

July 29, 2024

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Utah Gas Corporation

Sample Delivery Group: L1755587
Samples Received: 07/11/2024
Project Number:
Description: Hill 9-31 Pipeline Leak
Site: HILL 9-31
Report To: Ronnie Plummer
1125 Escalante Drive
Rangely, CO 81648

Entire Report Reviewed By:



Shane Gambill
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.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

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⁸ Al

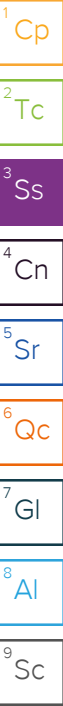
⁹ Sc

SAMPLE SUMMARY

PIPELINE LEAK N1 L1755587-01 Solid

Collected by Dana P
Collected date/time 07/08/24 13:30
Received date/time 07/11/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG2321839	1	07/23/24 09:51	07/23/24 20:30	VSS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2323690	1.01	07/15/24 17:28	07/16/24 14:44	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2323457	1	07/15/24 17:28	07/16/24 03:51	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2324411	1	07/21/24 20:27	07/22/24 17:58	JSS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2324417	1	07/18/24 15:03	07/19/24 05:05	EPF	Mt. Juliet, TN
Subcontracted Analyses	WG2321861	1	07/26/24 00:00	07/26/24 00:00	-	Minneapolis, MN 55414



PIPELINE LEAK S1 L1755587-02 Solid

Collected by Dana P
Collected date/time 07/08/24 13:40
Received date/time 07/11/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG2321839	1	07/23/24 09:51	07/23/24 20:39	VSS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2323690	1	07/15/24 17:28	07/16/24 15:06	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2325895	1.01	07/15/24 17:28	07/19/24 19:06	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2324411	5	07/21/24 20:27	07/23/24 02:42	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2324417	1	07/18/24 15:03	07/19/24 05:23	EPF	Mt. Juliet, TN
Subcontracted Analyses	WG2321861	1	07/26/24 00:00	07/26/24 00:00	-	Minneapolis, MN 55414

PIPELINE LEAK E1 L1755587-03 Solid

Collected by Dana P
Collected date/time 07/08/24 13:50
Received date/time 07/11/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG2321839	1	07/23/24 09:51	07/23/24 20:48	VSS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2323690	1	07/15/24 17:28	07/16/24 15:28	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2325895	1	07/15/24 17:28	07/19/24 19:28	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2324411	1	07/21/24 20:27	07/22/24 17:45	JSS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2324417	1	07/18/24 15:03	07/19/24 05:40	EPF	Mt. Juliet, TN
Subcontracted Analyses	WG2321861	1	07/26/24 00:00	07/26/24 00:00	-	Minneapolis, MN 55414

PIPELINE LEAK W1 L1755587-04 Solid

Collected by Dana P
Collected date/time 07/08/24 14:00
Received date/time 07/11/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG2321839	1	07/23/24 09:51	07/23/24 20:57	VSS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2323690	1.01	07/15/24 17:28	07/16/24 15:50	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2325895	1	07/15/24 17:28	07/19/24 19:49	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2324412	5	07/21/24 20:26	07/22/24 22:20	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2324417	1	07/18/24 15:03	07/19/24 05:57	EPF	Mt. Juliet, TN
Subcontracted Analyses	WG2321861	1	07/26/24 00:00	07/26/24 00:00	-	Minneapolis, MN 55414

PIPELINE LEAK BOT L1755587-05 Solid

Collected by Dana P
Collected date/time 07/08/24 14:10
Received date/time 07/11/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG2321833	1	07/23/24 09:45	07/23/24 22:31	VSS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2323690	1	07/15/24 17:28	07/16/24 16:12	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2325895	1	07/15/24 17:28	07/19/24 20:11	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2324412	1	07/21/24 20:26	07/22/24 20:49	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2324417	1	07/18/24 15:03	07/19/24 06:14	EPF	Mt. Juliet, TN

SAMPLE SUMMARY

PIPELINE LEAK BOT L1755587-05 Solid

Collected by
Dana P

Collected date/time
07/08/24 14:10

Received date/time
07/11/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2321861	1	07/26/24 00:00	07/26/24 00:00	-	Minneapolis, MN 55414

¹Cp ${}^2\text{Tc}$ 3S_s ${}^4\text{Cn}$ ${}^5\text{Sr}$

6 Qc

 ${}^7\text{Gf}$ ${}^8\text{Al}$ ${}^9\text{Sc}$

CASE NARRATIVE

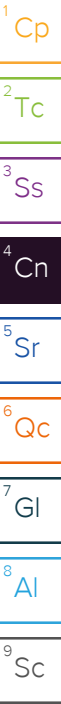
All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples 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.



Shane Gambill
Project Manager

Project Narrative

L1755587 -01, -02, -03, -04, -05 contains subout data that is included after the chain of custody.



PIPELINE LEAK N1

Collected date/time: 07/08/24 13:30

SAMPLE RESULTS - 01

L1755587

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/23/2024 20:30	WG2321839

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.683		0.0219	0.101	1.01	07/16/2024 14:44	WG2323690
(S) a,a,a-Trifluorotoluene(FID)	97.5			77.0-120		07/16/2024 14:44	WG2323690

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	07/16/2024 03:51	WG2323457
Toluene	U		0.00130	0.00500	1	07/16/2024 03:51	WG2323457
Ethylbenzene	U		0.000737	0.00250	1	07/16/2024 03:51	WG2323457
Xylenes, Total	U		0.000880	0.00650	1	07/16/2024 03:51	WG2323457
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/16/2024 03:51	WG2323457
1,3,5-Trimethylbenzene	0.0117		0.00200	0.00500	1	07/16/2024 03:51	WG2323457
(S) Toluene-d8	98.1			75.0-131		07/16/2024 03:51	WG2323457
(S) 4-Bromofluorobenzene	104			67.0-138		07/16/2024 03:51	WG2323457
(S) 1,2-Dichloroethane-d4	98.7			70.0-130		07/16/2024 03:51	WG2323457

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	51.7		1.61	4.00	1	07/22/2024 17:58	WG2324411
C28-C36 Motor Oil Range	58.3		0.274	4.00	1	07/22/2024 17:58	WG2324411
(S) o-Terphenyl	66.6			18.0-148		07/22/2024 17:58	WG2324411

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	07/19/2024 05:05	WG2324417
Acenaphthene	U		0.00209	0.00600	1	07/19/2024 05:05	WG2324417
Acenaphthylene	U		0.00216	0.00600	1	07/19/2024 05:05	WG2324417
Benzo(a)anthracene	U		0.00173	0.00600	1	07/19/2024 05:05	WG2324417
Benzo(a)pyrene	U		0.00179	0.00600	1	07/19/2024 05:05	WG2324417
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/19/2024 05:05	WG2324417
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	07/19/2024 05:05	WG2324417
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/19/2024 05:05	WG2324417
Chrysene	U		0.00232	0.00600	1	07/19/2024 05:05	WG2324417
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/19/2024 05:05	WG2324417
Fluoranthene	U		0.00227	0.00600	1	07/19/2024 05:05	WG2324417
Fluorene	U		0.00205	0.00600	1	07/19/2024 05:05	WG2324417
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/19/2024 05:05	WG2324417
Naphthalene	U		0.00408	0.0200	1	07/19/2024 05:05	WG2324417
Phenanthrene	U		0.00231	0.00600	1	07/19/2024 05:05	WG2324417
Pyrene	U		0.00200	0.00600	1	07/19/2024 05:05	WG2324417
1-Methylnaphthalene	U		0.00449	0.0200	1	07/19/2024 05:05	WG2324417
2-Methylnaphthalene	U		0.00427	0.0200	1	07/19/2024 05:05	WG2324417
2-Chloronaphthalene	U		0.00466	0.0200	1	07/19/2024 05:05	WG2324417
(S) p-Terphenyl-d14	74.4			23.0-120		07/19/2024 05:05	WG2324417
(S) Nitrobenzene-d5	51.1			14.0-149		07/19/2024 05:05	WG2324417
(S) 2-Fluorobiphenyl	59.6			34.0-125		07/19/2024 05:05	WG2324417

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/23/2024 20:39	WG2321839

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.153		0.0217	0.100	1	07/16/2024 15:06	WG2323690
(S) a,a,a-Trifluorotoluene(FID)	98.9			77.0-120		07/16/2024 15:06	WG2323690

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000606	J	0.000472	0.00101	1.01	07/19/2024 19:06	WG2325895
Toluene	0.00222	J	0.00131	0.00505	1.01	07/19/2024 19:06	WG2325895
Ethylbenzene	U		0.000744	0.00253	1.01	07/19/2024 19:06	WG2325895
Xylenes, Total	0.00174	J	0.000889	0.00656	1.01	07/19/2024 19:06	WG2325895
1,2,4-Trimethylbenzene	U		0.00160	0.00505	1.01	07/19/2024 19:06	WG2325895
1,3,5-Trimethylbenzene	0.0151		0.00202	0.00505	1.01	07/19/2024 19:06	WG2325895
(S) Toluene-d8	99.2			75.0-131		07/19/2024 19:06	WG2325895
(S) 4-Bromofluorobenzene	91.3			67.0-138		07/19/2024 19:06	WG2325895
(S) 1,2-Dichloroethane-d4	76.8			70.0-130		07/19/2024 19:06	WG2325895

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	1060		8.05	20.0	5	07/23/2024 02:42	WG2324411
C28-C36 Motor Oil Range	438		1.37	20.0	5	07/23/2024 02:42	WG2324411
(S) o-Terphenyl	240	J1		18.0-148		07/23/2024 02:42	WG2324411

Sample Narrative:

L1755587-02 WG2324411: Surrogate failure due to matrix interference

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0227		0.00230	0.00600	1	07/19/2024 05:23	WG2324417
Acenaphthene	0.0237		0.00209	0.00600	1	07/19/2024 05:23	WG2324417
Acenaphthylene	U		0.00216	0.00600	1	07/19/2024 05:23	WG2324417
Benzo(a)anthracene	0.0461		0.00173	0.00600	1	07/19/2024 05:23	WG2324417
Benzo(a)pyrene	0.0334		0.00179	0.00600	1	07/19/2024 05:23	WG2324417
Benzo(b)fluoranthene	0.0422		0.00153	0.00600	1	07/19/2024 05:23	WG2324417
Benzo(g,h,i)perylene	0.0197		0.00177	0.00600	1	07/19/2024 05:23	WG2324417
Benzo(k)fluoranthene	0.0170		0.00215	0.00600	1	07/19/2024 05:23	WG2324417
Chrysene	0.0393		0.00232	0.00600	1	07/19/2024 05:23	WG2324417
Dibenz(a,h)anthracene	0.00399	J	0.00172	0.00600	1	07/19/2024 05:23	WG2324417
Fluoranthene	0.125		0.00227	0.00600	1	07/19/2024 05:23	WG2324417
Fluorene	0.0140		0.00205	0.00600	1	07/19/2024 05:23	WG2324417
Indeno(1,2,3-cd)pyrene	0.0183		0.00181	0.00600	1	07/19/2024 05:23	WG2324417
Naphthalene	U		0.00408	0.0200	1	07/19/2024 05:23	WG2324417
Phenanthrene	0.126		0.00231	0.00600	1	07/19/2024 05:23	WG2324417
Pyrene	0.115		0.00200	0.00600	1	07/19/2024 05:23	WG2324417
1-Methylnaphthalene	0.0178	J	0.00449	0.0200	1	07/19/2024 05:23	WG2324417
2-Methylnaphthalene	0.00750	J	0.00427	0.0200	1	07/19/2024 05:23	WG2324417
2-Chloronaphthalene	U		0.00466	0.0200	1	07/19/2024 05:23	WG2324417

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	84.2			23.0-120		07/19/2024 05:23	WG2324417
(S) Nitrobenzene-d5	72.3			14.0-149		07/19/2024 05:23	WG2324417
(S) 2-Fluorobiphenyl	66.6			34.0-125		07/19/2024 05:23	WG2324417

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/23/2024 20:48	WG2321839

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	7.40		0.0217	0.100	1	07/16/2024 15:28	WG2323690
(S) a,a,a-Trifluorotoluene(FID)	86.7			77.0-120		07/16/2024 15:28	WG2323690

6
Qc

7
Gl

8
Al

9
Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00173		0.000467	0.00100	1	07/19/2024 19:28	WG2325895
Toluene	0.00358	J	0.00130	0.00500	1	07/19/2024 19:28	WG2325895
Ethylbenzene	U		0.000737	0.00250	1	07/19/2024 19:28	WG2325895
Xylenes, Total	0.0220		0.000880	0.00650	1	07/19/2024 19:28	WG2325895
1,2,4-Trimethylbenzene	0.127		0.00158	0.00500	1	07/19/2024 19:28	WG2325895
1,3,5-Trimethylbenzene	0.189		0.00200	0.00500	1	07/19/2024 19:28	WG2325895
(S) Toluene-d8	98.2			75.0-131		07/19/2024 19:28	WG2325895
(S) 4-Bromofluorobenzene	107			67.0-138		07/19/2024 19:28	WG2325895
(S) 1,2-Dichloroethane-d4	77.7			70.0-130		07/19/2024 19:28	WG2325895

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	216		1.61	4.00	1	07/22/2024 17:45	WG2324411
C28-C36 Motor Oil Range	107		0.274	4.00	1	07/22/2024 17:45	WG2324411
(S) o-Terphenyl	65.0			18.0-148		07/22/2024 17:45	WG2324411

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	07/19/2024 05:40	WG2324417
Acenaphthene	0.0267		0.00209	0.00600	1	07/19/2024 05:40	WG2324417
Acenaphthylene	U		0.00216	0.00600	1	07/19/2024 05:40	WG2324417
Benzo(a)anthracene	0.0123		0.00173	0.00600	1	07/19/2024 05:40	WG2324417
Benzo(a)pyrene	0.00842		0.00179	0.00600	1	07/19/2024 05:40	WG2324417
Benzo(b)fluoranthene	0.00967		0.00153	0.00600	1	07/19/2024 05:40	WG2324417
Benzo(g,h,i)perylene	0.00412	J	0.00177	0.00600	1	07/19/2024 05:40	WG2324417
Benzo(k)fluoranthene	0.00382	J	0.00215	0.00600	1	07/19/2024 05:40	WG2324417
Chrysene	0.0163		0.00232	0.00600	1	07/19/2024 05:40	WG2324417
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/19/2024 05:40	WG2324417
Fluoranthene	0.0377		0.00227	0.00600	1	07/19/2024 05:40	WG2324417
Fluorene	0.0383		0.00205	0.00600	1	07/19/2024 05:40	WG2324417
Indeno(1,2,3-cd)pyrene	0.00438	J	0.00181	0.00600	1	07/19/2024 05:40	WG2324417
Naphthalene	0.0768		0.00408	0.0200	1	07/19/2024 05:40	WG2324417
Phenanthrene	0.147		0.00231	0.00600	1	07/19/2024 05:40	WG2324417
Pyrene	0.0334		0.00200	0.00600	1	07/19/2024 05:40	WG2324417
1-Methylnaphthalene	0.516		0.00449	0.0200	1	07/19/2024 05:40	WG2324417
2-Methylnaphthalene	0.282		0.00427	0.0200	1	07/19/2024 05:40	WG2324417
2-Chloronaphthalene	U		0.00466	0.0200	1	07/19/2024 05:40	WG2324417
(S) p-Terphenyl-d14	72.9			23.0-120		07/19/2024 05:40	WG2324417
(S) Nitrobenzene-d5	0.000	J2		14.0-149		07/19/2024 05:40	WG2324417
(S) 2-Fluorobiphenyl	70.3			34.0-125		07/19/2024 05:40	WG2324417

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
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Sample Narrative:

L1755587-03 WG2324417: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

PIPELINE LEAK W1

Collected date/time: 07/08/24 14:00

SAMPLE RESULTS - 04

L1755587

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/23/2024 20:57	WG2321839

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.10		0.0219	0.101	1.01	07/16/2024 15:50	WG2323690
(S) a,a,a-Trifluorotoluene(FID)	94.9			77.0-120		07/16/2024 15:50	WG2323690

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00100	J	0.000467	0.00100	1	07/19/2024 19:49	WG2325895
Toluene	0.00153	J	0.00130	0.00500	1	07/19/2024 19:49	WG2325895
Ethylbenzene	U		0.000737	0.00250	1	07/19/2024 19:49	WG2325895
Xylenes, Total	0.00170	J	0.000880	0.00650	1	07/19/2024 19:49	WG2325895
1,2,4-Trimethylbenzene	0.00270	J	0.00158	0.00500	1	07/19/2024 19:49	WG2325895
1,3,5-Trimethylbenzene	0.00983		0.00200	0.00500	1	07/19/2024 19:49	WG2325895
(S) Toluene-d8	97.4			75.0-131		07/19/2024 19:49	WG2325895
(S) 4-Bromofluorobenzene	95.8			67.0-138		07/19/2024 19:49	WG2325895
(S) 1,2-Dichloroethane-d4	74.6			70.0-130		07/19/2024 19:49	WG2325895

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	604		8.05	20.0	5	07/22/2024 22:20	WG2324412
C28-C36 Motor Oil Range	286		1.37	20.0	5	07/22/2024 22:20	WG2324412
(S) o-Terphenyl	145			18.0-148		07/22/2024 22:20	WG2324412

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	07/19/2024 05:57	WG2324417
Acenaphthene	0.0294		0.00209	0.00600	1	07/19/2024 05:57	WG2324417
Acenaphthylene	U		0.00216	0.00600	1	07/19/2024 05:57	WG2324417
Benzo(a)anthracene	U		0.00173	0.00600	1	07/19/2024 05:57	WG2324417
Benzo(a)pyrene	0.00303	J	0.00179	0.00600	1	07/19/2024 05:57	WG2324417
Benzo(b)fluoranthene	0.00345	J	0.00153	0.00600	1	07/19/2024 05:57	WG2324417
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	07/19/2024 05:57	WG2324417
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/19/2024 05:57	WG2324417
Chrysene	0.0161		0.00232	0.00600	1	07/19/2024 05:57	WG2324417
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/19/2024 05:57	WG2324417
Fluoranthene	0.0151		0.00227	0.00600	1	07/19/2024 05:57	WG2324417
Fluorene	0.0491		0.00205	0.00600	1	07/19/2024 05:57	WG2324417
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/19/2024 05:57	WG2324417
Naphthalene	0.0151	B J	0.00408	0.0200	1	07/19/2024 05:57	WG2324417
Phenanthrene	0.168		0.00231	0.00600	1	07/19/2024 05:57	WG2324417
Pyrene	0.00931		0.00200	0.00600	1	07/19/2024 05:57	WG2324417
1-Methylnaphthalene	0.716		0.00449	0.0200	1	07/19/2024 05:57	WG2324417
2-Methylnaphthalene	0.232		0.00427	0.0200	1	07/19/2024 05:57	WG2324417
2-Chloronaphthalene	U		0.00466	0.0200	1	07/19/2024 05:57	WG2324417
(S) p-Terphenyl-d14	73.7			23.0-120		07/19/2024 05:57	WG2324417
(S) Nitrobenzene-d5	0.000	J2		14.0-149		07/19/2024 05:57	WG2324417
(S) 2-Fluorobiphenyl	71.1			34.0-125		07/19/2024 05:57	WG2324417

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
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Sample Narrative:

L1755587-04 WG2324417: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

PIPELINE LEAK BOT

Collected date/time: 07/08/24 14:10

SAMPLE RESULTS - 05

L1755587

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/23/2024 22:31	WG2321833

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	4.95		0.0217	0.100	1	07/16/2024 16:12	WG2323690
(S) a,a,a-Trifluorotoluene(FID)	89.2			77.0-120		07/16/2024 16:12	WG2323690

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00143		0.000467	0.00100	1	07/19/2024 20:11	WG2325895
Toluene	0.00310	J	0.00130	0.00500	1	07/19/2024 20:11	WG2325895
Ethylbenzene	U		0.000737	0.00250	1	07/19/2024 20:11	WG2325895
Xylenes, Total	0.00530	J	0.000880	0.00650	1	07/19/2024 20:11	WG2325895
1,2,4-Trimethylbenzene	0.0370		0.00158	0.00500	1	07/19/2024 20:11	WG2325895
1,3,5-Trimethylbenzene	0.137		0.00200	0.00500	1	07/19/2024 20:11	WG2325895
(S) Toluene-d8	98.8			75.0-131		07/19/2024 20:11	WG2325895
(S) 4-Bromofluorobenzene	112			67.0-138		07/19/2024 20:11	WG2325895
(S) 1,2-Dichloroethane-d4	79.3			70.0-130		07/19/2024 20:11	WG2325895

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	42.1		1.61	4.00	1	07/22/2024 20:49	WG2324412
C28-C36 Motor Oil Range	23.3		0.274	4.00	1	07/22/2024 20:49	WG2324412
(S) o-Terphenyl	54.0			18.0-148		07/22/2024 20:49	WG2324412

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	07/19/2024 06:14	WG2324417
Acenaphthene	U		0.00209	0.00600	1	07/19/2024 06:14	WG2324417
Acenaphthylene	U		0.00216	0.00600	1	07/19/2024 06:14	WG2324417
Benzo(a)anthracene	U		0.00173	0.00600	1	07/19/2024 06:14	WG2324417
Benzo(a)pyrene	U		0.00179	0.00600	1	07/19/2024 06:14	WG2324417
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/19/2024 06:14	WG2324417
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	07/19/2024 06:14	WG2324417
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/19/2024 06:14	WG2324417
Chrysene	U		0.00232	0.00600	1	07/19/2024 06:14	WG2324417
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/19/2024 06:14	WG2324417
Fluoranthene	0.00349	J	0.00227	0.00600	1	07/19/2024 06:14	WG2324417
Fluorene	0.00295	J	0.00205	0.00600	1	07/19/2024 06:14	WG2324417
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/19/2024 06:14	WG2324417
Naphthalene	U		0.00408	0.0200	1	07/19/2024 06:14	WG2324417
Phenanthrene	0.0130		0.00231	0.00600	1	07/19/2024 06:14	WG2324417
Pyrene	0.00312	J	0.00200	0.00600	1	07/19/2024 06:14	WG2324417
1-Methylnaphthalene	0.0244		0.00449	0.0200	1	07/19/2024 06:14	WG2324417
2-Methylnaphthalene	0.00583	J	0.00427	0.0200	1	07/19/2024 06:14	WG2324417
2-Chloronaphthalene	U		0.00466	0.0200	1	07/19/2024 06:14	WG2324417
(S) p-Terphenyl-d14	87.4			23.0-120		07/19/2024 06:14	WG2324417
(S) Nitrobenzene-d5	90.0			14.0-149		07/19/2024 06:14	WG2324417
(S) 2-Fluorobiphenyl	59.5			34.0-125		07/19/2024 06:14	WG2324417

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4097616-1 07/23/24 19:41

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

L1755455-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1755455-16 07/23/24 20:39 • (DUP) R4097616-3 07/23/24 20:58

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

L1755533-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1755533-01 07/23/24 22:12 • (DUP) R4097616-8 07/23/24 22:18

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

Laboratory Control Sample (LCS)

(LCS) R4097616-2 07/23/24 19:50

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.1	101	80.0-120	

L1755503-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1755503-03 07/23/24 21:10 • (MS) R4097616-4 07/23/24 21:16 • (MSD) R4097616-5 07/23/24 21:22

	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	U	19.4	19.5	97.2	97.4	1	75.0-125			0.117	20

L1755716-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1755716-04 07/23/24 22:37 • (MS) R4097616-9 07/23/24 22:43 • (MSD) R4097616-10 07/23/24 22:49

	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	U	20.2	19.0	101	95.0	1	75.0-125			5.89	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1755503-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1755503-03 07/23/24 21:10 • (MS) R4097616-6 07/23/24 21:29

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	631	U	648	103	50	75.0-125	

L1755716-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1755716-04 07/23/24 22:37 • (MS) R4097616-11 07/23/24 22:55

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	646	U	642	99.4	50	75.0-125	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4097613-1 07/23/24 16:55

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

L1755533-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1755533-03 07/23/24 17:13 • (DUP) R4097613-3 07/23/24 17:22

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

L1755567-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1755567-04 07/23/24 19:36 • (DUP) R4097613-8 07/23/24 19:45

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

Laboratory Control Sample (LCS)

(LCS) R4097613-2 07/23/24 17:04

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.1	101	80.0-120	

L1755548-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1755548-01 07/23/24 17:40 • (MS) R4097613-4 07/23/24 17:49 • (MSD) R4097613-5 07/23/24 17:58

	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	U	6.39	6.22	31.9	31.1	1	75.0-125	J6	J6	2.63	20

L1755587-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1755587-04 07/23/24 20:57 • (MS) R4097613-9 07/23/24 21:06 • (MSD) R4097613-10 07/23/24 21:15

	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	U	19.1	19.3	95.6	96.4	1	75.0-125			0.876	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1755548-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1755548-01 07/23/24 17:40 • (MS) R4097613-6 07/23/24 18:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	641	U	635	99.1	50	75.0-125	

L1755587-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1755587-04 07/23/24 20:57 • (MS) R4097613-11 07/23/24 21:23

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	648	U	664	103	50	75.0-125	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4094938-2 07/16/24 10:45

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)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4094938-1 07/16/24 10:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	4.84	96.8	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			106	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4095525-3 07/15/24 20:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	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	97.2			75.0-131
(S) 4-Bromofluorobenzene	103			67.0-138
(S) 1,2-Dichloroethane-d4	100			70.0-130

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

(LCS) R4095525-1 07/15/24 19:13 • (LCSD) R4095525-2 07/15/24 19:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.123	0.127	98.4	102	70.0-123			3.20	20
Toluene	0.125	0.129	0.130	103	104	75.0-121			0.772	20
Ethylbenzene	0.125	0.131	0.129	105	103	74.0-126			1.54	20
Xylenes, Total	0.375	0.385	0.390	103	104	72.0-127			1.29	20
1,2,4-Trimethylbenzene	0.125	0.136	0.141	109	113	70.0-126			3.61	20
1,3,5-Trimethylbenzene	0.125	0.139	0.144	111	115	73.0-127			3.53	20
(S) Toluene-d8				98.8	99.4	75.0-131				
(S) 4-Bromofluorobenzene				102	100	67.0-138				
(S) 1,2-Dichloroethane-d4				105	105	70.0-130				

L1755455-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1755455-01 07/15/24 23:07 • (MS) R4095525-4 07/16/24 04:48 • (MSD) R4095525-5 07/16/24 05:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	U	0.121	0.109	96.8	87.2	1	10.0-149			10.4	37
Toluene	0.125	U	0.130	0.113	104	90.4	1	10.0-156			14.0	38
Ethylbenzene	0.125	U	0.133	0.120	106	96.0	1	10.0-160			10.3	38
Xylenes, Total	0.375	U	0.399	0.351	106	93.6	1	10.0-160			12.8	38
1,2,4-Trimethylbenzene	0.125	U	0.139	0.123	111	98.4	1	10.0-160			12.2	36
1,3,5-Trimethylbenzene	0.125	U	0.137	0.122	110	97.6	1	10.0-160			11.6	38
(S) Toluene-d8					98.3	98.9		75.0-131				
(S) 4-Bromofluorobenzene					105	102		67.0-138				
(S) 1,2-Dichloroethane-d4					95.1	98.0		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4096796-3 07/19/24 17:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	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	99.6			75.0-131
(S) 4-Bromofluorobenzene	89.6			67.0-138
(S) 1,2-Dichloroethane-d4	77.6			70.0-130

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

(LCS) R4096796-1 07/19/24 15:46 • (LCSD) R4096796-2 07/19/24 17:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.120	0.121	96.0	96.8	70.0-123			0.830	20
Toluene	0.125	0.123	0.118	98.4	94.4	75.0-121			4.15	20
Ethylbenzene	0.125	0.129	0.116	103	92.8	74.0-126			10.6	20
Xylenes, Total	0.375	0.391	0.356	104	94.9	72.0-127			9.37	20
1,2,4-Trimethylbenzene	0.125	0.121	0.121	96.8	96.8	70.0-126			0.000	20
1,3,5-Trimethylbenzene	0.125	0.119	0.124	95.2	99.2	73.0-127			4.12	20
(S) Toluene-d8				95.7	94.9	75.0-131				
(S) 4-Bromofluorobenzene				99.7	90.9	67.0-138				
(S) 1,2-Dichloroethane-d4				86.8	84.4	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4096989-1 07/22/24 13:11

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	69.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4096989-2 07/22/24 13:24

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	39.5	79.0	50.0-150	
(S) o-Terphenyl			74.3	18.0-148	

L1755455-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1755455-13 07/22/24 16:14 • (MS) R4096989-3 07/22/24 16:27 • (MSD) R4096989-4 07/22/24 16:40

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	49.4	U	27.8	30.9	56.3	62.0	1	50.0-150			10.6	20
(S) o-Terphenyl					54.1	62.7		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4097092-1 07/22/24 20:23

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	70.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4097092-2 07/22/24 20:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	36.1	72.2	50.0-150	
(S) o-Terphenyl			71.0	18.0-148	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4095692-2 07/18/24 20:45

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	0.00470	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	97.1			23.0-120
(S) Nitrobenzene-d5	61.2			14.0-149
(S) 2-Fluorobiphenyl	77.9			34.0-125

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R4095692-1 07/18/24 20:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0796	99.5	50.0-126	
Acenaphthene	0.0800	0.0723	90.4	50.0-120	
Acenaphthylene	0.0800	0.0785	98.1	50.0-120	
Benzo(a)anthracene	0.0800	0.0764	95.5	45.0-120	
Benzo(a)pyrene	0.0800	0.0681	85.1	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0803	100	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0763	95.4	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0761	95.1	49.0-125	
Chrysene	0.0800	0.0795	99.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0757	94.6	47.0-125	
Fluoranthene	0.0800	0.0823	103	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R4095692-1 07/18/24 20:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0788	98.5	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0736	92.0	46.0-125	
Naphthalene	0.0800	0.0727	90.9	50.0-120	
Phenanthrene	0.0800	0.0797	99.6	47.0-120	
Pyrene	0.0800	0.0807	101	43.0-123	
1-Methylnaphthalene	0.0800	0.0759	94.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0745	93.1	50.0-120	
2-Chloronaphthalene	0.0800	0.0757	94.6	50.0-120	
(S) p-Terphenyl-d14			97.0	23.0-120	
(S) Nitrobenzene-d5			79.5	14.0-149	
(S) 2-Fluorobiphenyl			85.6	34.0-125	

L1755460-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1755460-01 07/19/24 02:47 • (MS) R4095692-3 07/19/24 03:05 • (MSD) R4095692-4 07/19/24 03:22

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	0.0800	U	0.0816	0.0783	102	98.4	1	10.0-145			4.13	30
Acenaphthene	0.0800	U	0.0746	0.0734	93.3	92.2	1	14.0-127			1.62	27
Acenaphthylene	0.0800	U	0.0821	0.0797	103	100	1	21.0-124			2.97	25
Benzo(a)anthracene	0.0800	U	0.0779	0.0775	97.4	97.4	1	10.0-139			0.515	30
Benzo(a)pyrene	0.0800	U	0.0800	0.0763	100	95.9	1	10.0-141			4.73	31
Benzo(b)fluoranthene	0.0800	U	0.0834	0.0800	104	101	1	10.0-140			4.16	36
Benzo(g,h,i)perylene	0.0800	U	0.0802	0.0775	100	97.4	1	10.0-140			3.42	33
Benzo(k)fluoranthene	0.0800	U	0.0795	0.0758	99.4	95.2	1	10.0-137			4.76	31
Chrysene	0.0800	U	0.0829	0.0813	104	102	1	10.0-145			1.95	30
Dibenz(a,h)anthracene	0.0800	U	0.0785	0.0743	98.1	93.3	1	10.0-132			5.50	31
Fluoranthene	0.0800	U	0.0845	0.0822	106	103	1	10.0-153			2.76	33
Fluorene	0.0800	U	0.0817	0.0797	102	100	1	11.0-130			2.48	29
Indeno(1,2,3-cd)pyrene	0.0800	U	0.0759	0.0724	94.9	91.0	1	10.0-137			4.72	32
Naphthalene	0.0800	U	0.0813	0.0730	102	91.7	1	10.0-135			10.8	27
Phenanthrene	0.0800	U	0.0830	0.0796	104	100	1	10.0-144			4.18	31
Pyrene	0.0800	U	0.0836	0.0810	105	102	1	10.0-148			3.16	35
1-Methylnaphthalene	0.0800	U	0.0805	0.0764	101	96.0	1	10.0-142			5.23	28
2-Methylnaphthalene	0.0800	U	0.0822	0.0739	103	92.8	1	10.0-137			10.6	28
2-Chloronaphthalene	0.0800	U	0.0800	0.0776	100	97.5	1	29.0-120			3.05	24
(S) p-Terphenyl-d14					99.8	96.7		23.0-120				
(S) Nitrobenzene-d5					88.5	74.6		14.0-149				
(S) 2-Fluorobiphenyl					93.3	83.6		34.0-125				

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.
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

B	The same analyte is found in the associated blank.
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.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

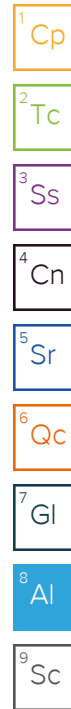
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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.



UTAH GAS CORP
*UTAHGASRCO

Billing Information:

Ronnie Plummer
1125 Escalante Dr
Rangely, CO 81648

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ____ of ____



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # LN55587
J048

Acctnum:

Template:

Prelogin:

PM: 824 - Chris Ward

PB:

Shipped Via: **FedEX Ground**

Remarks

Sample # (lab only)

Report to:

Ronnie Plummer / Rob Bleil

Email To: rplummer@uthgascorp.com

Project Description:

Hill 9-31 Pipeline Leak

City/State

Collected: Rangely CO

Please Circle:
PT MT CT ET

Phone: **970-629-3520**

Client Project #

Lab Project #

Collected by (print):

Dana Pollack

Site/Facility ID #

Hill 9-31

P.O. #

Collected by (signature):

Dana Pollack

Rush? (Lab MUST Be Notified)

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

Quote #

Date Results Needed

No.
of
Cnts

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

Pipeline Leak N1

grab

SS

5'

7/8

1:30

4

Pipeline Leak S1

5'

1:40

4

Pipeline Leak E1

5'

1:50

4

Pipeline Leak W1

5'

2:00

4

Pipeline Leak BOT

7'

2:10

4

* Matrix:

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:

___ UPS ___ FedEx ___ Courier

Tracking #

Relinquished by: (Signature)

Dana Pollack

Date:

7/10/24

Time:

8:00

Received by: (Signature)

[Signature]

Trip Blank Received: Yes (No)

HCL/MeOH
TBR

Temp: °C Bottles Received:

20

If preservation required by Login: Date/Time

Relinquished by: (Signature)

[Signature]

Date:

7/16/24

Time:

1:00

Received by: (Signature)

[Signature]

Received for lab by: (Signature)

[Signature]

Date:

7-11-24

Time:

0900

Hold:

Condition:
NCF / OK

Sample Receipt Checklist

COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y Y N
Bottles arrive intact: Y Y N
Correct bottles used: Y Y N
Sufficient volume sent: Y Y N
If Applicable
VOA Zero Headspace: Y Y N
Preservation Correct/Checked: Y Y N
RAD Screen <0.5 mR/hr: Y Y N



July 25, 2024

Client Services
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122

RE: Project: L1755587 WG2321861
Pace Project No.: 10699860

Dear Client Services:

Enclosed are the analytical results for sample(s) received by the laboratory on July 13, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Yeng Ozawa
yeng.ozawa@pacelabs.com
(612)607-1700
Project Manager

Enclosures

cc: Jimmy Huckaba, Pace Analytical National Center for
Testing & Innovation



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



CERTIFICATIONS

Project: L1755587 WG2321861

Pace Project No.: 10699860

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

DoD Certification via A2LA #: 2926.01

EPA Region 8 Tribal Water Systems+Wyoming DW
Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

ISO/IEC 17025 Certification via A2LA #: 2926.01

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification via A2LA #: 2926.01

USDA Permit #: P330-19-00208

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: L1755587 WG2321861

Pace Project No.: 10699860

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10699860001	PIPELINE LEAK N1	Solid	07/08/24 13:30	07/13/24 09:00
10699860002	PIPELINE LEAK S1	Solid	07/08/24 13:40	07/13/24 09:00
10699860003	PIPELINE LEAK E1	Solid	07/08/24 13:50	07/13/24 09:00
10699860004	PIPELINE LEAK W1	Solid	07/08/24 14:00	07/13/24 09:00
10699860005	PIPELINE LEAK BOT	Solid	07/08/24 14:10	07/13/24 09:00

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SAMPLE ANALYTE COUNT

Project: L1755587 WG2321861
Pace Project No.: 10699860

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10699860001	PIPELINE LEAK N1	WREP 125, S-7.10	IP	1	PASI-M
		WREP 125 S-1.6	DM	4	PASI-M
		EPA 6020B	NN2	9	PASI-M
		ASTM D2974	JDL	1	PASI-M
		WREP 125 S-1.20	SMB	1	PASI-M
		WREP 125 S-1.10	MER	1	PASI-M
10699860002	PIPELINE LEAK S1	WREP 125, S-7.10	IP	1	PASI-M
		WREP 125 S-1.6	DM	4	PASI-M
		EPA 6020B	NN2	9	PASI-M
		ASTM D2974	JDL	1	PASI-M
		WREP 125 S-1.20	SMB	1	PASI-M
		WREP 125 S-1.10	MER	1	PASI-M
10699860003	PIPELINE LEAK E1	WREP 125, S-7.10	IP	1	PASI-M
		WREP 125 S-1.6	DM	4	PASI-M
		EPA 6020B	NN2	9	PASI-M
		ASTM D2974	JDL	1	PASI-M
		WREP 125 S-1.20	SMB	1	PASI-M
		WREP 125 S-1.10	MER	1	PASI-M
10699860004	PIPELINE LEAK W1	WREP 125, S-7.10	IP	1	PASI-M
		WREP 125 S-1.6	DM	4	PASI-M
		EPA 6020B	NN2	9	PASI-M
		ASTM D2974	JDL	1	PASI-M
		WREP 125 S-1.20	SMB	1	PASI-M
		WREP 125 S-1.10	MER	1	PASI-M
10699860005	PIPELINE LEAK BOT	WREP 125, S-7.10	IP	1	PASI-M
		WREP 125 S-1.6	DM	4	PASI-M
		EPA 6020B	NN2	9	PASI-M
		ASTM D2974	JDL	1	PASI-M
		WREP 125 S-1.20	SMB	1	PASI-M
		WREP 125 S-1.10	MER	1	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

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ANALYTICAL RESULTS

Project: L1755587 WG2321861

Pace Project No.: 10699860

Sample: PIPELINE LEAK N1 Lab ID: 10699860001 Collected: 07/08/24 13:30 Received: 07/13/24 09:00 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Hot Water Soluble Boron								
Analytical Method: WREP 125, S-7.10 Preparation Method: N/A								
Pace Analytical Services - Minneapolis								
Boron	1.9	mg/kg	0.30	1	07/22/24 13:16	07/22/24 15:58	7440-42-8	M1,N2
Sodium Adsorption Ratio, SAR								
Analytical Method: WREP 125 S-1.6								
Pace Analytical Services - Minneapolis								
Calcium saturated paste	49.7	meq/L	0.50	20		07/24/24 11:35	7440-70-2	N2
Magnesium saturated paste	38.8	meq/L	0.82	20		07/24/24 11:35	7439-95-4	N2
Sodium Adsorption Ratio	14.5			20		07/24/24 11:35		N2
Sodium saturated paste	96.2	meq/L	0.87	20		07/24/24 11:35	7440-23-5	N2
6020B MET ICPMS								
Analytical Method: EPA 6020B Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Arsenic	4.8	mg/kg	0.50	20	07/16/24 12:30	07/18/24 12:19	7440-38-2	
Barium	152	mg/kg	0.30	20	07/16/24 12:30	07/18/24 12:19	7440-39-3	
Cadmium	0.28	mg/kg	0.079	20	07/16/24 12:30	07/18/24 12:19	7440-43-9	
Copper	11.8	mg/kg	0.99	20	07/16/24 12:30	07/18/24 12:19	7440-50-8	
Lead	15.1	mg/kg	0.50	20	07/16/24 12:30	07/18/24 12:19	7439-92-1	
Nickel	11.2	mg/kg	0.50	20	07/16/24 12:30	07/18/24 12:19	7440-02-0	
Selenium	ND	mg/kg	0.50	20	07/16/24 12:30	07/18/24 12:19	7782-49-2	
Silver	ND	mg/kg	0.50	20	07/16/24 12:30	07/18/24 12:19	7440-22-4	
Zinc	46.2	mg/kg	5.0	20	07/16/24 12:30	07/18/24 12:19	7440-66-6	
Dry Weight / %M by ASTM D2974								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	13.2	%	0.10	1		07/15/24 15:50		N2
Saturated Paste Elect. Cond.								
Analytical Method: WREP 125 S-1.20								
Pace Analytical Services - Minneapolis								
Specific Conductance	17200	umhos/cm	5.0	1		07/24/24 15:04		N2
Saturated Paste pH								
Analytical Method: WREP 125 S-1.10								
Pace Analytical Services - Minneapolis								
pH at 25 Degrees C	7.67	Std. Units	0.100	1		07/22/24 15:26		N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: L1755587 WG2321861

Pace Project No.: 10699860

Sample: PIPELINE LEAK S1 Lab ID: 10699860002 Collected: 07/08/24 13:40 Received: 07/13/24 09:00 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Hot Water Soluble Boron								
Analytical Method: WREP 125, S-7.10 Preparation Method: N/A								
Pace Analytical Services - Minneapolis								
Boron	2.5	mg/kg	0.30	1	07/22/24 13:16	07/22/24 16:08	7440-42-8	N2
Sodium Adsorption Ratio, SAR								
Analytical Method: WREP 125 S-1.6								
Pace Analytical Services - Minneapolis								
Calcium saturated paste	64.2	meq/L	0.50	20		07/24/24 11:37	7440-70-2	N2
Magnesium saturated paste	35.1	meq/L	0.82	20		07/24/24 11:37	7439-95-4	N2
Sodium Adsorption Ratio	19.4			20		07/24/24 11:37		N2
Sodium saturated paste	137	meq/L	0.87	20		07/24/24 11:37	7440-23-5	N2
6020B MET ICPMS								
Analytical Method: EPA 6020B Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Arsenic	5.0	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:28	7440-38-2	
Barium	125	mg/kg	0.28	20	07/16/24 12:30	07/18/24 12:28	7440-39-3	
Cadmium	0.26	mg/kg	0.074	20	07/16/24 12:30	07/18/24 12:28	7440-43-9	
Copper	13.2	mg/kg	0.92	20	07/16/24 12:30	07/18/24 12:28	7440-50-8	
Lead	8.9	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:28	7439-92-1	
Nickel	10.5	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:28	7440-02-0	
Selenium	ND	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:28	7782-49-2	
Silver	ND	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:28	7440-22-4	
Zinc	41.3	mg/kg	4.6	20	07/16/24 12:30	07/18/24 12:28	7440-66-6	
Dry Weight / %M by ASTM D2974								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	16.7	%	0.10	1		07/15/24 15:51		N2
Saturated Paste Elect. Cond.								
Analytical Method: WREP 125 S-1.20								
Pace Analytical Services - Minneapolis								
Specific Conductance	21600	umhos/cm	5.0	1		07/24/24 15:05		N2
Saturated Paste pH								
Analytical Method: WREP 125 S-1.10								
Pace Analytical Services - Minneapolis								
pH at 25 Degrees C	7.67	Std. Units	0.100	1		07/22/24 15:27		N2

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ANALYTICAL RESULTS

Project: L1755587 WG2321861

Pace Project No.: 10699860

Sample: PIPELINE LEAK E1 Lab ID: 10699860003 Collected: 07/08/24 13:50 Received: 07/13/24 09:00 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Hot Water Soluble Boron								
Analytical Method: WREP 125, S-7.10 Preparation Method: N/A								
Pace Analytical Services - Minneapolis								
Boron	3.6	mg/kg	0.30	1	07/22/24 13:16	07/22/24 16:09	7440-42-8	N2
Sodium Adsorption Ratio, SAR								
Analytical Method: WREP 125 S-1.6								
Pace Analytical Services - Minneapolis								
Calcium saturated paste	73.5	meq/L	1.2	50		07/24/24 11:39	7440-70-2	N2
Magnesium saturated paste	27.4	meq/L	2.1	50		07/24/24 11:39	7439-95-4	N2
Sodium Adsorption Ratio	26.0			50		07/24/24 11:39		N2
Sodium saturated paste	185	meq/L	2.2	50		07/24/24 11:39	7440-23-5	N2
6020B MET ICPMS								
Analytical Method: EPA 6020B Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Arsenic	5.5	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:32	7440-38-2	
Barium	134	mg/kg	0.28	20	07/16/24 12:30	07/18/24 12:32	7440-39-3	
Cadmium	0.38	mg/kg	0.074	20	07/16/24 12:30	07/18/24 12:32	7440-43-9	
Copper	17.6	mg/kg	0.93	20	07/16/24 12:30	07/18/24 12:32	7440-50-8	
Lead	15.1	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:32	7439-92-1	
Nickel	15.7	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:32	7440-02-0	
Selenium	0.49	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:32	7782-49-2	
Silver	ND	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:32	7440-22-4	
Zinc	64.0	mg/kg	4.6	20	07/16/24 12:30	07/18/24 12:32	7440-66-6	
Dry Weight / %M by ASTM D2974								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	21.1	%	0.10	1		07/15/24 15:51		N2
Saturated Paste Elect. Cond.								
Analytical Method: WREP 125 S-1.20								
Pace Analytical Services - Minneapolis								
Specific Conductance	25500	umhos/cm	5.0	1		07/24/24 15:06		N2
Saturated Paste pH								
Analytical Method: WREP 125 S-1.10								
Pace Analytical Services - Minneapolis								
pH at 25 Degrees C	7.66	Std. Units	0.100	1		07/22/24 15:29		N2

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ANALYTICAL RESULTS

Project: L1755587 WG2321861

Pace Project No.: 10699860

Sample: PIPELINE LEAK W1 Lab ID: 10699860004 Collected: 07/08/24 14:00 Received: 07/13/24 09:00 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Hot Water Soluble Boron								
Analytical Method: WREP 125, S-7.10 Preparation Method: N/A								
Pace Analytical Services - Minneapolis								
Boron	4.1	mg/kg	0.30	1	07/22/24 13:16	07/22/24 16:11	7440-42-8	N2
Sodium Adsorption Ratio, SAR								
Analytical Method: WREP 125 S-1.6								
Pace Analytical Services - Minneapolis								
Calcium saturated paste	33.2	meq/L	0.25	10		07/24/24 11:05	7440-70-2	N2
Magnesium saturated paste	26.9	meq/L	0.41	10		07/24/24 11:05	7439-95-4	N2
Sodium Adsorption Ratio	10.2			10		07/24/24 11:05		N2
Sodium saturated paste	55.9	meq/L	0.44	10		07/24/24 11:05	7440-23-5	N2
6020B MET ICPMS								
Analytical Method: EPA 6020B Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Arsenic	5.4	mg/kg	0.48	20	07/16/24 12:30	07/18/24 12:35	7440-38-2	
Barium	180	mg/kg	0.29	20	07/16/24 12:30	07/18/24 12:35	7440-39-3	
Cadmium	0.32	mg/kg	0.076	20	07/16/24 12:30	07/18/24 12:35	7440-43-9	
Copper	14.3	mg/kg	0.95	20	07/16/24 12:30	07/18/24 12:35	7440-50-8	
Lead	10.6	mg/kg	0.48	20	07/16/24 12:30	07/18/24 12:35	7439-92-1	
Nickel	13.4	mg/kg	0.48	20	07/16/24 12:30	07/18/24 12:35	7440-02-0	
Selenium	ND	mg/kg	0.48	20	07/16/24 12:30	07/18/24 12:35	7782-49-2	
Silver	ND	mg/kg	0.48	20	07/16/24 12:30	07/18/24 12:35	7440-22-4	
Zinc	50.7	mg/kg	4.8	20	07/16/24 12:30	07/18/24 12:35	7440-66-6	
Dry Weight / %M by ASTM D2974								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	20.7	%	0.10	1		07/15/24 15:51		N2
Saturated Paste Elect. Cond.								
Analytical Method: WREP 125 S-1.20								
Pace Analytical Services - Minneapolis								
Specific Conductance	9880	umhos/cm	5.0	1		07/24/24 15:08		N2
Saturated Paste pH								
Analytical Method: WREP 125 S-1.10								
Pace Analytical Services - Minneapolis								
pH at 25 Degrees C	7.82	Std. Units	0.100	1		07/22/24 15:30		N2

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ANALYTICAL RESULTS

Project: L1755587 WG2321861

Pace Project No.: 10699860

Sample: PIPELINE LEAK BOT Lab ID: 10699860005 Collected: 07/08/24 14:10 Received: 07/13/24 09:00 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Hot Water Soluble Boron								
Analytical Method: WREP 125, S-7.10 Preparation Method: N/A								
Pace Analytical Services - Minneapolis								
Boron	5.1	mg/kg	0.30	1	07/23/24 11:31	07/23/24 14:17	7440-42-8	N2
Sodium Adsorption Ratio, SAR								
Analytical Method: WREP 125 S-1.6								
Pace Analytical Services - Minneapolis								
Calcium saturated paste	20.4	meq/L	0.50	20		07/24/24 11:40	7440-70-2	N2
Magnesium saturated paste	19.1	meq/L	0.82	20		07/24/24 11:40	7439-95-4	N2
Sodium Adsorption Ratio	22.8			20		07/24/24 11:40		N2
Sodium saturated paste	101	meq/L	0.87	20		07/24/24 11:40	7440-23-5	N2
6020B MET ICPMS								
Analytical Method: EPA 6020B Preparation Method: EPA 3050B								
Pace Analytical Services - Minneapolis								
Arsenic	6.0	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:38	7440-38-2	
Barium	158	mg/kg	0.28	20	07/16/24 12:30	07/18/24 12:38	7440-39-3	
Cadmium	0.45	mg/kg	0.074	20	07/16/24 12:30	07/18/24 12:38	7440-43-9	
Copper	18.1	mg/kg	0.92	20	07/16/24 12:30	07/18/24 12:38	7440-50-8	
Lead	15.4	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:38	7439-92-1	
Nickel	16.3	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:38	7440-02-0	
Selenium	0.59	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:38	7782-49-2	
Silver	ND	mg/kg	0.46	20	07/16/24 12:30	07/18/24 12:38	7440-22-4	
Zinc	73.6	mg/kg	4.6	20	07/16/24 12:30	07/18/24 12:38	7440-66-6	
Dry Weight / %M by ASTM D2974								
Analytical Method: ASTM D2974								
Pace Analytical Services - Minneapolis								
Percent Moisture	20.9	%	0.10	1		07/16/24 11:07		N2
Saturated Paste Elect. Cond.								
Analytical Method: WREP 125 S-1.20								
Pace Analytical Services - Minneapolis								
Specific Conductance	11000	umhos/cm	5.0	1		07/24/24 15:08		N2
Saturated Paste pH								
Analytical Method: WREP 125 S-1.10								
Pace Analytical Services - Minneapolis								
pH at 25 Degrees C	8.23	Std. Units	0.100	1		07/22/24 15:31		N2

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QUALITY CONTROL DATA

Project: L1755587 WG2321861

Pace Project No.: 10699860

QC Batch:	958064	Analysis Method:	WREP 125 S-1.6
QC Batch Method:	WREP 125 S-1.6	Analysis Description:	Saturated Paste SAR
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004, 10699860005

METHOD BLANK: 5008080

Matrix: Solid

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004, 10699860005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium saturated paste	meq/L	ND	0.025	07/24/24 10:49	N2
Magnesium saturated paste	meq/L	ND	0.041	07/24/24 10:49	N2
Sodium Adsorption Ratio		0.0019		07/24/24 10:49	N2
Sodium saturated paste	meq/L	ND	0.044	07/24/24 10:49	N2

LABORATORY CONTROL SAMPLE & LCSD: 5008081

5008082

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Calcium saturated paste	meq/L	1	0.94	0.93	94	93	80-120	1	20	N2
Magnesium saturated paste	meq/L	1.6	1.6	1.6	96	95	80-120	0	20	N2
Sodium Adsorption Ratio			0.76	0.76				0	20	N2
Sodium saturated paste	meq/L	0.87	0.86	0.85	99	98	80-120	1	20	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: L1755587 WG2321861

Pace Project No.: 10699860

QC Batch:	956612	Analysis Method:	EPA 6020B
QC Batch Method:	EPA 3050B	Analysis Description:	6020B Solids UPD5
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004, 10699860005

METHOD BLANK: 5000737

Matrix: Solid

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004, 10699860005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	0.48	07/18/24 11:13	
Barium	mg/kg	ND	0.29	07/18/24 11:13	
Cadmium	mg/kg	ND	0.077	07/18/24 11:13	
Copper	mg/kg	ND	0.96	07/18/24 11:13	
Lead	mg/kg	ND	0.48	07/18/24 11:13	
Nickel	mg/kg	ND	0.48	07/18/24 11:13	
Selenium	mg/kg	ND	0.48	07/18/24 11:13	
Silver	mg/kg	ND	0.48	07/18/24 11:13	
Zinc	mg/kg	ND	4.8	07/18/24 11:13	

LABORATORY CONTROL SAMPLE: 5000738

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	47.6	50.8	107	80-120	
Barium	mg/kg	47.6	49.5	104	80-120	
Cadmium	mg/kg	47.6	48.1	101	80-120	
Copper	mg/kg	47.6	50.5	106	80-120	
Lead	mg/kg	47.6	49.8	105	80-120	
Nickel	mg/kg	47.6	49.5	104	80-120	
Selenium	mg/kg	47.6	47.1	99	80-120	
Silver	mg/kg	23.8	24.5	103	80-120	
Zinc	mg/kg	47.6	49.4	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5000739 5000740

Parameter	Units	10699857001		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Result	Spike Conc.	Result	% Rec	Result	% Rec	Result				
Arsenic	mg/kg	1.7	48.1	46.9	52.0	51.7	104	106	75-125	1	20				
Barium	mg/kg	290	48.1	46.9	230	215	-124	-160	75-125	7	20	P6			
Cadmium	mg/kg	ND	48.1	46.9	45.8	46.1	95	98	75-125	1	20				
Copper	mg/kg	4.2	48.1	46.9	55.3	54.0	106	106	75-125	3	20				
Lead	mg/kg	2.8	48.1	46.9	52.5	51.3	103	103	75-125	2	20				
Nickel	mg/kg	2.6	48.1	46.9	51.0	50.8	101	103	75-125	0	20				
Selenium	mg/kg	ND	48.1	46.9	45.8	46.4	95	98	75-125	1	20				
Silver	mg/kg	ND	24.1	23.5	23.5	23.7	98	101	75-125	1	20				
Zinc	mg/kg	18.6	48.1	46.9	66.0	68.8	99	107	75-125	4	20				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: L1755587 WG2321861

Pace Project No.: 10699860

QC Batch: 957626

Analysis Method: WREP 125, S-7.10

QC Batch Method: N/A

Analysis Description: Hot Water Soluble Boron

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004

METHOD BLANK: 5006069

Matrix: Solid

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/kg	ND	0.30	07/22/24 15:54	N2

LABORATORY CONTROL SAMPLE: 5006070

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/kg	2	1.9	94	80-120	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5006071 5006072

Parameter	Units	10699860001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/kg	1.9	2	2	3.3	3.3	73	74	75-125	1	20	M1,N2

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: L1755587 WG2321861
Pace Project No.: 10699860

QC Batch:	957950	Analysis Method:	WREP 125, S-7.10
QC Batch Method:	N/A	Analysis Description:	Hot Water Soluble Boron
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10699860005

METHOD BLANK: 5007584 Matrix: Solid

Associated Lab Samples: 10699860005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/kg	ND	0.30	07/23/24 14:13	N2

LABORATORY CONTROL SAMPLE: 5007585

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/kg	2	1.9	94	80-120	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5007586 5007587

Parameter	Units	10699767002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/kg	0.56	2	2	1.5	1.5	46	46	75-125	0	20	M1,N2

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QUALITY CONTROL DATA

Project: L1755587 WG2321861

Pace Project No.: 10699860

QC Batch: 956554

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight / %M by ASTM D2974

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004

SAMPLE DUPLICATE: 5000544

Parameter	Units	10699860004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	20.7	20.3	2	30	N2

SAMPLE DUPLICATE: 5000618

Parameter	Units	10699738002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	14.9	12.2	20	30	N2

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QUALITY CONTROL DATA

Project: L1755587 WG2321861

Pace Project No.: 10699860

QC Batch: 956631

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight / %M by ASTM D2974

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10699860005

SAMPLE DUPLICATE: 5000842

Parameter	Units	10699857013 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.8	4.7	1	30	N2

SAMPLE DUPLICATE: 5000843

Parameter	Units	10699882010 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	16.7	16.9	1	30	N2

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QUALITY CONTROL DATA

Project: L1755587 WG2321861

Pace Project No.: 10699860

QC Batch:	957806	Analysis Method:	WREP 125 S-1.20
QC Batch Method:	WREP 125 S-1.20	Analysis Description:	Electrical Conductivity Paste
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004, 10699860005

METHOD BLANK: 5007009 Matrix: Solid

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004, 10699860005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	5.0	07/24/24 15:00	N2

LABORATORY CONTROL SAMPLE: 5007010

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1000	984	98	90-110	N2

SAMPLE DUPLICATE: 5007011

Parameter	Units	10699857011 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	73.3	72.9	1	20	N2

SAMPLE DUPLICATE: 5007012

Parameter	Units	10699882002 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	1480	1480	0	20	N2

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QUALITY CONTROL DATA

Project: L1755587 WG2321861

Pace Project No.: 10699860

QC Batch: 957805

Analysis Method: WREP 125 S-1.10

QC Batch Method: WREP 125 S-1.10

Analysis Description: Saturated Paste pH

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10699860001, 10699860002, 10699860003, 10699860004, 10699860005

SAMPLE DUPLICATE: 5007007

Parameter	Units	10699857011 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.41	6.44	0.467		3 N2

SAMPLE DUPLICATE: 5007008

Parameter	Units	10699882016 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.19	8.09	1.23		3 N2

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QUALIFIERS

Project: L1755587 WG2321861

Pace Project No.: 10699860

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 958064

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: L1755587 WG2321861

Pace Project No.: 10699860

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10699860001	PIPELINE LEAK N1	N/A	957626	WREP 125, S-7.10	957926
10699860002	PIPELINE LEAK S1	N/A	957626	WREP 125, S-7.10	957926
10699860003	PIPELINE LEAK E1	N/A	957626	WREP 125, S-7.10	957926
10699860004	PIPELINE LEAK W1	N/A	957626	WREP 125, S-7.10	957926
10699860005	PIPELINE LEAK BOT	N/A	957950	WREP 125, S-7.10	958158
10699860001	PIPELINE LEAK N1	WREP 125 S-1.6	958064		
10699860002	PIPELINE LEAK S1	WREP 125 S-1.6	958064		
10699860003	PIPELINE LEAK E1	WREP 125 S-1.6	958064		
10699860004	PIPELINE LEAK W1	WREP 125 S-1.6	958064		
10699860005	PIPELINE LEAK BOT	WREP 125 S-1.6	958064		
10699860001	PIPELINE LEAK N1	EPA 3050B	956612	EPA 6020B	956961
10699860002	PIPELINE LEAK S1	EPA 3050B	956612	EPA 6020B	956961
10699860003	PIPELINE LEAK E1	EPA 3050B	956612	EPA 6020B	956961
10699860004	PIPELINE LEAK W1	EPA 3050B	956612	EPA 6020B	956961
10699860005	PIPELINE LEAK BOT	EPA 3050B	956612	EPA 6020B	956961
10699860001	PIPELINE LEAK N1	ASTM D2974	956554		
10699860002	PIPELINE LEAK S1	ASTM D2974	956554		
10699860003	PIPELINE LEAK E1	ASTM D2974	956554		
10699860004	PIPELINE LEAK W1	ASTM D2974	956554		
10699860005	PIPELINE LEAK BOT	ASTM D2974	956631		
10699860001	PIPELINE LEAK N1	WREP 125 S-1.20	957806		
10699860002	PIPELINE LEAK S1	WREP 125 S-1.20	957806		
10699860003	PIPELINE LEAK E1	WREP 125 S-1.20	957806		
10699860004	PIPELINE LEAK W1	WREP 125 S-1.20	957806		
10699860005	PIPELINE LEAK BOT	WREP 125 S-1.20	957806		
10699860001	PIPELINE LEAK N1	WREP 125 S-1.10	957805		
10699860002	PIPELINE LEAK S1	WREP 125 S-1.10	957805		
10699860003	PIPELINE LEAK E1	WREP 125 S-1.10	957805		
10699860004	PIPELINE LEAK W1	WREP 125 S-1.10	957805		
10699860005	PIPELINE LEAK BOT	WREP 125 S-1.10	957805		

REPORT OF LABORATORY ANALYSIS

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Sub-Contract Chain of Custody

Batch Date/Time: 07/12/24 10:38
 Sub-Contract Lab: PACEMN
 Address: 1700 Elm Street Suite 200
 SE

City/State: Minneapolis, MN 55414

Contact:

Kirsten.Hogberg@pacelabs.com

Owner Lab: PACEMTJL

Address: 12065 Lebanon Rd.

City/State: Mt. Juliet, TN 37122

Phone: (615) 773-9756

Fax: (615) 758-5859

WO: WG2321861

Email: MTJLSuboutTeam@pacelabs.com

Results Due Date: 07/18/24

ESC Purchase Order #: L1755587

Send Reports to: James C Huckaba



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 Phone: (615) 773-9756
 Fax: (615) 758-5859

Sample ID Container ID	Matrix	State	Collect Date	Description	Sample Number Lab Use Only	Sample Comments Lab Use Only
PIPELINE LEAK N1	SS	CO	07/08/24 13:30	SUB TABLE 915 INORGANICS	1. L1755587-01	Hot Water Soluble Boron, SAR including pH and EC, 6020 Ag, As, Ba, Cd, Cu, Ni, Pb, Se, Zn
PIPELINE LEAK S1	SS	CO	07/08/24 13:40	SUB TABLE 915 INORGANICS	2. L1755587-02	Hot Water Soluble Boron, SAR including pH and EC, 6020 Ag, As, Ba, Cd, Cu, Ni, Pb, Se, Zn
PIPELINE LEAK E1	SS	CO	07/08/24 13:50	SUB TABLE 915 INORGANICS	3. L1755587-03	Hot Water Soluble Boron, SAR including pH and EC, 6020 Ag, As, Ba, Cd, Cu, Ni, Pb, Se, Zn
PIPELINE LEAK W1	SS	CO	07/08/24 14:00	SUB TABLE 915 INORGANICS	4. L1755587-04	Hot Water Soluble Boron, SAR including pH and EC, 6020 Ag, As, Ba, Cd, Cu, Ni, Pb, Se, Zn
PIPELINE LEAK BOT	SS	CO	07/08/24 14:10	SUB TABLE 915 INORGANICS	5. L1755587-05	Hot Water Soluble Boron, SAR including pH and EC, 6020 Ag, As, Ba, Cd, Cu, Ni, Pb, Se, Zn

*= Container used for multiple Samples and/or Analyses

Relinquished by: [Signature] Date 7-12-24

Received by: [Signature] Date 7/13/24 9:00

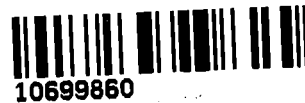
Relinquished by: _____ Date _____

Received by: _____ Date _____

RUSH

2.2°C

WO# : 10699860



ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: PASI TN

PROJECT #:

WO#: 10699860

COURIER: ☐ Client ☐ Commercial ☒ FedEx ☐ Pace
☐ SpeedDee ☐ UPS ☐ USPS

PM: Y01

Due Date: 07/24/24

CLIENT: PASI-TN

TRACKING NUMBER: 731 93210 4690 ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☐ YES ☒ NO Seals Intact: ☐ YES ☐ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/A
Packing Material: ☒ Bubble Bags ☐ Bubble Wrap ☐ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ Wet
Thermometer: ☒ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235)
☐ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710) ☐ Melted ☐ None

Did Samples Originate in West Virginia: ☐ YES ☒ NO Were All Container Temps taken: ☐ YES ☐ NO ☒ N/A
Correction Factor: 1.2 Cooler Temp Read w/Temp Blank: 2.9 °C Average Corrected Temp (no Temp Blank Only): _____ °C
Cooler Temp Corrected w/Temp Blank: 2.2 °C
NOTE: Temp should be above freezing to 6°C. ☐ See Exceptions Form ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: ☐ N/A - Water Sample/Other (describe): Soil Initials & Date of Person Examining Contents: SPC 7/13/24
Did Samples originate from one of the following states (check maps) AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☒ NO Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☒ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

LOCATION (check one): <input type="checkbox"/> DULUTH <input checked="" type="checkbox"/> MINNEAPOLIS <input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)												
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.												
Chain of Custody Relinquished?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.												
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.												
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No												
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <input type="checkbox"/> BOD / cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho Phos <input type="checkbox"/> Total coliform/E. coli <input type="checkbox"/> Other: _____												
Rush Turn Around Time Requested?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. <u>7/13/24</u>												
Sufficient Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.												
Correct Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.												
- Pace Containers Used?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9.												
Containers Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO												
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142												
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11. Matrix: <input type="checkbox"/> Oil <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Sample #: <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO												
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS NOTE: If adding preservation to the container, verify with the PM first. Clients may require adding preservative to the field and equipment blanks when this occurs.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<table border="1"> <thead> <tr> <th colspan="4">pH Paper Lot #</th> </tr> <tr> <th>Residual Chlorine</th> <th>0-6 Roll</th> <th>0-6 Strip</th> <th>0-14 Strip</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142	pH Paper Lot #				Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip				
pH Paper Lot #																
Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip													
Headspace in Methyl Mercury Container?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.												
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14. <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0140												
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.												
Trip Blanks Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pace Trip Blank Lot # (if purchased): _____												
Trip Blank Custody Seals Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>													

CLIENT NOTIFICATION / RESOLUTION

FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: _____ Date & Time: _____

Comments / Resolution: _____

Project Manager Review: _____ Date: _____

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: smc Line: 3

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Page : 1 Of 1

Page : 1 Of 1

Regulatory Agency
State / Location
CO

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