

March 21, 2023

James Beilman
Mull Drilling Company
1700 N Waterfront Pkwy
Bld. 1200
Wichita, KS 67206

RE: Project: NWAV #1
Pace Project No.: 60423695

Dear James Beilman:

Enclosed are the analytical results for sample(s) received by the laboratory on March 10, 2023. 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 National - Mt. Juliet
- Pace Analytical Services - Kansas City

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

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: NWAV #1

Pace Project No.: 60423695

Pace Analytical Services Kansas

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 22-031-0

Illinois Certification #: 2000302021-3

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212023-1

Oklahoma Certification #: 2022-057

Florida: Cert E871149 SEKS WET

Texas Certification #: T104704407-21-15

Utah Certification #: KS000212022-12

Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Missouri SEKS Micro Certification: 10070

Pace Analytical Services National

12065 Lebanon Road, Mt. Juliet, TN 37122

Alabama Certification #: 40660

Alaska Certification 17-026

Arizona Certification #: AZ0612

Arkansas Certification #: 88-0469

California Certification #: 2932

Canada Certification #: 1461.01

Colorado Certification #: TN00003

Connecticut Certification #: PH-0197

DOD Certification: #1461.01

EPA# TN00003

Florida Certification #: E87487

Georgia DW Certification #: 923

Georgia Certification: NELAP

Idaho Certification #: TN00003

Illinois Certification #: 200008

Indiana Certification #: C-TN-01

Iowa Certification #: 364

Kansas Certification #: E-10277

Kentucky UST Certification #: 16

Kentucky Certification #: 90010

Louisiana Certification #: AI30792

Louisiana DW Certification #: LA180010

Maine Certification #: TN0002

Maryland Certification #: 324

Massachusetts Certification #: M-TN003

Michigan Certification #: 9958

Minnesota Certification #: 047-999-395

Mississippi Certification #: TN00003

Missouri Certification #: 340

Montana Certification #: CERT0086

Nebraska Certification #: NE-OS-15-05

Nevada Certification #: TN-03-2002-34

New Hampshire Certification #: 2975

New Jersey Certification #: TN002

New Mexico DW Certification

New York Certification #: 11742

North Carolina Aquatic Toxicity Certification #: 41

North Carolina Drinking Water Certification #: 21704

North Carolina Environmental Certificate #: 375

North Dakota Certification #: R-140

Ohio VAP Certification #: CL0069

Oklahoma Certification #: 9915

Oregon Certification #: TN200002

Pennsylvania Certification #: 68-02979

Rhode Island Certification #: LAO00356

South Carolina Certification #: 84004

South Dakota Certification

Tennessee DW/Chem/Micro Certification #: 2006

Texas Certification #: T 104704245-17-14

Texas Mold Certification #: LAB0152

USDA Soil Permit #: P330-15-00234

Utah Certification #: TN00003

Virginia Certification #: VT2006

Vermont Dept. of Health: ID# VT-2006

Virginia Certification #: 460132

Washington Certification #: C847

West Virginia Certification #: 233

Wisconsin Certification #: 998093910

Wyoming UST Certification #: via A2LA 2926.01

A2LA-ISO 17025 Certification #: 1461.01

A2LA-ISO 17025 Certification #: 1461.02

AIHA-LAP/LLC EMLAP Certification #:100789

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NWAV #1

Pace Project No.: 60423695

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60423695001	NWAV #1 TB WATERLINE DG-1 1'	Solid	03/08/23 09:45	03/10/23 10:42
60423695002	NWAV #1 TB WATERLINE DG-1 4'	Solid	03/08/23 10:10	03/10/23 10:42
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	Solid	03/08/23 10:30	03/10/23 10:42

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SAMPLE ANALYTE COUNT

Project: NWAV #1

Pace Project No.: 60423695

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60423695001	NWAV #1 TB WATERLINE DG-1 1'	EPA 8015B	YGR	4	PASI-K
		EPA 8015B	JLO	2	PASI-K
		6010B-NE493 Ch 2	ZSA	1	PAN
		EPA 6010	ALH	8	PASI-K
		EPA 6020	MA1	1	PASI-K
		EPA 8270 by SIM	SJJ	17	PASI-K
		EPA 8260C	RAD	9	PASI-K
		ASTM D2974	DWC	1	PASI-K
		SM 2540G	CMK	1	PAN
		EPA 7199	VSS	1	PAN
		EPA 9045D	DB	1	PAN
		EPA 9050	NTG	1	PAN
		Calculated	SPL	1	PAN
		EPA 8015B	YGR	4	PASI-K
60423695002	NWAV #1 TB WATERLINE DG-1 4'	EPA 8015B	JLO	2	PASI-K
		6010B-NE493 Ch 2	ZSA	1	PAN
		EPA 6010	ALH	8	PASI-K
		EPA 6020	MA1	1	PASI-K
		EPA 8270 by SIM	SJJ	17	PASI-K
		EPA 8260C	RAD	9	PASI-K
		ASTM D2974	DWC	1	PASI-K
		SM 2540G	CMK	1	PAN
		EPA 7199	VSS	1	PAN
		EPA 9045D	DB	1	PAN
		EPA 9050	NTG	1	PAN
		Calculated	SPL	1	PAN
		EPA 8015B	YGR	4	PASI-K
		EPA 8015B	JLO	2	PASI-K
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	6010B-NE493 Ch 2	ZSA	1	PAN
		EPA 6010	ALH	8	PASI-K
		EPA 6020	MA1	1	PASI-K
		EPA 8270 by SIM	SJJ	17	PASI-K
		EPA 8260C	RAD	9	PASI-K
		ASTM D2974	DWC	1	PASI-K
		SM 2540G	CMK	1	PAN
		EPA 7199	VSS	1	PAN
		EPA 9045D	DB	1	PAN

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SAMPLE ANALYTE COUNT

Project: NWAV #1

Pace Project No.: 60423695

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9050	NTG	1	PAN
		Calculated	SPL	1	PAN

PAN = Pace National - Mt. Juliet

PASI-K = Pace Analytical Services - Kansas City

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NWA# #1
Pace Project No.: 60423695

Sample: NWA# #1 TB WATERLINE **Lab ID:** 60423695001 **Collected:** 03/08/23 09:45 **Received:** 03/10/23 10:42 **Matrix:** Solid
DG-1 1'

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics									
Analytical Method: EPA 8015B Preparation Method: EPA 3546									
Pace Analytical Services - Kansas City									
TPH-RRO (C28-C36)	ND	mg/kg	23.6	5.3	1	03/10/23 18:37	03/12/23 03:15		
TPH-DRO (C10-C28)	ND	mg/kg	11.8	5.3	1	03/10/23 18:37	03/12/23 03:15		
Surrogates									
n-Tetracosane (S)	66	%	31-152		1	03/10/23 18:37	03/12/23 03:15	646-31-1	
p-Terphenyl (S)	64	%	46-130		1	03/10/23 18:37	03/12/23 03:15	92-94-4	
Gasoline Range Organics									
Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Kansas City									
TPH-GRO	ND	mg/kg	13.7	1.7	1	03/16/23 14:46	03/16/23 17:19		
Surrogates									
4-Bromofluorobenzene (S)	92	%	66-130		1	03/16/23 14:46	03/16/23 17:19	460-00-4	
Metals (ICP) 6010B-NE493 Ch 2									
Analytical Method: 6010B-NE493 Ch 2 Preparation Method: HWS Boron									
Pace National - Mt. Juliet									
Boron, Hot Water Soluble	0.323	mg/L	0.200	0.0167	1	03/15/23 10:22	03/15/23 18:19	7440-42-8H	
6010 MET ICP Red. Interference									
Analytical Method: EPA 6010 Preparation Method: EPA 3050									
Pace Analytical Services - Kansas City									
Barium	249	mg/kg	0.47	0.26	1	03/14/23 09:10	03/15/23 16:54	7440-39-3	M1
Cadmium	0.58	mg/kg	0.47	0.099	1	03/14/23 09:10	03/15/23 16:54	7440-43-9	
Copper	10.4	mg/kg	1.9	0.29	1	03/14/23 09:10	03/15/23 16:54	7440-50-8	
Lead	9.0	mg/kg	0.94	0.34	1	03/14/23 09:10	03/15/23 16:54	7439-92-1	
Nickel	10.8	mg/kg	0.47	0.22	1	03/14/23 09:10	03/15/23 16:54	7440-02-0	
Selenium	ND	mg/kg	1.4	0.71	1	03/14/23 09:10	03/15/23 16:54	7782-49-2	M1
Silver	ND	mg/kg	0.66	0.16	1	03/14/23 09:10	03/15/23 16:54	7440-22-4	
Zinc	36.3	mg/kg	9.4	1.2	1	03/14/23 09:10	03/15/23 16:54	7440-66-6	
6020 MET ICPMS									
Analytical Method: EPA 6020 Preparation Method: EPA 3050									
Pace Analytical Services - Kansas City									
Arsenic	6.0	mg/kg	0.94	0.17	10	03/14/23 09:10	03/15/23 09:14	7440-38-2	
8270 MSSV PAH by SIM									
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546									
Pace Analytical Services - Kansas City									
Acenaphthene	ND	mg/kg	0.0038	0.0021	1	03/10/23 18:40	03/14/23 14:32	83-32-9	
Anthracene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:32	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.0038	0.0021	1	03/10/23 18:40	03/14/23 14:32	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.0038	0.0016	1	03/10/23 18:40	03/14/23 14:32	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.0038	0.0021	1	03/10/23 18:40	03/14/23 14:32	205-99-2	
Benzo(k)fluoranthene	ND	mg/kg	0.0038	0.0021	1	03/10/23 18:40	03/14/23 14:32	207-08-9	
Chrysene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:32	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:32	53-70-3	
Fluoranthene	ND	mg/kg	0.0038	0.0026	1	03/10/23 18:40	03/14/23 14:32	206-44-0	
Fluorene	ND	mg/kg	0.0038	0.0025	1	03/10/23 18:40	03/14/23 14:32	86-73-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NWA# #1
Pace Project No.: 60423695

Sample: NWA# #1 TB WATERLINE **Lab ID:** 60423695001 **Collected:** 03/08/23 09:45 **Received:** 03/10/23 10:42 **Matrix:** Solid
DG-1 1'

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM									
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 Pace Analytical Services - Kansas City									
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:32	193-39-5	
1-Methylnaphthalene	ND	mg/kg	0.0038	0.0018	1	03/10/23 18:40	03/14/23 14:32	90-12-0	
2-Methylnaphthalene	ND	mg/kg	0.0038	0.0023	1	03/10/23 18:40	03/14/23 14:32	91-57-6	
Naphthalene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:32	91-20-3	
Pyrene	ND	mg/kg	0.0038	0.0025	1	03/10/23 18:40	03/14/23 14:32	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	56	%	40-120		1	03/10/23 18:40	03/14/23 14:32	321-60-8	
Terphenyl-d14 (S)	52	%	45-130		1	03/10/23 18:40	03/14/23 14:32	1718-51-0	
8260C MSV 5035A Low Level									
Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City									
Benzene	0.0014J	mg/kg	0.0068	0.00062	1	03/11/23 11:51	03/11/23 14:05	71-43-2	
Ethylbenzene	ND	mg/kg	0.0068	0.0012	1	03/11/23 11:51	03/11/23 14:05	100-41-4	
Toluene	ND	mg/kg	0.027	0.0061	1	03/11/23 11:51	03/11/23 14:05	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.0068	0.00094	1	03/11/23 11:51	03/11/23 14:05	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.0068	0.00059	1	03/11/23 11:51	03/11/23 14:05	108-67-8	
Xylene (Total)	ND	mg/kg	0.020	0.0050	1	03/11/23 11:51	03/11/23 14:05	1330-20-7	
Surrogates									
Toluene-d8 (S)	109	%	80-120		1	03/11/23 11:51	03/11/23 14:05	2037-26-5	
4-Bromofluorobenzene (S)	103	%	83-119		1	03/11/23 11:51	03/11/23 14:05	460-00-4	
1,2-Dichlorobenzene-d4 (S)	100	%	80-120		1	03/11/23 11:51	03/11/23 14:05	2199-69-1	
Percent Moisture									
Analytical Method: ASTM D2974 Pace Analytical Services - Kansas City									
Percent Moisture	15.6	%	0.50	0.50	1		03/10/23 14:29		
Total Solids 2540 G-2011									
Analytical Method: SM 2540G Preparation Method: SM 2540 G Pace National - Mt. Juliet									
Total Solids	87.1	%			1	03/13/23 10:45	03/13/23 10:52		
Wet Chemistry 7199									
Analytical Method: EPA 7199 Preparation Method: 3060A Pace National - Mt. Juliet									
Chromium, Hexavalent	ND	mg/kg	1.15	0.293	1	03/17/23 09:50	03/19/23 23:09	18540-29-9	ML
Wet Chemistry 9045D									
Analytical Method: EPA 9045D Preparation Method: 9045C/9045D Pace National - Mt. Juliet									
pH	7.96	Std. Units		0.10	1	03/14/23 12:45	03/14/23 13:46		H3
Wet Chemistry 9050AMod									
Analytical Method: EPA 9050 Preparation Method: 9050A Pace National - Mt. Juliet									
Specific Conductance @ 25 C	324	umhos/cm	10.0	10.0	1	03/14/23 08:22	03/15/23 07:39		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NWAV #1

Pace Project No.: 60423695

Sample: NWAV #1 TB WATERLINE **Lab ID:** 60423695001 Collected: 03/08/23 09:45 Received: 03/10/23 10:42 Matrix: Solid
DG-1 1'

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report	MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit						
Calculated Results									
Analytical Method: Calculated Preparation Method: Calc									
Pace National - Mt. Juliet									
Sodium Adsorption Ratio	0.929				1	03/14/23 15:57	03/14/23 15:57	SAR	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NWA# #1
Pace Project No.: 60423695

Sample: NWA# #1 TB WATERLINE **Lab ID:** 60423695002 **Collected:** 03/08/23 10:10 **Received:** 03/10/23 10:42 **Matrix:** Solid
DG-1 4'

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics Analytical Method: EPA 8015B Preparation Method: EPA 3546 Pace Analytical Services - Kansas City									
TPH-RRO (C28-C36)	ND	mg/kg	22.5	5.1	1	03/10/23 18:37	03/12/23 03:39		
TPH-DRO (C10-C28)	ND	mg/kg	11.3	5.1	1	03/10/23 18:37	03/12/23 03:39		
Surrogates									
n-Tetracosane (S)	66	%	31-152		1	03/10/23 18:37	03/12/23 03:39	646-31-1	
p-Terphenyl (S)	64	%	46-130		1	03/10/23 18:37	03/12/23 03:39	92-94-4	
Gasoline Range Organics Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City									
TPH-GRO	ND	mg/kg	11.8	1.4	1	03/16/23 14:46	03/16/23 17:34		
Surrogates									
4-Bromofluorobenzene (S)	92	%	66-130		1	03/16/23 14:46	03/16/23 17:34	460-00-4	
Metals (ICP) 6010B-NE493 Ch 2 Analytical Method: 6010B-NE493 Ch 2 Preparation Method: HWS Boron Pace National - Mt. Juliet									
Boron, Hot Water Soluble	0.322	mg/L	0.200	0.0167	1	03/15/23 10:22	03/15/23 18:21	7440-42-8H	
6010 MET ICP Red. Interference Analytical Method: EPA 6010 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City									
Barium	313	mg/kg	0.53	0.29	1	03/14/23 09:10	03/15/23 17:01	7440-39-3	
Cadmium	0.60	mg/kg	0.53	0.11	1	03/14/23 09:10	03/15/23 17:01	7440-43-9	
Copper	11.0	mg/kg	2.1	0.32	1	03/14/23 09:10	03/15/23 17:01	7440-50-8	
Lead	9.3	mg/kg	1.1	0.38	1	03/14/23 09:10	03/15/23 17:01	7439-92-1	
Nickel	11.8	mg/kg	0.53	0.25	1	03/14/23 09:10	03/15/23 17:01	7440-02-0	
Selenium	ND	mg/kg	1.6	0.79	1	03/14/23 09:10	03/15/23 17:01	7782-49-2	
Silver	ND	mg/kg	0.74	0.18	1	03/14/23 09:10	03/15/23 17:01	7440-22-4	
Zinc	40.0	mg/kg	10.5	1.4	1	03/14/23 09:10	03/15/23 17:01	7440-66-6	
6020 MET ICPMS Analytical Method: EPA 6020 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City									
Arsenic	6.4	mg/kg	1.1	0.19	10	03/14/23 09:10	03/15/23 09:23	7440-38-2	
8270 MSSV PAH by SIM Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 Pace Analytical Services - Kansas City									
Acenaphthene	ND	mg/kg	0.0038	0.0021	1	03/10/23 18:40	03/14/23 14:50	83-32-9	
Anthracene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:50	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.0038	0.0021	1	03/10/23 18:40	03/14/23 14:50	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.0038	0.0016	1	03/10/23 18:40	03/14/23 14:50	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.0038	0.0021	1	03/10/23 18:40	03/14/23 14:50	205-99-2	
Benzo(k)fluoranthene	ND	mg/kg	0.0038	0.0022	1	03/10/23 18:40	03/14/23 14:50	207-08-9	
Chrysene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:50	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:50	53-70-3	
Fluoranthene	ND	mg/kg	0.0038	0.0026	1	03/10/23 18:40	03/14/23 14:50	206-44-0	
Fluorene	ND	mg/kg	0.0038	0.0025	1	03/10/23 18:40	03/14/23 14:50	86-73-7	

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ANALYTICAL RESULTS

Project: NWA #1
Pace Project No.: 60423695

Sample: NWA #1 TB WATERLINE **Lab ID:** 60423695002 **Collected:** 03/08/23 10:10 **Received:** 03/10/23 10:42 **Matrix:** Solid
DG-1 4'

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM									
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 Pace Analytical Services - Kansas City									
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:50	193-39-5	
1-Methylnaphthalene	ND	mg/kg	0.0038	0.0018	1	03/10/23 18:40	03/14/23 14:50	90-12-0	
2-Methylnaphthalene	ND	mg/kg	0.0038	0.0023	1	03/10/23 18:40	03/14/23 14:50	91-57-6	
Naphthalene	ND	mg/kg	0.0038	0.0020	1	03/10/23 18:40	03/14/23 14:50	91-20-3	
Pyrene	ND	mg/kg	0.0038	0.0025	1	03/10/23 18:40	03/14/23 14:50	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	58	%	40-120		1	03/10/23 18:40	03/14/23 14:50	321-60-8	
Terphenyl-d14 (S)	59	%	45-130		1	03/10/23 18:40	03/14/23 14:50	1718-51-0	
8260C MSV 5035A Low Level									
Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City									
Benzene	0.0022J	mg/kg	0.0066	0.00060	1	03/11/23 11:51	03/11/23 13:45	71-43-2	
Ethylbenzene	ND	mg/kg	0.0066	0.0011	1	03/11/23 11:51	03/11/23 13:45	100-41-4	
Toluene	ND	mg/kg	0.026	0.0059	1	03/11/23 11:51	03/11/23 13:45	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.0066	0.00091	1	03/11/23 11:51	03/11/23 13:45	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.0066	0.00057	1	03/11/23 11:51	03/11/23 13:45	108-67-8	
Xylene (Total)	ND	mg/kg	0.020	0.0048	1	03/11/23 11:51	03/11/23 13:45	1330-20-7	
Surrogates									
Toluene-d8 (S)	108	%	80-120		1	03/11/23 11:51	03/11/23 13:45	2037-26-5	
4-Bromofluorobenzene (S)	104	%	83-119		1	03/11/23 11:51	03/11/23 13:45	460-00-4	
1,2-Dichlorobenzene-d4 (S)	101	%	80-120		1	03/11/23 11:51	03/11/23 13:45	2199-69-1	
Percent Moisture									
Analytical Method: ASTM D2974 Pace Analytical Services - Kansas City									
Percent Moisture	13.7	%	0.50	0.50	1		03/10/23 14:29		
Total Solids 2540 G-2011									
Analytical Method: SM 2540G Preparation Method: SM 2540 G Pace National - Mt. Juliet									
Total Solids	87.4	%			1	03/13/23 10:45	03/13/23 10:52		
Wet Chemistry 7199									
Analytical Method: EPA 7199 Preparation Method: 3060A Pace National - Mt. Juliet									
Chromium, Hexavalent	ND	mg/kg	1.14	0.292	1	03/13/23 01:46	03/13/23 18:16	18540-29-9	
Wet Chemistry 9045D									
Analytical Method: EPA 9045D Preparation Method: 9045C/9045D Pace National - Mt. Juliet									
pH	8.24	Std. Units		0.10	1	03/14/23 12:45	03/14/23 13:46		H3
Wet Chemistry 9050AMod									
Analytical Method: EPA 9050 Preparation Method: 9050A Pace National - Mt. Juliet									
Specific Conductance @ 25 C	395	umhos/cm	10.0	10.0	1	03/14/23 08:22	03/15/23 07:39		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NWAV #1

Pace Project No.: 60423695

Sample: NWAV #1 TB WATERLINE **Lab ID:** 60423695002 Collected: 03/08/23 10:10 Received: 03/10/23 10:42 Matrix: Solid
DG-1 4'

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report	MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit						
Calculated Results									
Analytical Method: Calculated Preparation Method: Calc									
Pace National - Mt. Juliet									
Sodium Adsorption Ratio	1.32				1	03/14/23 16:00	03/14/23 16:00	SAR	

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ANALYTICAL RESULTS

Project: NWA V #1
Pace Project No.: 60423695

Sample: NWA V #1 TB WATERLINE UPGRADIEN **Lab ID:** 60423695003 **Collected:** 03/08/23 10:30 **Received:** 03/10/23 10:42 **Matrix:** Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics Analytical Method: EPA 8015B Preparation Method: EPA 3546 Pace Analytical Services - Kansas City									
TPH-RRO (C28-C36)	ND	mg/kg	24.1	5.4	1	03/10/23 18:37	03/12/23 03:48		
TPH-DRO (C10-C28)	ND	mg/kg	12.0	5.4	1	03/10/23 18:37	03/12/23 03:48		
Surrogates									
n-Tetracosane (S)	75	%	31-152		1	03/10/23 18:37	03/12/23 03:48	646-31-1	
p-Terphenyl (S)	73	%	46-130		1	03/10/23 18:37	03/12/23 03:48	92-94-4	
Gasoline Range Organics Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City									
TPH-GRO	ND	mg/kg	13.2	1.6	1	03/16/23 14:46	03/16/23 17:49		M1
Surrogates									
4-Bromofluorobenzene (S)	92	%	66-130		1	03/16/23 14:46	03/16/23 17:49	460-00-4	
Metals (ICP) 6010B-NE493 Ch 2 Analytical Method: 6010B-NE493 Ch 2 Preparation Method: HWS Boron Pace National - Mt. Juliet									
Boron, Hot Water Soluble	0.321	mg/L	0.200	0.0167	1	03/15/23 10:22	03/15/23 18:24	7440-42-8H	
6010 MET ICP Red. Interference Analytical Method: EPA 6010 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City									
Barium	204	mg/kg	0.52	0.28	1	03/14/23 09:10	03/15/23 17:03	7440-39-3	
Cadmium	0.59	mg/kg	0.52	0.11	1	03/14/23 09:10	03/15/23 17:03	7440-43-9	
Copper	10.7	mg/kg	2.1	0.32	1	03/14/23 09:10	03/15/23 17:03	7440-50-8	
Lead	8.9	mg/kg	1.0	0.37	1	03/14/23 09:10	03/15/23 17:03	7439-92-1	
Nickel	10.9	mg/kg	0.52	0.24	1	03/14/23 09:10	03/15/23 17:03	7440-02-0	
Selenium	ND	mg/kg	1.5	0.78	1	03/14/23 09:10	03/15/23 17:03	7782-49-2	
Silver	ND	mg/kg	0.72	0.18	1	03/14/23 09:10	03/15/23 17:03	7440-22-4	
Zinc	36.4	mg/kg	10.3	1.4	1	03/14/23 09:10	03/15/23 17:03	7440-66-6	
6020 MET ICPMS Analytical Method: EPA 6020 Preparation Method: EPA 3050 Pace Analytical Services - Kansas City									
Arsenic	6.1	mg/kg	1.0	0.19	10	03/14/23 09:10	03/15/23 09:27	7440-38-2	
8270 MSSV PAH by SIM Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 Pace Analytical Services - Kansas City									
Acenaphthene	ND	mg/kg	0.0039	0.0021	1	03/10/23 18:40	03/14/23 18:41	83-32-9	
Anthracene	ND	mg/kg	0.0039	0.0021	1	03/10/23 18:40	03/14/23 18:41	120-12-7	
Benzo(a)anthracene	ND	mg/kg	0.0039	0.0022	1	03/10/23 18:40	03/14/23 18:41	56-55-3	
Benzo(a)pyrene	ND	mg/kg	0.0039	0.0016	1	03/10/23 18:40	03/14/23 18:41	50-32-8	
Benzo(b)fluoranthene	ND	mg/kg	0.0039	0.0022	1	03/10/23 18:40	03/14/23 18:41	205-99-2	
Benzo(k)fluoranthene	ND	mg/kg	0.0039	0.0022	1	03/10/23 18:40	03/14/23 18:41	207-08-9	
Chrysene	ND	mg/kg	0.0039	0.0021	1	03/10/23 18:40	03/14/23 18:41	218-01-9	
Dibenz(a,h)anthracene	ND	mg/kg	0.0039	0.0021	1	03/10/23 18:40	03/14/23 18:41	53-70-3	
Fluoranthene	ND	mg/kg	0.0039	0.0027	1	03/10/23 18:40	03/14/23 18:41	206-44-0	
Fluorene	ND	mg/kg	0.0039	0.0026	1	03/10/23 18:40	03/14/23 18:41	86-73-7	

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ANALYTICAL RESULTS

Project: NWA# #1
Pace Project No.: 60423695

Sample: NWA# #1 TB WATERLINE **Lab ID:** 60423695003 **Collected:** 03/08/23 10:30 **Received:** 03/10/23 10:42 **Matrix:** Solid
UPGRADIEN

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM									
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 Pace Analytical Services - Kansas City									
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.0039	0.0021	1	03/10/23 18:40	03/14/23 18:41	193-39-5	
1-Methylnaphthalene	ND	mg/kg	0.0039	0.0019	1	03/10/23 18:40	03/14/23 18:41	90-12-0	
2-Methylnaphthalene	ND	mg/kg	0.0039	0.0024	1	03/10/23 18:40	03/14/23 18:41	91-57-6	
Naphthalene	ND	mg/kg	0.0039	0.0020	1	03/10/23 18:40	03/14/23 18:41	91-20-3	
Pyrene	ND	mg/kg	0.0039	0.0026	1	03/10/23 18:40	03/14/23 18:41	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	58	%	40-120		1	03/10/23 18:40	03/14/23 18:41	321-60-8	
Terphenyl-d14 (S)	53	%	45-130		1	03/10/23 18:40	03/14/23 18:41	1718-51-0	
8260C MSV 5035A Low Level									
Analytical Method: EPA 8260C Preparation Method: EPA 5035A/5030B Pace Analytical Services - Kansas City									
Benzene	0.0015J	mg/kg	0.0071	0.00065	1	03/11/23 11:51	03/11/23 13:25	71-43-2	
Ethylbenzene	ND	mg/kg	0.0071	0.0012	1	03/11/23 11:51	03/11/23 13:25	100-41-4	
Toluene	ND	mg/kg	0.028	0.0063	1	03/11/23 11:51	03/11/23 13:25	108-88-3	
1,2,4-Trimethylbenzene	ND	mg/kg	0.0071	0.00098	1	03/11/23 11:51	03/11/23 13:25	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/kg	0.0071	0.00062	1	03/11/23 11:51	03/11/23 13:25	108-67-8	
Xylene (Total)	ND	mg/kg	0.021	0.0052	1	03/11/23 11:51	03/11/23 13:25	1330-20-7	
Surrogates									
Toluene-d8 (S)	108	%	80-120		1	03/11/23 11:51	03/11/23 13:25	2037-26-5	
4-Bromofluorobenzene (S)	103	%	83-119		1	03/11/23 11:51	03/11/23 13:25	460-00-4	
1,2-Dichlorobenzene-d4 (S)	100	%	80-120		1	03/11/23 11:51	03/11/23 13:25	2199-69-1	
Percent Moisture									
Analytical Method: ASTM D2974 Pace Analytical Services - Kansas City									
Percent Moisture	17.9	%	0.50	0.50	1		03/10/23 14:29		
Total Solids 2540 G-2011									
Analytical Method: SM 2540G Preparation Method: SM 2540 G Pace National - Mt. Juliet									
Total Solids	83.3	%			1	03/13/23 13:14	03/13/23 13:20		
Wet Chemistry 7199									
Analytical Method: EPA 7199 Preparation Method: 3060A Pace National - Mt. Juliet									
Chromium, Hexavalent	ND	mg/kg	1.20	0.306	1	03/17/23 09:50	03/19/23 23:38	18540-29-9	
Wet Chemistry 9045D									
Analytical Method: EPA 9045D Preparation Method: 9045C/9045D Pace National - Mt. Juliet									
pH	7.88	Std. Units		0.10	1	03/14/23 12:45	03/14/23 13:46		H3
Wet Chemistry 9050AMod									
Analytical Method: EPA 9050 Preparation Method: 9050A Pace National - Mt. Juliet									
Specific Conductance @ 25 C	613	umhos/cm	10.0	10.0	1	03/14/23 08:22	03/15/23 07:39		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NWAV #1

Pace Project No.: 60423695

Sample: NWAV #1 TB WATERLINE **Lab ID:** 60423695003 Collected: 03/08/23 10:30 Received: 03/10/23 10:42 Matrix: Solid
UPGRADIEN

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report	MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit						
Calculated Results									
Analytical Method: Calculated Preparation Method: Calc									
Pace National - Mt. Juliet									
Sodium Adsorption Ratio	0.623				1	03/14/23 16:03	03/14/23 16:03	SAR	

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QUALITY CONTROL DATA

Project: NWAV #1

Pace Project No.: 60423695

QC Batch: 836841

Analysis Method: EPA 8015B

QC Batch Method: EPA 5035A/5030B

Analysis Description: Gasoline Range Organics

Laboratory: Pace Analytical Services - Kansas City

Associated Lab Samples: 60423695001, 60423695002, 60423695003

METHOD BLANK: 3318831

Matrix: Solid

Associated Lab Samples: 60423695001, 60423695002, 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
TPH-GRO	mg/kg	6.3J	10.0	1.2	03/16/23 17:04	
4-Bromofluorobenzene (S)	%	91	66-130		03/16/23 17:04	

LABORATORY CONTROL SAMPLE: 3318832

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH-GRO	mg/kg	50	48.3	97	70-130	
4-Bromofluorobenzene (S)	%			95	66-130	

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QUALITY CONTROL DATA

Project: NWAV #1

Pace Project No.: 60423695

QC Batch: 2022871

Analysis Method: 6010B-NE493 Ch 2

QC Batch Method: HWS Boron

Analysis Description: Metals (ICP) 6010B-NE493 Ch 2

Laboratory: Pace National - Mt. Juliet

Associated Lab Samples: 60423695001, 60423695002, 60423695003

METHOD BLANK: R3901569-1

Matrix: Solid

Associated Lab Samples: 60423695001, 60423695002, 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron, Hot Water Soluble	mg/L	ND	0.200	0.0167	03/15/23 18:00	

LABORATORY CONTROL SAMPLE & LCSD: R3901569-2

R3901569-3

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Boron, Hot Water Soluble	mg/L	1.00	1.19	1.18	119	118	80.0-120	0.839	20	

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QUALITY CONTROL DATA

Project: NWA #1
Pace Project No.: 60423695

QC Batch: 836497 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60423695001, 60423695002, 60423695003

METHOD BLANK: 3317691 Matrix: Solid
Associated Lab Samples: 60423695001, 60423695002, 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	mg/kg	ND	0.50	0.28	03/15/23 16:50	
Cadmium	mg/kg	ND	0.50	0.10	03/15/23 16:50	
Copper	mg/kg	ND	2.0	0.31	03/15/23 16:50	
Lead	mg/kg	ND	1.0	0.36	03/15/23 16:50	
Nickel	mg/kg	ND	0.50	0.24	03/15/23 16:50	
Selenium	mg/kg	ND	1.5	0.75	03/15/23 16:50	
Silver	mg/kg	ND	0.70	0.17	03/15/23 16:50	
Zinc	mg/kg	ND	10.0	1.3	03/15/23 16:50	

LABORATORY CONTROL SAMPLE: 3317692

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/kg	100	96.5	97	80-120	
Cadmium	mg/kg	100	94.6	95	80-120	
Copper	mg/kg	100	93.3	93	80-120	
Lead	mg/kg	100	95.7	96	80-120	
Nickel	mg/kg	100	98.1	98	80-120	
Selenium	mg/kg	100	82.0	82	80-120	
Silver	mg/kg	50	44.0	88	80-120	
Zinc	mg/kg	100	95.7	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3317693 3317694

Parameter	Units	60423695001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/kg	249	98.7	98.7	521	479	276	234	75-125	8	20	M1
Cadmium	mg/kg	0.58	98.7	98.7	78.4	78.2	79	79	75-125	0	20	
Copper	mg/kg	10.4	98.7	98.7	96.4	97.0	87	88	75-125	1	20	
Lead	mg/kg	9.0	98.7	98.7	88.2	88.3	80	80	75-125	0	20	
Nickel	mg/kg	10.8	98.7	98.7	91.0	91.2	81	81	75-125	0	20	
Selenium	mg/kg	ND	98.7	98.7	72.0	72.0	73	73	75-125	0	20	M1
Silver	mg/kg	ND	49.4	49.4	40.1	40.3	81	82	75-125	1	20	
Zinc	mg/kg	36.3	98.7	98.7	117	118	81	82	75-125	1	20	

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QUALITY CONTROL DATA

Project: NWAV #1
Pace Project No.: 60423695

QC Batch:	836498	Analysis Method:	EPA 6020
QC Batch Method:	EPA 3050	Analysis Description:	6020 MET
		Laboratory:	Pace Analytical Services - Kansas City

Associated Lab Samples: 60423695001, 60423695002, 60423695003

METHOD BLANK: 3317695 Matrix: Solid
Associated Lab Samples: 60423695001, 60423695002, 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	0.18	03/15/23 09:07	

LABORATORY CONTROL SAMPLE: 3317696

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	100	95.2	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3317697 3317698

Parameter	Units	60423695001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	6.0	98.7	98.7	95.0	96.3	90	91	75-125	1	20	

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QUALITY CONTROL DATA

Project: NWA# #1

Pace Project No.: 60423695

QC Batch:	836136	Analysis Method:	EPA 8260C
QC Batch Method:	EPA 5035A/5030B	Analysis Description:	8260C MSV 5035A Low Level
		Laboratory:	Pace Analytical Services - Kansas City
Associated Lab Samples:	60423695001, 60423695002, 60423695003		

METHOD BLANK: 3316783 Matrix: Solid

Associated Lab Samples: 60423695001, 60423695002, 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	ND	0.0050	0.00069	03/11/23 13:05	
1,3,5-Trimethylbenzene	mg/kg	ND	0.0050	0.00043	03/11/23 13:05	
Benzene	mg/kg	ND	0.0050	0.00046	03/11/23 13:05	
Ethylbenzene	mg/kg	ND	0.0050	0.00087	03/11/23 13:05	
Toluene	mg/kg	ND	0.020	0.0044	03/11/23 13:05	
Xylene (Total)	mg/kg	ND	0.015	0.0037	03/11/23 13:05	
1,2-Dichlorobenzene-d4 (S)	%	100	80-120		03/11/23 13:05	
4-Bromofluorobenzene (S)	%	105	83-119		03/11/23 13:05	
Toluene-d8 (S)	%	111	80-120		03/11/23 13:05	

LABORATORY CONTROL SAMPLE: 3316784

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	mg/kg	1.2	1.2	93	79-121	
1,3,5-Trimethylbenzene	mg/kg	1.2	1.2	94	81-122	
Benzene	mg/kg	1.2	1.2	93	67-126	
Ethylbenzene	mg/kg	1.2	1.1	88	69-127	
Toluene	mg/kg	1.2	1.1	86	80-118	
Xylene (Total)	mg/kg	3.8	3.4	91	69-130	
1,2-Dichlorobenzene-d4 (S)	%			102	80-120	
4-Bromofluorobenzene (S)	%			99	83-119	
Toluene-d8 (S)	%			100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3316785 3316786

Parameter	Units	60423695001		MSD		MS		MSD		% Rec Limits	Max		Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	MSD % Rec		RPD	RPD	
1,2,4-Trimethylbenzene	mg/kg	ND	1.7	1.7	1.6	1.7	97	102	10-124	5	68		
1,3,5-Trimethylbenzene	mg/kg	ND	1.7	1.7	1.6	1.7	97	103	10-125	5	65		
Benzene	mg/kg	0.0014J	1.7	1.7	1.6	1.7	95	99	17-134	4	53		
Ethylbenzene	mg/kg	ND	1.7	1.7	1.5	1.6	91	95	10-137	5	60		
Toluene	mg/kg	ND	1.7	1.7	1.4	1.5	86	90	13-131	5	60		
Xylene (Total)	mg/kg	ND	5.1	5.1	4.8	5.1	95	100	10-137	5	58		
1,2-Dichlorobenzene-d4 (S)	%						100	103	80-120				
4-Bromofluorobenzene (S)	%						101	101	83-119				
Toluene-d8 (S)	%						100	101	80-120				

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QUALITY CONTROL DATA

Project: NWAV #1
Pace Project No.: 60423695

QC Batch: 836061 Analysis Method: EPA 8015B
QC Batch Method: EPA 3546 Analysis Description: EPA 8015B
Laboratory: Pace Analytical Services - Kansas City
Associated Lab Samples: 60423695001, 60423695002, 60423695003

METHOD BLANK: 3316421 Matrix: Solid
Associated Lab Samples: 60423695001, 60423695002, 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
TPH-DRO (C10-C28)	mg/kg	ND	9.9	4.5	03/12/23 01:58	
TPH-RRO (C28-C36)	mg/kg	ND	19.9	4.5	03/12/23 01:58	
n-Tetracosane (S)	%	85	31-152		03/12/23 01:58	
p-Terphenyl (S)	%	82	46-130		03/12/23 01:58	

LABORATORY CONTROL SAMPLE: 3316422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH-DRO (C10-C28)	mg/kg	82.6	66.4	80	74-124	
n-Tetracosane (S)	%			90	31-152	
p-Terphenyl (S)	%			88	46-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3316423 3316424

Parameter	Units	60423695001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH-DRO (C10-C28)	mg/kg	ND	98.2	97	61.1	58.3	61	59	30-130	5	35	
n-Tetracosane (S)	%						68	52	31-152			
p-Terphenyl (S)	%						62	48	46-130			

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QUALITY CONTROL DATA

Project: NWA #1

Pace Project No.: 60423695

QC Batch:	836062	Analysis Method:	EPA 8270 by SIM
QC Batch Method:	EPA 3546	Analysis Description:	8270/3546 MSSV PAH by SIM
		Laboratory:	Pace Analytical Services - Kansas City
Associated Lab Samples: 60423695001, 60423695002, 60423695003			

METHOD BLANK: 3316425 Matrix: Solid

Associated Lab Samples: 60423695001, 60423695002, 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1-Methylnaphthalene	mg/kg	ND	0.0033	0.0016	03/14/23 13:56	
2-Methylnaphthalene	mg/kg	ND	0.0033	0.0020	03/14/23 13:56	
Acenaphthene	mg/kg	ND	0.0033	0.0018	03/14/23 13:56	
Anthracene	mg/kg	ND	0.0033	0.0017	03/14/23 13:56	
Benzo(a)anthracene	mg/kg	ND	0.0033	0.0018	03/14/23 13:56	
Benzo(a)pyrene	mg/kg	ND	0.0033	0.0014	03/14/23 13:56	
Benzo(b)fluoranthene	mg/kg	ND	0.0033	0.0018	03/14/23 13:56	
Benzo(k)fluoranthene	mg/kg	ND	0.0033	0.0019	03/14/23 13:56	
Chrysene	mg/kg	ND	0.0033	0.0018	03/14/23 13:56	
Dibenz(a,h)anthracene	mg/kg	ND	0.0033	0.0018	03/14/23 13:56	
Fluoranthene	mg/kg	ND	0.0033	0.0023	03/14/23 13:56	
Fluorene	mg/kg	ND	0.0033	0.0021	03/14/23 13:56	
Indeno(1,2,3-cd)pyrene	mg/kg	ND	0.0033	0.0017	03/14/23 13:56	
Naphthalene	mg/kg	ND	0.0033	0.0017	03/14/23 13:56	
Pyrene	mg/kg	ND	0.0033	0.0022	03/14/23 13:56	
2-Fluorobiphenyl (S)	%	79	40-120		03/14/23 13:56	
Terphenyl-d14 (S)	%	79	45-130		03/14/23 13:56	

LABORATORY CONTROL SAMPLE: 3316426

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	mg/kg	0.033	0.025	76	55-120	
2-Methylnaphthalene	mg/kg	0.033	0.026	80	55-120	
Acenaphthene	mg/kg	0.033	0.025	76	45-120	
Anthracene	mg/kg	0.033	0.027	83	50-120	
Benzo(a)anthracene	mg/kg	0.033	0.030	91	55-125	
Benzo(a)pyrene	mg/kg	0.033	0.026	81	45-120	
Benzo(b)fluoranthene	mg/kg	0.033	0.026	78	50-125	
Benzo(k)fluoranthene	mg/kg	0.033	0.025	77	55-120	
Chrysene	mg/kg	0.033	0.025	75	55-120	
Dibenz(a,h)anthracene	mg/kg	0.033	0.027	84	40-125	
Fluoranthene	mg/kg	0.033	0.029	87	50-125	
Fluorene	mg/kg	0.033	0.027	81	50-120	
Indeno(1,2,3-cd)pyrene	mg/kg	0.033	0.027	84	44-125	
Naphthalene	mg/kg	0.033	0.024	75	45-120	
Pyrene	mg/kg	0.033	0.026	78	50-125	
2-Fluorobiphenyl (S)	%			80	40-120	
Terphenyl-d14 (S)	%			80	45-130	

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QUALITY CONTROL DATA

Project: NWAV #1

Pace Project No.: 60423695

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3316427 3316428												
Parameter	Units	60423695002		MS	MSD	MS		MS	MSD	% Rec	Max	Qual
		Result	Conc.	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD	
1-Methylnaphthalene	mg/kg	ND	0.038	0.038	0.038	0.020	0.020	51	53	50-145	1	61
2-Methylnaphthalene	mg/kg	ND	0.038	0.038	0.038	0.021	0.021	54	54	50-120	1	61
Acenaphthene	mg/kg	ND	0.038	0.038	0.038	0.020	0.020	51	52	10-150	1	42
Anthracene	mg/kg	ND	0.038	0.038	0.038	0.021	0.021	55	56	10-160	1	54
Benzo(a)anthracene	mg/kg	ND	0.038	0.038	0.038	0.022	0.024	58	63	10-160	8	62
Benzo(a)pyrene	mg/kg	ND	0.038	0.038	0.038	0.019	0.020	49	54	10-150	7	66
Benzo(b)fluoranthene	mg/kg	ND	0.038	0.038	0.038	0.019	0.021	49	55	10-165	11	61
Benzo(k)fluoranthene	mg/kg	ND	0.038	0.038	0.038	0.016	0.018	43	47	10-165	8	53
Chrysene	mg/kg	ND	0.038	0.038	0.038	0.018	0.019	47	50	10-150	6	57
Dibenz(a,h)anthracene	mg/kg	ND	0.038	0.038	0.038	0.019	0.020	50	53	10-175	3	48
Fluoranthene	mg/kg	ND	0.038	0.038	0.038	0.023	0.024	60	62	10-180	3	54
Fluorene	mg/kg	ND	0.038	0.038	0.038	0.021	0.022	55	57	20-145	3	39
Indeno(1,2,3-cd)pyrene	mg/kg	ND	0.038	0.038	0.038	0.020	0.021	52	55	10-150	4	59
Naphthalene	mg/kg	ND	0.038	0.038	0.038	0.022	0.020	57	51	10-165	12	54
Pyrene	mg/kg	ND	0.038	0.038	0.038	0.019	0.020	51	53	10-180	3	61
2-Fluorobiphenyl (S)	%							37	38	40-120		S0
Terphenyl-d14 (S)	%							32	36	45-130		S0

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QUALITY CONTROL DATA

Project: NWAV #1

Pace Project No.: 60423695

QC Batch: 836042

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight/Percent Moisture

Laboratory:

Pace Analytical Services - Kansas City

Associated Lab Samples: 60423695001, 60423695002, 60423695003

METHOD BLANK: 3316296

Matrix: Solid

Associated Lab Samples: 60423695001, 60423695002, 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Percent Moisture	%	ND	0.50	0.50	03/10/23 14:29	

SAMPLE DUPLICATE: 3316297

Parameter	Units	60423695001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	15.6	15.4	2	20	

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QUALITY CONTROL DATA

Project: NWAV #1

Pace Project No.: 60423695

QC Batch: 2022001

QC Batch Method: SM 2540 G

Analysis Method: SM 2540G

Analysis Description: Total Solids 2540 G-2011

Laboratory: Pace National - Mt. Juliet

Associated Lab Samples: 60423695001, 60423695002

METHOD BLANK: R3900722-1

Matrix: Solid

Associated Lab Samples: 60423695001, 60423695002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Solids	%	0.00500			03/13/23 10:52	

LABORATORY CONTROL SAMPLE: R3900722-2

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Solids	%	50.0	50.0	99.9	85.0-115	

SAMPLE DUPLICATE: R3900722-3

Parameter	Units	L1594117-31 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Solids	%	96.0	96.2	0.135	10	

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QUALITY CONTROL DATA

Project: NWAV #1

Pace Project No.: 60423695

QC Batch: 2022004

QC Batch Method: SM 2540 G

Analysis Method: SM 2540G

Analysis Description: Total Solids 2540 G-2011

Laboratory: Pace National - Mt. Juliet

Associated Lab Samples: 60423695003

METHOD BLANK: R3900807-1

Matrix: Solid

Associated Lab Samples: 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Solids	%	ND			03/13/23 13:20	

LABORATORY CONTROL SAMPLE: R3900807-2

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Solids	%	50.0	50.0	100	85.0-115	

SAMPLE DUPLICATE: R3900807-3

Parameter	Units	L1594150-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Solids	%	79.9	80.8	1.14	10	

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QUALITY CONTROL DATA

Project: NWAV #1
Pace Project No.: 60423695

QC Batch:	2021948	Analysis Method:	EPA 7199
QC Batch Method:	3060A	Analysis Description:	Wet Chemistry 7199
		Laboratory:	Pace National - Mt. Juliet

Associated Lab Samples: 60423695002

METHOD BLANK: R3900585-1 Matrix: Solid
Associated Lab Samples: 60423695002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	mg/kg	ND	1.00	0.255	03/13/23 17:48	

LABORATORY CONTROL SAMPLE: R3900585-2

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	10.0	9.91	99.1	80.0-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3900585-3 R3900585-4

Parameter	Units	60423695003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium, Hexavalent	mg/kg	ND	24.0	24.0	23.7	23.7	98.8	98.7	75.0-125	0.110	20	

MATRIX SPIKE SAMPLE: R3900585-5

Parameter	Units	60423695003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	ND	772	715	92.6	75.0-125	

SAMPLE DUPLICATE: R3900585-7

Parameter	Units	L1594117-22 Result	Dup Result	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	mg/kg	0.665	0.796J	17.9	20 J	

SAMPLE DUPLICATE: R3900585-8

Parameter	Units	L1594117-32 Result	Dup Result	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	mg/kg	0.828	0.804J	2.91	20 J	

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QUALITY CONTROL DATA

Project: NWAV #1

Pace Project No.: 60423695

QC Batch: 2024809

Analysis Method: EPA 7199

QC Batch Method: 3060A

Analysis Description: Wet Chemistry 7199

Laboratory: Pace National - Mt. Juliet

Associated Lab Samples: 60423695001, 60423695003

METHOD BLANK: R3902811-1

Matrix: Solid

Associated Lab Samples: 60423695001, 60423695003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	mg/kg	ND	1.00	0.255	03/19/23 22:50	

LABORATORY CONTROL SAMPLE: R3902811-2

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	10.0	9.71	97.1	80.0-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3902811-4 R3902811-5

Parameter	Units	60423695001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium, Hexavalent	mg/kg	ND	23.0	23.0	20.1	20.5	87.4	89.1	75.0-125	1.93	20	

MATRIX SPIKE SAMPLE: R3902811-6

Parameter	Units	60423695001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	ND	736	486	66.0	75.0-125	ML

SAMPLE DUPLICATE: R3902811-7

Parameter	Units	60423695003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	mg/kg	ND	ND	0.00	20	

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QUALITY CONTROL DATA

Project: NWAV #1

Pace Project No.: 60423695

QC Batch: 2022582

Analysis Method: EPA 9045D

QC Batch Method: 9045C/9045D

Analysis Description: Wet Chemistry 9045D

Laboratory: Pace National - Mt. Juliet

Associated Lab Samples: 60423695001, 60423695002, 60423695003

LABORATORY CONTROL SAMPLE: R3900848-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH	Std. Units	10.0	9.99	99.9	99.0-101	

SAMPLE DUPLICATE: R3900848-2

Parameter	Units	60423695001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.96	8.01	0.626	1	

SAMPLE DUPLICATE: R3900848-3

Parameter	Units	60423695002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	8.24	8.20	0.487	1	

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QUALITY CONTROL DATA

Project: NWAV #1
Pace Project No.: 60423695

QC Batch:	2022100	Analysis Method:	EPA 9050
QC Batch Method:	9050A	Analysis Description:	Wet Chemistry 9050AMod
		Laboratory:	Pace National - Mt. Juliet

Associated Lab Samples: 60423695001, 60423695002, 60423695003

METHOD BLANK: R3901123-1 Matrix: Solid
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Specific Conductance @ 25 C	umhos/cm	ND	10.0	10.0	03/15/23 07:39	

LABORATORY CONTROL SAMPLE: R3901123-2

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance @ 25 C	umhos/cm	1120	1030	92.1	85.0-115	

SAMPLE DUPLICATE: R3901123-3

Parameter	Units	L1592950-04 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance @ 25 C	umhos/cm	2220	2220	0.180	20	

SAMPLE DUPLICATE: R3901123-4

Parameter	Units	L1593641-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance @ 25 C	umhos/cm	2620	2610	0.536	20	

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QUALITY CONTROL DATA

Project: NWAV #1
Pace Project No.: 60423695

QC Batch:	2022100	Analysis Method:	EPA 9050
QC Batch Method:	EPA 9050	Analysis Description:	Wet Chemistry 9050AMod
		Laboratory:	Pace National - Mt. Juliet

Associated Lab Samples: 60423695001, 60423695002, 60423695003

METHOD BLANK: R3901123-1 Matrix: Solid
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Specific Conductance @ 25 C	umhos/cm	ND	10.0	10.0	03/15/23 07:39	

LABORATORY CONTROL SAMPLE: R3901123-2

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance @ 25 C	umhos/cm	1120	1030	92.1	85.0-115	

SAMPLE DUPLICATE: R3901123-3

Parameter	Units	L1592950-04 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance @ 25 C	umhos/cm	2220	2220	0.180	20	

SAMPLE DUPLICATE: R3901123-4

Parameter	Units	L1593641-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance @ 25 C	umhos/cm	2620	2610	0.536	20	

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QUALIFIERS

Project: NWAV #1

Pace Project No.: 60423695

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.

SAMPLE QUALIFIERS

Sample: 60423695001

[1] Wet Chemistry by Method 9045D - 7.96 at 18.9C

[1] Wet Chemistry by Method 9050AMod - at 25C

Sample: 60423695002

[1] Wet Chemistry by Method 9045D - 8.24 at 18.7C

[1] Wet Chemistry by Method 9050AMod - at 25C

Sample: 60423695003

[1] Wet Chemistry by Method 9045D - 7.88 at 18.7C

[1] Wet Chemistry by Method 9050AMod - at 25C

Sample: R3900848-1

[1] Wet Chemistry by Method 9045D - 9.99 at 19.8C

Sample: R3900848-2

[1] Wet Chemistry by Method 9045D - 8.01 at 18.7C

Sample: R3900848-3

[1] Wet Chemistry by Method 9045D - 8.2 at 18.7C

Sample: R3901123-1

[1] Wet Chemistry by Method 9050AMod - at 25C

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QUALIFIERS

Project: NWAV #1

Pace Project No.: 60423695

SAMPLE QUALIFIERS

Sample: R3901123-2

[1] Wet Chemistry by Method 9050AMod - at 25C

Sample: R3901123-3

[1] Wet Chemistry by Method 9050AMod - at 25C

Sample: R3901123-4

[1] Wet Chemistry by Method 9050AMod - at 25C

Sample: L1592950-04

[1] Wet Chemistry by Method 9050AMod - at 25C

Sample: L1593641-01

[1] Wet Chemistry by Method 9050AMod - at 25C

ANALYTE QUALIFIERS

H3 Sample was received or analysis requested beyond the recognized method holding time.

J Analyte detected below the reporting limit, therefore result is an estimate. This qualifier is also used for all TICs.

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

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

S0 Surrogate recovery outside laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NWAV #1

Pace Project No.: 60423695

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60423695001	NWAV #1 TB WATERLINE DG-1 1'	EPA 3546	836061	EPA 8015B	836149
60423695002	NWAV #1 TB WATERLINE DG-1 4'	EPA 3546	836061	EPA 8015B	836149
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	EPA 3546	836061	EPA 8015B	836149
60423695001	NWAV #1 TB WATERLINE DG-1 1'	EPA 5035A/5030B	836841	EPA 8015B	837062
60423695002	NWAV #1 TB WATERLINE DG-1 4'	EPA 5035A/5030B	836841	EPA 8015B	837062
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	EPA 5035A/5030B	836841	EPA 8015B	837062
60423695001	NWAV #1 TB WATERLINE DG-1 1'	HWS Boron	2022871	6010B-NE493 Ch 2	2022871
60423695002	NWAV #1 TB WATERLINE DG-1 4'	HWS Boron	2022871	6010B-NE493 Ch 2	2022871
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	HWS Boron	2022871	6010B-NE493 Ch 2	2022871
60423695001	NWAV #1 TB WATERLINE DG-1 1'	EPA 3050	836497	EPA 6010	836618
60423695002	NWAV #1 TB WATERLINE DG-1 4'	EPA 3050	836497	EPA 6010	836618
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	EPA 3050	836497	EPA 6010	836618
60423695001	NWAV #1 TB WATERLINE DG-1 1'	EPA 3050	836498	EPA 6020	836619
60423695002	NWAV #1 TB WATERLINE DG-1 4'	EPA 3050	836498	EPA 6020	836619
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	EPA 3050	836498	EPA 6020	836619
60423695001	NWAV #1 TB WATERLINE DG-1 1'	EPA 3546	836062	EPA 8270 by SIM	836133
60423695002	NWAV #1 TB WATERLINE DG-1 4'	EPA 3546	836062	EPA 8270 by SIM	836133
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	EPA 3546	836062	EPA 8270 by SIM	836133
60423695001	NWAV #1 TB WATERLINE DG-1 1'	EPA 5035A/5030B	836136	EPA 8260C	836145
60423695002	NWAV #1 TB WATERLINE DG-1 4'	EPA 5035A/5030B	836136	EPA 8260C	836145
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	EPA 5035A/5030B	836136	EPA 8260C	836145
60423695001	NWAV #1 TB WATERLINE DG-1 1'	ASTM D2974	836042		
60423695002	NWAV #1 TB WATERLINE DG-1 4'	ASTM D2974	836042		
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	ASTM D2974	836042		
60423695001	NWAV #1 TB WATERLINE DG-1 1'	SM 2540 G	2022001	SM 2540G	2022001
60423695002	NWAV #1 TB WATERLINE DG-1 4'	SM 2540 G	2022001	SM 2540G	2022001
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	SM 2540 G	2022004	SM 2540G	2022004
60423695001	NWAV #1 TB WATERLINE DG-1 1'	3060A	2024809	EPA 7199	2024809
60423695002	NWAV #1 TB WATERLINE DG-1 4'	3060A	2021948	EPA 7199	2021948
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	3060A	2024809	EPA 7199	2024809
60423695001	NWAV #1 TB WATERLINE DG-1 1'	9045C/9045D	2022582	EPA 9045D	2022582
60423695002	NWAV #1 TB WATERLINE DG-1 4'	9045C/9045D	2022582	EPA 9045D	2022582
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	9045C/9045D	2022582	EPA 9045D	2022582
60423695001	NWAV #1 TB WATERLINE DG-1 1'	9050A	2022100	EPA 9050	2022100

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NWAV #1

Pace Project No.: 60423695

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60423695002	NWAV #1 TB WATERLINE DG-1 4'	9050A	2022100	EPA 9050	2022100
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	9050A	2022100	EPA 9050	2022100
60423695001	NWAV #1 TB WATERLINE DG-1 1'	Calc	2022037	Calculated	2022037
60423695002	NWAV #1 TB WATERLINE DG-1 4'	Calc	2022037	Calculated	2022037
60423695003	NWAV #1 TB WATERLINE UPGRADIEN	Calc	2022037	Calculated	2022037

REPORT OF LABORATORY ANALYSIS

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DC#_Title: ENV-FRM-LENE-0009_Sampl

Revision: 2

Effective Date: 01/12/202

WO#: 60423695



60423695

Client Name: Mold DrillingCourier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☒ Other ☐Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☒Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other ☒ ZiplocThermometer Used: Td96 Type of Ice: Wet Blue NoneCooler Temperature (°C): As-read 3.1 Corr. Factor -0.1 Corrected 3.0Date and initials of person
examining contents: 03-10-2023 uk

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>SL</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) LOT#:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State: <u>CO</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution:

Copy COC to Client? Y / N

Field Data Required? Y / N

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____

Date: _____



CHAIN-OF-CUSTODY / Analytical Request Document

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

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>.

Section A

Required Client Information:

Company: Multi Drilling Company

Address: 1700 N Waterfront Pkwy

Wichita, KS 67206

Email: jbellman@multidrilling.com

Phone: 316-364-6366

Requested Due Date: 5 days

Section B

Required Project Information:

Report To: James Bellman

Copy To:

Purchase Order #:

Project Name:

Project #: NWAV #2

Section C

Invoice Information:

Attention:

Company Name:

Address:

Pace Quote:

Pace Project Manager: nolie.wood@pacelabs.com

Pace Profile #: 15035.2

Page: 1 Of 1

Regulatory Agency

State / Location

CO

ITEM #	MATRIX	CODE	COLLECTED				SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES						Y/N	Requested Analysis Filtered (Y/N)						Residual Chlorine (Y/N)	
			START	END	DATE	TIME				Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol								
1	NWAV #2 TB water line DG-1	1'	7/8	0930	7/8	0945	4		4									X	X	X	X	X	X	
2	NWAV #1 TB water line DG-1	4'	7/8	0100	7/8	0100	4		4									X	X	X	X	X	X	
3	NWAV #1 TB water line up gradient		7/8	1020	7/8	1030	4		4									X	X	X	X	X	X	
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS

Send 7199 CrV, Saturated Paste EC, SAR, pH, and Hot Water Boron to Pace National

RELINQUISHED BY / AFFILIATION

DATE

TIME

ACCEPTED BY / AFFILIATION

DATE

TIME

SAMPLE CONDITIONS

Received on

TEMP in C

Ice

Custody

Sealed

Cooler

Samples

Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed: 3/8/23

Page 36 of 41

Client: Mull Drilling Profile # 1 W6KU-SI Met, 02, SI-Wet
Site: NWAV #2 Notes 1 S6FU 8260 SML; 8015 GRD
(Past EC, 7199)

COC Line Item	Matrix	VG9H	DG9H	DG9Q	VG9U	DG9U	DG9M	DG9B	BG1U	AG1H	AG1U	AG2U	AG3S	AG4U	AG5U	JG5U	WGKU	WGDU	BP1U	BP2U	BP3U	BP1N	BP3N	BP3F	BP3S	BP3C	BP3Z	WPDU	ZPLC	Other
1	SL															2	2													
2	SL															2	2													
3	SL															2	2													
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

Container Codes

Glass		Plastic		Misc.	
DG9B	40mL bisulfate clear vial	WGKU	8oz clear soil jar	BP1C	1L NaOH plastic
DG9H	40mL HCl amber vial	WGKU	4oz clear soil jar	BP1N	1L HNO3 plastic
DG9M	40mL MeOH clear vial	WG2U	2oz clear soil jar	BP1S	1L H2SO4 plastic
DG9Q	40mL TSP amber vial	JG5U	4oz unpreserved amber wide	BP1U	1L unpreserved plastic
DG9S	40mL H2SO4 amber vial	AG0U	100mL unores amber glass	BP1Z	1L NaOH, Zn Acetate
DG9T	40mL Na Thio amber vial	AG1H	1L HCl amber glass	BP2C	500mL NaOH plastic
DG9U	40mL amber unpreserved	AG1S	1L H2SO4 amber glass	BP2N	500mL HNO3 plastic
VG9H	40mL HCl clear vial	AG1T	1L Na Thiosulfate clear/amber glass	BP2S	500mL H2SO4 plastic
VG9T	40mL Na Thio. clear vial	AG1U	1liter unpres amber glass	BP2U	500mL unpreserved plastic
VG9U	40mL unpreserved clear vial	AG2N	500mL HNO3 amber glass	BP2Z	500mL NaOH, Zn Acetate
BG1S	1liter H2SO4 clear glass	AG2S	500mL H2SO4 amber glass	BP3C	250mL NaOH plastic
BG1U	1liter unpres glass	AG3S	250mL H2SO4 amber glass	BP3F	250mL HNO3 plastic - field filtered
BG3H	250mL HCL Clear glass	AG2U	500mL unpres amber glass	BP3N	250mL HNO3 plastic
BG3U	250mL Unpres Clear glass	AG3U	250mL unpres amber glass	BP3U	250mL unpreserved plastic
WGDU	16oz clear soil jar	AG4U	125mL unpres amber glass	BP3S	250mL H2SO4 plastic
		AG5U	100mL unpres amber glass	BP3Z	250mL NaOH, Zn Acetate
				BP4U	125mL unpreserved plastic
				BP4N	125mL HNO3 plastic
				BP4S	125mL H2SO4 plastic
				WPDU	16oz unpreserved plastic

Matrix	
WT	Water
SL	Solid
NAL	Non-aqueous Liquid
OL	OIL
WP	Wipe
DW	Drinking Water

Work Order Number:

60123695

Internal Transfer Chain of Custody



☐ Samples Pre-Logged into eCOC.

State Of Origin: CO

Cert. Needed: ☐ Yes

☒ No

Owner Received Date:

3/10/2023

Results Requested By: 3/17/2023

Workorder: 60423695

Workorder Name: NWAV #1

Report To

Subcontract To

Heather Wilson
Pace Analytical Kansas
9608 Loiret Blvd.
Lenexa, KS 66219
Phone 1(913)563-1407

Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

Requested Analysis

Preserved Containers

[illegible]



L159 4116

LAB USE ONLY

-01

-02

-03

					Comments
Transfers	Released By	Date/Time	Received By	Date/Time	**Rush surcharges have not been added. Hoping for results 3/20 or 3/21 but can accept by 3/23 at latest.
1		3/10 1200	 JAY PACE	3-11-23 0900	
2					
3					
Cooler Temperature on Receipt 0.1 °C		Custody Seal Y or N		Received on Ice Y or N	Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Receipt Checklist

Sample Release Checklist

COC Seal Present/Intact:	<u>/</u> Y	N	If Applicable	
COC Signed/Accurate:	<u>/</u> Y	N	VOA Zero Headspace:	<u> </u> Y <u> </u> N
Bottles arrive intact:	<u>/</u> Y	N	Pres. Correct/Check:	<u> </u> Y <u> </u> N
Correct bottles used:	<u>/</u> Y	N		
Sufficient volume sent:	<u>/</u> Y	N		
RAD Screen <0.5 mR/hr:	<u>/</u> Y	N		

TEMP: 6847 0.1 to = 0.1
FEDEX: 6091 0797 4556

0.1

NOTE 2-11-53 0600



Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER_LABORATORY WORK ORDER # 60423695

(To be completed by sending lab)

Sending Project No: 60423695	
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared: 03/10/23	
REQUESTED COMPLETION DATE: 3/17/2023	

Sending Region	IR60-Kansas	Sending Project Mgr.	Heather Wilson
Receiving Region	IR850-Pace National	External Client	Mull Drilling Company
State of Sample Origin	CO	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? ☐ IRWO Lab Need to run? Cert. Needed No

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Unit Price	Amount
Hot Water Boron	WGKU	3	Unpreserved	3	\$37.30	\$111.90
7199 CIV			Unpreserved	3	\$106.00	\$318.00
Saturated Paste EC, SAR, pH			Unpreserved	3	\$99.00	\$297.00
TOTAL						\$726.90

Special Requirements: Report D, QC Limits, MDLs (D), FR Only no EDD (0)

Receiving Region Department	Accty. Code	Totals from above	Revenue Allocation	
Metals	20	\$429.90	Receiving Region (80%)	Client Services Dept.
Wet Chemistry	21	\$297.00		Sending Region (20%)
* Custom Revenue Allocation	TOTAL	\$726.90	\$581.52	\$145.38

Return Samples to Sending Region: ☐ Yes ☒ No

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.
When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

