

Laramie Energy - Grand Junction, CO

Sample Delivery Group: L1862008
Samples Received: 05/22/2025
Project Number: BCU 14L COMPLETIONS
Description: BCU 14L
Site: BCU 14L-2ND
Report To: Matt Kasten
3199 D Road, Building A-2
Grand Junction, CO 81504

Entire Report Reviewed By:



Chris Ward
Project Manager

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Pace Analytical National

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SAMPLE SUMMARY

BCU 14L POR L1862008-01

Collected by: Matt Kasten
 Collected date/time: 05/21/25 14:45
 Received date/time: 05/22/25 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2523744	1	05/28/25 17:09	05/28/25 17:09	MAP	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2522809	1	05/26/25 05:32	06/03/25 18:47	ANW	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2525254	1	05/28/25 11:53	05/28/25 14:22	RJP	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2525263	1	05/28/25 11:54	05/28/25 22:40	KRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2523746	1	05/29/25 13:53	05/29/25 20:54	RLS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2523162	10	05/29/25 15:02	06/06/25 02:58	JDB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2523162	5	05/29/25 15:02	06/06/25 01:40	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D	WG2525810	1	05/26/25 14:05	05/29/25 04:40	JBE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2524355	1	05/26/25 14:05	05/27/25 16:36	WHS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2526211	5	06/01/25 08:33	06/02/25 14:15	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2525282	1	05/29/25 10:03	05/30/25 15:07	VDR	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

CASE NARRATIVE

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.52		1	05/28/2025 17:09	WG2523744



Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		0.200	1	06/03/2025 18:47	WG2522809

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.17		1	05/28/2025 14:22	WG2525254



Sample Narrative:

L1862008-01 WG2525254: 8.17 at 23.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Units	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	2180	umhos/cm		10.0	1	05/28/2025 22:40	WG2525263

Sample Narrative:

L1862008-01 WG2525263: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.295		0.200	1	05/29/2025 20:54	WG2523746

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.40		0.100	5	06/06/2025 01:40	WG2523162
Barium	365		20.0	10	06/06/2025 02:58	WG2523162
Cadmium	0.186		0.100	5	06/06/2025 01:40	WG2523162
Copper	77.2		10.0	5	06/06/2025 01:40	WG2523162
Lead	ND		10.0	5	06/06/2025 01:40	WG2523162
Nickel	32.3		10.0	5	06/06/2025 01:40	WG2523162
Selenium	0.613		0.100	5	06/06/2025 01:40	WG2523162
Silver	ND		0.500	5	06/06/2025 01:40	WG2523162
Zinc	ND		50.0	5	06/06/2025 01:40	WG2523162

Volatile Organic Compounds (GC) by Method 8015D

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	05/29/2025 04:40	WG2525810
(S) a, a, a-Trifluorotoluene(FID)	99.4		77.0-120		05/29/2025 04:40	WG2525810

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00200	1	05/27/2025 16:36	WG2524355
Ethylbenzene	ND		0.0100	1	05/27/2025 16:36	WG2524355
Toluene	ND		0.0100	1	05/27/2025 16:36	WG2524355
1,2,4-Trimethylbenzene	ND		0.00500	1	05/27/2025 16:36	WG2524355
1,3,5-Trimethylbenzene	ND		0.00500	1	05/27/2025 16:36	WG2524355
Xylenes, Total	ND		0.100	1	05/27/2025 16:36	WG2524355
(S) Toluene-d8	105		75.0-131		05/27/2025 16:36	WG2524355
(S) 4-Bromofluorobenzene	94.1		67.0-138		05/27/2025 16:36	WG2524355
(S) 1,2-Dichloroethane-d4	105		70.0-130		05/27/2025 16:36	WG2524355

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	23.3		20.0	5	06/02/2025 14:15	WG2526211
C28-C36 Motor Oil Range	89.4		20.0	5	06/02/2025 14:15	WG2526211
(S) o-Terphenyl	33.3		18.0-148		06/02/2025 14:15	WG2526211

6 Qc

7 Gl

8 Al

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Acenaphthene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Acenaphthylene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Benzo(a)anthracene	ND		0.00600	1	05/30/2025 15:07	WG2525282
Benzo(a)pyrene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Benzo(b)fluoranthene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Benzo(g,h,i)perylene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Benzo(k)fluoranthene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Chrysene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Dibenz(a,h)anthracene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Fluoranthene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Fluorene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Indeno(1,2,3-cd)pyrene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Naphthalene	ND		0.00300	1	05/30/2025 15:07	WG2525282
Phenanthrene	ND		0.0330	1	05/30/2025 15:07	WG2525282
Pyrene	ND		0.0330	1	05/30/2025 15:07	WG2525282
1-Methylnaphthalene	ND		0.00300	1	05/30/2025 15:07	WG2525282
2-Methylnaphthalene	ND		0.0120	1	05/30/2025 15:07	WG2525282
(S) p-Terphenyl-d14	75.6		23.0-120		05/30/2025 15:07	WG2525282
(S) Nitrobenzene-d5	74.3		14.0-149		05/30/2025 15:07	WG2525282
(S) 2-Fluorobiphenyl	78.6		34.0-125		05/30/2025 15:07	WG2525282

9 Sc

Method Blank (MB)

(MB) R4225024-9 06/03/25 21:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	0.217		0.200	0.200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1861977-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1861977-10 06/03/25 17:08 • (DUP) R4225024-6 06/03/25 17:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

L1862010-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1862010-02 06/03/25 19:05 • (DUP) R4225024-7 06/03/25 19:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R4225024-1 06/03/25 14:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	9.66	96.6	80.0-120	

L1861966-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1861966-02 06/03/25 14:54 • (MS) R4225024-2 06/03/25 15:03 • (MSD) R4225024-3 06/03/25 15:12

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	ND	17.8	19.0	89.1	95.1	1	75.0-125			6.53	20

L1861966-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1861966-02 06/03/25 14:54 • (MS) R4225024-4 06/03/25 15:21

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Hexavalent Chromium	651	ND	527	81.0	50	75.0-125	

L1861354-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1861354-01 05/28/25 14:22 • (DUP) R4221870-2 05/28/25 14:22

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.17	8.22	1	0.610		1

Sample Narrative:

OS: 8.17 at 23.5C
 DUP: 8.22 at 23.4C

L1862012-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1862012-01 05/28/25 14:22 • (DUP) R4221870-3 05/28/25 14:22

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.69	8.68	1	0.115		1

Sample Narrative:

OS: 8.69 at 23.1C
 DUP: 8.68 at 23.1C

Laboratory Control Sample (LCS)

(LCS) R4221870-1 05/28/25 14:22

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
su	su		%	%	
pH	10.0	9.97	99.7	99.0-101	

Sample Narrative:

LCS: 9.97 at 23.2C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4222070-1 05/28/25 22:40

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

Sample Narrative:

BLANK: at 25C

L1861364-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1861364-01 05/28/25 22:40 • (DUP) R4222070-3 05/28/25 22:40

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	283	283	1	0.177		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1862008-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1862008-01 05/28/25 22:40 • (DUP) R4222070-4 05/28/25 22:40

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	2180	2190	1	0.137		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4222070-2 05/28/25 22:40

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	581	581	100	90.0-110	

Sample Narrative:

LCS: at 25C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4222797-1 05/29/25 20:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

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

(LCS) R4222797-2 05/29/25 20:20 • (LCSD) R4222797-3 05/29/25 20:22

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 %
Hot Water Sol. Boron	1.00	0.951	0.968	95.1	96.8	80.0-120			1.80	20

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

Method Blank (MB)

(MB) R4226344-1 06/05/25 23:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	0.100
Barium	U		10.0	10.0
Cadmium	U		0.100	0.100
Copper	U		10.0	10.0
Lead	U		10.0	10.0
Nickel	U		10.0	10.0
Selenium	U		0.100	0.100
Silver	U		0.500	0.500
Zinc	U		50.0	50.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS)

(LCS) R4226344-2 06/05/25 23:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	100	100	80.0-120	
Barium	100	90.2	90.2	80.0-120	
Cadmium	100	102	102	80.0-120	
Copper	100	103	103	80.0-120	
Lead	100	99.3	99.3	80.0-120	
Nickel	100	105	105	80.0-120	
Selenium	100	97.8	97.8	80.0-120	
Silver	20.0	19.5	97.5	80.0-120	
Zinc	100	101	101	80.0-120	

⁷Gl

⁸Al

⁹Sc

L1861472-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1861472-03 06/05/25 23:24 • (MS) R4226344-5 06/05/25 23:34 • (MSD) R4226344-6 06/05/25 23:38

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	4.81	100	102	95.3	96.8	5	75.0-125			1.46	20
Barium	100	180	277	288	97.5	108	5	75.0-125			3.63	20
Cadmium	100	2.10	99.3	96.9	97.2	94.8	5	75.0-125			2.42	20
Copper	100	44.2	142	164	97.9	120	5	75.0-125			14.2	20
Lead	100	393	495	549	102	156	5	75.0-125		J5	10.3	20
Nickel	100	ND	105	104	97.4	96.9	5	75.0-125			0.487	20
Selenium	100	0.357	95.1	93.0	94.8	92.7	5	75.0-125			2.24	20
Silver	20.0	ND	19.4	19.3	95.7	95.2	5	75.0-125			0.458	20
Zinc	100	367	439	880	71.7	513	5	75.0-125	J6	J3 J5	66.9	20

Method Blank (MB)

(MB) R4222371-3 05/29/25 00:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0800	0.100
^(S) a,a,a-Trifluorotoluene(FID)	102			77.0-120

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R4222371-1 05/28/25 23:02 • (LCSD) R4222371-2 05/28/25 23:25

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	5.00	5.35	4.83	107	96.6	72.0-127			10.2	20
^(S) a,a,a-Trifluorotoluene(FID)				113	111	77.0-120				

5 Sr

6 Qc

7 Gl

L1862161-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1862161-06 05/29/25 09:28 • (MS) R4222371-4 05/29/25 10:40 • (MSD) R4222371-5 05/29/25 11:04

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	5.00	0.128	3.81	3.36	73.6	65.3	1	10.0-151			12.6	28
^(S) a,a,a-Trifluorotoluene(FID)					106	109		77.0-120				

8 Al

9 Sc

Method Blank (MB)

(MB) R4221378-2 05/27/25 10:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Benzene	U		0.00200	0.00200
Ethylbenzene	U		0.0100	0.0100
Toluene	U		0.0100	0.0100
1,2,4-Trimethylbenzene	U		0.00500	0.00500
1,3,5-Trimethylbenzene	U		0.00500	0.00500
Xylenes, Total	U		0.100	0.100
(S) Toluene-d8	103			75.0-131
(S) 4-Bromofluorobenzene	92.6			67.0-138
(S) 1,2-Dichloroethane-d4	103			70.0-130

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

(LCS) R4221378-1 05/27/25 09:22 • (LCSD) R4221378-3 05/27/25 12:41

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Benzene	0.125	0.102	0.104	81.6	83.2	70.0-123			1.94	20
Ethylbenzene	0.125	0.102	0.102	81.6	81.6	74.0-126			0.000	20
Toluene	0.125	0.109	0.110	87.2	88.0	75.0-121			0.913	20
1,2,4-Trimethylbenzene	0.125	0.119	0.104	95.2	83.2	70.0-126			13.5	20
1,3,5-Trimethylbenzene	0.125	0.123	0.105	98.4	84.0	73.0-127			15.8	20
Xylenes, Total	0.375	0.321	0.318	85.6	84.8	72.0-127			0.939	20
(S) Toluene-d8				102	101	75.0-131				
(S) 4-Bromofluorobenzene				94.4	97.1	67.0-138				
(S) 1,2-Dichloroethane-d4				112	110	70.0-130				

L1861984-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1861984-06 05/27/25 15:19 • (MS) R4221378-4 05/27/25 20:07 • (MSD) R4221378-5 05/27/25 20:26

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Benzene	0.125	ND	0.107	0.112	85.6	89.6	1	10.0-149			4.57	37
Ethylbenzene	0.125	ND	0.102	0.112	81.6	89.6	1	10.0-160			9.35	38
Toluene	0.125	ND	0.107	0.121	85.6	96.8	1	10.0-156			12.3	38
1,2,4-Trimethylbenzene	0.125	ND	0.109	0.112	87.2	89.6	1	10.0-160			2.71	36
1,3,5-Trimethylbenzene	0.125	ND	0.109	0.114	87.2	91.2	1	10.0-160			4.48	38
Xylenes, Total	0.375	ND	0.320	0.342	85.3	91.2	1	10.0-160			6.65	38
(S) Toluene-d8					97.1	99.5		75.0-131				
(S) 4-Bromofluorobenzene					101	96.2		67.0-138				
(S) 1,2-Dichloroethane-d4					110	107		70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4224171-1 06/02/25 09:28

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	61.7			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4224171-2 06/02/25 09:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.6	67.2	50.0-150	
(S) o-Terphenyl			55.4	18.0-148	

L1862005-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1862005-01 06/02/25 11:37 • (MS) R4224171-3 06/02/25 11:51 • (MSD) R4224171-4 06/02/25 12:06

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 %
C10-C28 Diesel Range	49.5	36.8	75.3	71.2	77.8	69.1	1	50.0-150			5.60	20
(S) o-Terphenyl					60.3	58.1		18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4223274-2 05/30/25 09:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.0330	0.0330
Acenaphthene	U		0.0330	0.0330
Acenaphthylene	U		0.0330	0.0330
Benzo(a)anthracene	U		0.00600	0.00600
Benzo(a)pyrene	U		0.0330	0.0330
Benzo(b)fluoranthene	U		0.0330	0.0330
Benzo(g,h,i)perylene	U		0.0330	0.0330
Benzo(k)fluoranthene	U		0.0330	0.0330
Chrysene	U		0.0330	0.0330
Dibenz(a,h)anthracene	U		0.0330	0.0330
Fluoranthene	U		0.0330	0.0330
Fluorene	U		0.0330	0.0330
Indeno(1,2,3-cd)pyrene	U		0.0330	0.0330
Naphthalene	U		0.00300	0.00300
Phenanthrene	U		0.0330	0.0330
Pyrene	U		0.0330	0.0330
1-Methylnaphthalene	U		0.00300	0.00300
2-Methylnaphthalene	U		0.0120	0.0120
<i>(S) p-Terphenyl-d14</i>	105			23.0-120
<i>(S) Nitrobenzene-d5</i>	93.6			14.0-149
<i>(S) 2-Fluorobiphenyl</i>	99.4			34.0-125

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS)

(LCS) R4223274-1 05/30/25 09:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0604	75.5	50.0-126	
Acenaphthene	0.0800	0.0626	78.3	50.0-120	
Acenaphthylene	0.0800	0.0609	76.1	50.0-120	
Benzo(a)anthracene	0.0800	0.0605	75.6	45.0-120	
Benzo(a)pyrene	0.0800	0.0517	64.6	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0733	91.6	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0763	95.4	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0691	86.4	49.0-125	
Chrysene	0.0800	0.0688	86.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0762	95.3	47.0-125	
Fluoranthene	0.0800	0.0658	82.3	49.0-129	
Fluorene	0.0800	0.0678	84.8	49.0-120	

Laboratory Control Sample (LCS)

(LCS) R4223274-1 05/30/25 09:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Indeno(1,2,3-cd)pyrene	0.0800	0.0673	84.1	46.0-125	
Naphthalene	0.0800	0.0652	81.5	50.0-120	
Phenanthrene	0.0800	0.0666	83.3	47.0-120	
Pyrene	0.0800	0.0695	86.9	43.0-123	
1-Methylnaphthalene	0.0800	0.0663	82.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0648	81.0	50.0-120	
<i>(S) p-Terphenyl-d14</i>			81.1	23.0-120	
<i>(S) Nitrobenzene-d5</i>			81.3	14.0-149	
<i>(S) 2-Fluorobiphenyl</i>			81.5	34.0-125	

L1862005-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1862005-01 05/30/25 10:05 • (MS) R4223274-3 05/30/25 10:23 • (MSD) R4223274-4 05/30/25 10:41

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	0.0780	ND	0.0611	0.0543	78.3	68.9	1	10.0-145			11.8	30
Acenaphthene	0.0780	ND	0.0598	0.0540	76.7	68.5	1	14.0-127			10.2	27
Acenaphthylene	0.0780	ND	0.0590	0.0537	75.6	68.1	1	21.0-124			9.41	25
Benzo(a)anthracene	0.0780	ND	0.0645	0.0578	82.7	73.4	1	10.0-139			11.0	30
Benzo(a)pyrene	0.0780	ND	0.0637	0.0569	81.7	72.2	1	10.0-141			11.3	31
Benzo(b)fluoranthene	0.0780	ND	0.0692	0.0621	88.7	78.8	1	10.0-140			10.8	36
Benzo(g,h,i)perylene	0.0780	ND	0.0673	0.0612	86.3	77.7	1	10.0-140			9.49	33
Benzo(k)fluoranthene	0.0780	ND	0.0685	0.0613	87.8	77.8	1	10.0-137			11.1	31
Chrysene	0.0780	ND	0.0673	0.0609	86.3	77.3	1	10.0-145			9.98	30
Dibenz(a,h)anthracene	0.0780	ND	0.0708	0.0635	90.8	80.6	1	10.0-132			10.9	31
Fluoranthene	0.0780	ND	0.0694	0.0617	89.0	78.3	1	10.0-153			11.7	33
Fluorene	0.0780	ND	0.0663	0.0594	85.0	75.4	1	11.0-130			11.0	29
Indeno(1,2,3-cd)pyrene	0.0780	ND	0.0634	0.0570	81.3	72.3	1	10.0-137			10.6	32
Naphthalene	0.0780	ND	0.0639	0.0576	81.9	73.1	1	10.0-135			10.4	27
Phenanthrene	0.0780	ND	0.0664	0.0593	85.1	75.3	1	10.0-144			11.3	31
Pyrene	0.0780	ND	0.0636	0.0580	81.5	73.6	1	10.0-148			9.21	35
1-Methylnaphthalene	0.0780	ND	0.0651	0.0593	83.5	75.3	1	10.0-142			9.32	28
2-Methylnaphthalene	0.0780	ND	0.0635	0.0573	81.4	72.7	1	10.0-137			10.3	28
<i>(S) p-Terphenyl-d14</i>					87.5	77.7		23.0-120				
<i>(S) Nitrobenzene-d5</i>					92.0	82.5		14.0-149				
<i>(S) 2-Fluorobiphenyl</i>					92.1	81.2		34.0-125				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

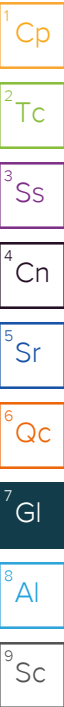
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
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}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
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

* 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 Analytical.

