

Energy and Carbon Management Commission

Sample Delivery Group: L1792822
Samples Received: 10/25/2024
Project Number: KPK
Description: Facility 3@Rasmussen

Report To: Laurel Anderson
4300 Cherry Creek Drive South.
Denver, CO 80246

Entire Report Reviewed By:



Chris Ward
Project Manager

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

SAMPLE SUMMARY

CSP-01 L1792822-01 Solid

Collected by
Laurel Anderson

Collected date/time
10/23/24 15:42

Received date/time
10/25/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2397270	1	11/10/24 06:09	11/10/24 06:09	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2392631	1	10/30/24 22:22	10/31/24 07:21	EKB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2399095	1	11/10/24 12:00	11/11/24 11:36	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2399096	1	11/10/24 12:04	11/11/24 15:12	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2391700	1	11/05/24 12:10	11/05/24 19:51	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2390477	5	10/31/24 17:10	11/01/24 17:58	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2391926	1	10/29/24 10:42	10/30/24 13:38	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2393583	1	10/29/24 10:42	11/04/24 21:37	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2393469	1	11/01/24 08:47	11/01/24 17:49	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2393740	1	11/01/24 23:09	11/02/24 18:29	JDG	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

ACCOUNT:

Energy and Carbon Management Commission

PROJECT:

KPK

SDG:

L1792822

DATE/TIME:

11/12/24 13:05

PAGE:

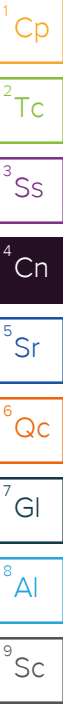
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CASE NARRATIVE

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



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.58		1	11/10/2024 06:09	WG2397270

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	10/31/2024 07:21	WG2392631

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	6.72	T8	1	11/11/2024 11:36	WG2399095

Sample Narrative:
L1792822-01 WG2399095: 6.72 at 19.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Units	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	5420	umhos/cm		10.0	1	11/11/2024 15:12	WG2399096

Sample Narrative:
L1792822-01 WG2399096: 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	0.560		0.200	1	11/05/2024 19:51	WG2391700

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.01		1.00	5	11/01/2024 17:58	WG2390477
Barium	138		2.50	5	11/01/2024 17:58	WG2390477
Cadmium	ND		1.00	5	11/01/2024 17:58	WG2390477
Copper	17.9		5.00	5	11/01/2024 17:58	WG2390477
Lead	16.5		2.00	5	11/01/2024 17:58	WG2390477
Nickel	8.73		2.50	5	11/01/2024 17:58	WG2390477
Selenium	ND		2.50	5	11/01/2024 17:58	WG2390477
Silver	ND		0.500	5	11/01/2024 17:58	WG2390477
Zinc	73.3		25.0	5	11/01/2024 17:58	WG2390477

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/30/2024 13:38	WG2391926
(S) a,a,a-Trifluorotoluene(FID)	96.3		77.0-120		10/30/2024 13:38	WG2391926

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/04/2024 21:37	WG2393583
Ethylbenzene	ND		0.00250	1	11/04/2024 21:37	WG2393583
Toluene	ND		0.00500	1	11/04/2024 21:37	WG2393583
1,2,4-Trimethylbenzene	ND		0.00500	1	11/04/2024 21:37	WG2393583
1,3,5-Trimethylbenzene	ND		0.00500	1	11/04/2024 21:37	WG2393583
Xylenes, Total	ND		0.00650	1	11/04/2024 21:37	WG2393583
(S) Toluene-d8	115		75.0-131		11/04/2024 21:37	WG2393583
(S) 4-Bromofluorobenzene	93.8		67.0-138		11/04/2024 21:37	WG2393583
(S) 1,2-Dichloroethane-d4	93.4		70.0-130		11/04/2024 21:37	WG2393583

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	ND		4.00	1	11/01/2024 17:49	WG2393469
C28-C36 Motor Oil Range	6.10		4.00	1	11/01/2024 17:49	WG2393469
(S) o-Terphenyl	68.6		18.0-148		11/01/2024 17:49	WG2393469

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Acenaphthene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Acenaphthylene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Benzo(a)anthracene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Benzo(a)pyrene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Benzo(b)fluoranthene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Benzo(g,h,i)perylene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Benzo(k)fluoranthene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Chrysene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Dibenz(a,h)anthracene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Fluoranthene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Fluorene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Naphthalene	ND		0.0200	1	11/02/2024 18:29	WG2393740
Phenanthrene	ND		0.00600	1	11/02/2024 18:29	WG2393740
Pyrene	ND		0.00600	1	11/02/2024 18:29	WG2393740
1-Methylnaphthalene	ND		0.0200	1	11/02/2024 18:29	WG2393740
2-Methylnaphthalene	ND		0.0200	1	11/02/2024 18:29	WG2393740
2-Chloronaphthalene	ND		0.0200	1	11/02/2024 18:29	WG2393740
(S) p-Terphenyl-d14	136	J1	23.0-120		11/02/2024 18:29	WG2393740
(S) Nitrobenzene-d5	103		14.0-149		11/02/2024 18:29	WG2393740
(S) 2-Fluorobiphenyl	129	J1	34.0-125		11/02/2024 18:29	WG2393740

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4140154-1 10/31/24 07:06

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1793989-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1793989-01 10/31/24 08:29 • (DUP) R4140154-3 10/31/24 08:35

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

L1793989-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1793989-07 10/31/24 09:49 • (DUP) R4140154-8 10/31/24 09:56

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

Laboratory Control Sample (LCS)

(LCS) R4140154-2 10/31/24 07:15

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.5	105	80.0-120	

L1793989-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1793989-04 10/31/24 08:54 • (MS) R4140154-5 10/31/24 09:06 • (MSD) R4140154-6 10/31/24 09:12

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	19.7	18.8	98.7	93.8	1	75.0-125			5.07	20

L1793989-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1793989-04 10/31/24 08:54 • (MS) R4140154-7 10/31/24 09:18

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	636	ND	546	85.8	50	75.0-125	



L1793121-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1793121-02 11/11/24 11:36 • (DUP) R4144435-2 11/11/24 11:36

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.54	7.54	1	0.000		1

Sample Narrative:
OS: 7.54 at 19.6C
DUP: 7.54 at 19.6C

L1794398-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1794398-04 11/11/24 11:36 • (DUP) R4144435-3 11/11/24 11:36

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.47	8.43	1	0.473		1

Sample Narrative:
OS: 8.47 at 19.2C
DUP: 8.43 at 19.4C

Laboratory Control Sample (LCS)

(LCS) R4144435-1 11/11/24 11:36

	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 19.6C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4144608-1 11/11/24 15:12

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

L1793121-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1793121-03 11/11/24 15:12 • (DUP) R4144608-3 11/11/24 15:12

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	2610	2590	1	0.615		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1793187-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1793187-02 11/11/24 15:12 • (DUP) R4144608-4 11/11/24 15:12

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	257	257	1	0.0779		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4144608-2 11/11/24 15:12

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	733	783	107	85.0-115	

Sample Narrative:

LCS: at 25C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R4142450-1 11/05/24 19:46

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) R4142450-2 11/05/24 19:48 • (LCSD) R4142450-3 11/05/24 19:49

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	1.07	1.08	107	108	80.0-120			0.372	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R4141013-3 11/01/24 17:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	0.354	J	0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R4141013-4 11/01/24 17:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	98.4	98.4	80.0-120	
Barium	100	98.8	98.8	80.0-120	
Cadmium	100	95.8	95.8	80.0-120	
Copper	100	94.5	94.5	80.0-120	
Lead	100	94.4	94.4	80.0-120	
Nickel	100	101	101	80.0-120	
Selenium	100	95.3	95.3	80.0-120	
Silver	20.0	19.7	98.7	80.0-120	
Zinc	100	97.8	97.8	80.0-120	

L1790614-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1790614-04 11/01/24 17:10 • (MS) R4141013-7 11/01/24 17:20 • (MSD) R4141013-8 11/01/24 17:24

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	99.8	31.9	138	131	107	99.1	5	75.0-125			5.57	20
Barium	99.8	57.1	175	157	118	99.6	5	75.0-125			11.2	20
Cadmium	99.8	ND	105	101	104	101	5	75.0-125			3.51	20
Copper	99.8	132	283	221	151	89.1	5	75.0-125	E J5	E J3	24.6	20
Lead	99.8	41.7	210	142	168	100	5	75.0-125	J5	J3	38.4	20
Nickel	99.8	9.49	120	118	111	109	5	75.0-125			1.94	20
Selenium	99.8	ND	111	104	110	104	5	75.0-125			5.91	20
Silver	20.0	ND	21.6	20.7	108	104	5	75.0-125			3.85	20
Zinc	99.8	132	295	220	163	87.6	5	75.0-125	J5	J3	29.2	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4140922-4 10/30/24 07:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	101			77.0-120

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

(LCS) R4140922-2 10/30/24 06:22 • (LCSD) R4140922-3 10/30/24 06:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.00	6.04	5.99	121	120	72.0-127			0.831	20
(S) a,a,a-Trifluorotoluene(FID)				101	100	77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4142679-2 11/04/24 15:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	0.00232	U	0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	114			75.0-131
(S) 4-Bromofluorobenzene	97.6			67.0-138
(S) 1,2-Dichloroethane-d4	96.1			70.0-130

Laboratory Control Sample (LCS)

(LCS) R4142679-1 11/04/24 14:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.122	97.6	70.0-123	
Toluene	0.125	0.138	110	75.0-121	
Ethylbenzene	0.125	0.128	102	74.0-126	
Xylenes, Total	0.375	0.430	115	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.147	118	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.145	116	73.0-127	
(S) Toluene-d8			108	75.0-131	
(S) 4-Bromofluorobenzene			98.9	67.0-138	
(S) 1,2-Dichloroethane-d4			104	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4141133-1 11/01/24 17:00

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	77.6			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4141133-2 11/01/24 17:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	39.7	79.4	50.0-150	
(S) o-Terphenyl			83.5	18.0-148	

L1792896-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1792896-02 11/01/24 17:00 • (MS) R4141133-3 11/01/24 17:12 • (MSD) R4141133-4 11/01/24 17:25

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	48.9	ND	37.2	34.8	71.1	66.2	1	50.0-150			6.67	20
(S) o-Terphenyl					57.1	54.4		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) R4141836-2 11/02/24 17:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) p-Terphenyl-d14	149	J1		23.0-120
(S) Nitrobenzene-d5	110			14.0-149
(S) 2-Fluorobiphenyl	135	J1		34.0-125

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4141836-1 11/02/24 17:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0785	98.1	50.0-126	
Acenaphthene	0.0800	0.0790	98.8	50.0-120	
Acenaphthylene	0.0800	0.0803	100	50.0-120	
Benzo(a)anthracene	0.0800	0.0781	97.6	45.0-120	
Benzo(a)pyrene	0.0800	0.0780	97.5	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0847	106	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0878	110	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0891	111	49.0-125	
Chrysene	0.0800	0.0854	107	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0857	107	47.0-125	
Fluoranthene	0.0800	0.0851	106	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R4141836-1 11/02/24 17:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0846	106	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0813	102	46.0-125	
Naphthalene	0.0800	0.0799	99.9	50.0-120	
Phenanthrene	0.0800	0.0809	101	47.0-120	
Pyrene	0.0800	0.0839	105	43.0-123	
1-Methylnaphthalene	0.0800	0.0858	107	51.0-121	
2-Methylnaphthalene	0.0800	0.0829	104	50.0-120	
2-Chloronaphthalene	0.0800	0.0848	106	50.0-120	
(S) p-Terphenyl-d14			155	23.0-120	J1
(S) Nitrobenzene-d5			124	14.0-149	
(S) 2-Fluorobiphenyl			149	34.0-125	J1

L1792781-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1792781-04 11/02/24 22:48 • (MS) R4141836-3 11/02/24 23:05 • (MSD) R4141836-4 11/02/24 23:22

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	0.0772	ND	0.0555	0.0618	71.9	79.2	1	10.0-145			10.7	30
Acenaphthene	0.0772	ND	0.0566	0.0627	73.3	80.4	1	14.0-127			10.2	27
Acenaphthylene	0.0772	ND	0.0598	0.0660	77.5	84.6	1	21.0-124			9.86	25
Benzo(a)anthracene	0.0772	ND	0.0629	0.0677	76.8	82.2	1	10.0-139			7.35	30
Benzo(a)pyrene	0.0772	0.00641	0.0651	0.0711	76.0	82.9	1	10.0-141			8.81	31
Benzo(b)fluoranthene	0.0772	0.00992	0.0700	0.0743	77.8	82.5	1	10.0-140			5.96	36
Benzo(g,h,i)perylene	0.0772	0.0104	0.0695	0.0754	76.6	83.3	1	10.0-140			8.14	33
Benzo(k)fluoranthene	0.0772	ND	0.0623	0.0690	77.3	85.1	1	10.0-137			10.2	31
Chrysene	0.0772	0.00724	0.0785	0.0768	92.3	89.2	1	10.0-145			2.19	30
Dibenz(a,h)anthracene	0.0772	ND	0.0582	0.0675	75.4	86.5	1	10.0-132			14.8	31
Fluoranthene	0.0772	0.0162	0.100	0.0849	109	88.1	1	10.0-153			16.3	33
Fluorene	0.0772	ND	0.0610	0.0682	79.0	87.4	1	11.0-130			11.1	29
Indeno(1,2,3-cd)pyrene	0.0772	0.00654	0.0632	0.0686	73.4	79.6	1	10.0-137			8.19	32
Naphthalene	0.0772	ND	0.0585	0.0645	75.8	82.7	1	10.0-135			9.76	27
Phenanthrene	0.0772	ND	0.0676	0.0718	79.9	84.5	1	10.0-144			6.03	31
Pyrene	0.0772	0.0162	0.0899	0.0813	95.5	83.5	1	10.0-148			10.0	35
1-Methylnaphthalene	0.0772	ND	0.0610	0.0693	79.0	88.8	1	10.0-142			12.7	28
2-Methylnaphthalene	0.0772	ND	0.0589	0.0666	76.3	85.4	1	10.0-137			12.3	28
2-Chloronaphthalene	0.0772	ND	0.0593	0.0662	76.8	84.9	1	29.0-120			11.0	24
(S) p-Terphenyl-d14					150	114		23.0-120	J1			
(S) Nitrobenzene-d5					110	88.1		14.0-149				
(S) 2-Fluorobiphenyl					133	112		34.0-125	J1			

1Cp

2Tc

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GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

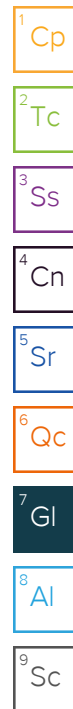
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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
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.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
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.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

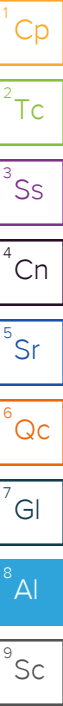
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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.



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