.984	0.977	98.4	97.7	80.0-120			0.718	20

L1144908-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1144908-02 10/03/19 23:34 • (MS) R3457568-5 10/03/19 23:39 • (MSD) R3457568-6 10/03/19 23:42

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 %
Barium	1.00	0.0985	1.08	1.07	97.7	96.9	1	75.0-125			0.740	20
Boron	1.00	ND	1.04	1.03	96.6	95.3	1	75.0-125			1.23	20
Calcium	10.0	128	136	135	79.9	72.2	1	75.0-125		⬇	0.568	20
Iron	10.0	ND	9.65	9.55	95.9	95.0	1	75.0-125			1.01	20
Magnesium	10.0	60.7	68.8	68.7	81.1	80.8	1	75.0-125			0.0536	20
Manganese	1.00	1.61	2.62	2.46	100	84.5	1	75.0-125			6.30	20
Potassium	10.0	1.08	11.1	10.9	99.7	98.5	1	75.0-125			1.09	20



L1144908-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1144908-02 10/03/19 23:34 • (MS) R3457568-5 10/03/19 23:39 • (MSD) R3457568-6 10/03/19 23:42

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Selenium	1.00	ND	0.991	0.985	99.1	98.5	1	75.0-125			0.537	20
Sodium	10.0	58.0	66.1	65.9	81.1	78.7	1	75.0-125			0.362	20
Strontium	1.00	0.150	1.12	1.12	97.3	96.7	1	75.0-125			0.588	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3458190-2 10/05/19 11:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPH (GC/FID) Low Fraction	0.0778	⬇	0.0314	0.100
(S) a,a,a-Trifluorotoluene(FID)	103			78.0-120

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3458190-1 10/05/19 11:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.44	98.9	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			105	78.0-120	

L1145883-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1145883-07 10/05/19 18:37 • (MS) R3458190-3 10/05/19 18:59 • (MSD) R3458190-4 10/05/19 19:21

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 %
TPH (GC/FID) Low Fraction	5.50	ND	5.78	5.71	105	104	1	10.0-160			1.22	22
(S) a,a,a-Trifluorotoluene(FID)					106	106		78.0-120				



Method Blank (MB)

(MB) R3458343-2 10/06/19 19:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPH (GC/FID) Low Fraction	U		0.0314	0.100
(S) a,a,a-Trifluorotoluene(FID)	97.1			78.0-120

Laboratory Control Sample (LCS)

(LCS) R3458343-1 10/06/19 19:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.68	103	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			109	78.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3457731-1 10/04/19 10:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Methane	U		0.00291	0.0100
Ethane	U		0.00407	0.0130
Ethene	U		0.00426	0.0130

L1145599-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1145599-03 10/04/19 11:26 • (DUP) R3457731-2 10/04/19 11:50

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP RPD Limits %
Methane	0.0139	0.0147	1	5.16	20
Ethane	ND	0.000	1	0.000	20
Ethene	ND	0.000	1	0.000	20

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

(LCS) R3457731-3 10/04/19 13:06 • (LCSD) R3457731-4 10/04/19 13:15

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 %
Methane	0.0678	0.0729	0.0710	107	105	85.0-115			2.60	20
Ethane	0.129	0.128	0.130	99.4	101	85.0-115			1.68	20
Ethene	0.127	0.133	0.136	105	107	85.0-115			2.15	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3458182-3 10/05/19 04:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.000331	0.00100
Ethylbenzene	U		0.000384	0.00100
Toluene	U		0.000412	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	104			80.0-120
(S) 4-Bromofluorobenzene	105			77.0-126
(S) 1,2-Dichloroethane-d4	107			70.0-130

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

(LCS) R3458182-1 10/05/19 03:33 • (LCSD) R3458182-2 10/05/19 03:53

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 %
Benzene	0.0250	0.0248	0.0247	99.2	98.8	70.0-123			0.404	20
Ethylbenzene	0.0250	0.0264	0.0265	106	106	79.0-123			0.378	20
Toluene	0.0250	0.0248	0.0247	99.2	98.8	79.0-120			0.404	20
Xylenes, Total	0.0750	0.0809	0.0808	108	108	79.0-123			0.124	20
(S) Toluene-d8				105	104	80.0-120				
(S) 4-Bromofluorobenzene				104	104	77.0-126				
(S) 1,2-Dichloroethane-d4				113	115	70.0-130				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3458266-1 10/06/19 02:42

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
TPH (GC/FID) High Fraction	U		0.0247	0.100
(S) o-Terphenyl	76.5			31.0-160

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3458266-2 10/06/19 03:02 • (LCSD) R3458266-3 10/06/19 03:23

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
TPH (GC/FID) High Fraction	1.50	1.16	1.21	77.3	80.7	50.0-150			4.22	20
(S) o-Terphenyl				92.0	93.0	31.0-160				

L1145696-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1145696-01 10/06/19 11:18 • (MS) R3458266-4 10/06/19 11:38 • (MSD) R3458266-5 10/06/19 11:58

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
TPH (GC/FID) High Fraction	1.43	ND	1.46	1.52	102	106	1	50.0-150			4.03	20
(S) o-Terphenyl					87.9	86.3		31.0-160				



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
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.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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



Pace National 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.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National 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. Pace National performs all testing at our central laboratory.



Entrada Consulting Group

330 Grand Avenue, Unit C
Grand Junction, CO 81501

Billing Information:
OXYGJCO - LARAMIE OIL AND GAS

Pres
Chk

Report to:
~~Robert Stockman~~ **MATT KASTEN**

Email To:
mkasten@entradainc.com

Project KOBE FLANGE - Ditch
Description:

City/State: **DE BEQUE**, CO
Collected:

Phone: 970-901-9007
Fax:

Client Project #

Lab Project #

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Immediately
Packed on Ice N ☐ Y ☒ X

Same Day ☐ Five Day ☐
Next Day ☒ 5 Day (Rad Only) ☐
Two Day ☐ 10 Day (Rad Only) ☐
Three Day ☐

Date Results Needed

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
Kobe Flange - Ditch up	Grab	GW	—	10/2/19	1200	14
Kobe Flange - Ditch Por					1215	1
Kobe Flange - Ditch Down					1225	
Kobe Flange - Ditch Box E					1245	
Kobe Flange - Ditch Box S					1250	✓
KOBE Flange - Ditch END					1310	+

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:
** SEE ATTACHED LIST FOR FULL ANALYTES

Samples returned via:
☐ UPS ☐ FedEx ☐ Courier

Tracking #

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes/No
HCL/MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received:
3.9-2-3.75 24

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 10-03 Time: 8:45

VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

RAD SCREEN: <0.5 mR/hr

If preservation required by Login: Date/Time

Hold: Condition:
NCF / OK

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



L # **L1145752**

A216

Station: OXYGJCO

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Remarks Sample # (lab only)

-01

-02

-03

-04

-05

-06

609 Sample Suite

645752

Bacteria

- IRB - Iron related bacteria
- SRB – Sulfate reducing bacteria
- SYLM – Slime forming bacteria

TPH

- GRO – gasoline range
- DRO – diesel range

BTEX

- Benzene
- Toluene
- Ethylbenzene
- Xylene

Dissolved gases

- Methane
- Ethane
- Propane

Major Anions

- Bromide
- Chloride
- Fluoride
- Sulfate
- Nitrate
- Nitrite as N
- Phosphorus

Major Cations

- Calcium
- Iron
- Magnesium
- Manganese
- Potassium
- Sodium

U145752

Other elements

- Barium
- Boron
- Selenium
- Strontium

Total dissolved solids (TDS)

pH

Specific conductance

Alkalinity (total bicarbonate and carbonate as CaCO3)

Isotope analysis of methane(carbon and hydrogen – 12C, 13C, 1H and 2 H) if methane (RSK 175)
is > 1 mg/l