April Stegall
Dominion Energy Wexpro
PO Box 458
Rock Springs, WY 82901

Date: August 8, 2017
Request Number: 36496R
Date Received: 7/14/17
Matrix: Soil

REPORT OF ANALYSIS

Lab Number: R1560
Sample ID: BM Musser 15 100392 Sample #2 7/14/17 10:30am

	Result	Units	Method	Date Analyzed	Analyst
Nickel	25.4	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Copper	55.3	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Zinc	75.3	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Arsenic	3.71	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Selenium	< 0.01	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Silver	8.85	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Cadmium	0.044	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Barium	292	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Mercury	0.810	mg/kg	SW846 EPA 3051/6020	8/1/2017	MLE
Lead	32.6	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Total Chromium	80.9	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Chromium (VI)	0.20	mg/kg	EPA 7196A	7/27/2017	CB
Chromium (III)	80.7	mg/kg	Calculated (ttl.Cr-CrVI)	8/7/2017	TB
Soluble, Boron	0.19	mg/L	Hot water ext./6010	7/19/2017	CB
pH	7.51	std. units	USDA 60-2,3/150.1	7/19/2017	CB
Conductivity	3,080	µmhos/cm	USDA 60-2,3/120.1	7/19/2017	CB
Calcium	174*	mg/L	USDA 60-2,3/6010	7/25/2017	CB
Magnesium	42.7*	mg/L	USDA 60-2,3/6010	7/25/2017	CB
Sodium	1,128*	mg/L	USDA 60-2,3/6010	7/25/2017	CB
Sodium Absorption Ratio	19.9	Ratio	Calculated	7/27/2017	TB

*Results are the average of 2 runs

BTEX, GRO, DRO & PAH Analyzed by ALS Lab in Fort Collins Colorado. See attached Report.
ALS Lab Sample ID 1707309-1

WYOMING ANALYTICAL LABORATORIES, INC

1660 Harrison Street
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Rock Springs, WY 82901

Date: August 8, 2017
Request Number: 36496R
Date Received: 7/14/17
Matrix: Soil

REPORT OF ANALYSIS

Lab Number: R1562
Sample ID: BM Musser 15 116637 Sample #1 7/14/17 2:24pm

	Result	Units	Method	Date Analyzed	Analyst
Nickel	15.2*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Copper	26.3*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Zinc	34.8*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Arsenic	2.23*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Selenium	< 0.01*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Silver	7.24*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Cadmium	0.081*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Barium	593*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Mercury	0.785*	mg/kg	SW846 EPA 3051/6020	8/1/2017	MLE
Lead	26.1*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Total Chromium	32.5*	mg/kg	SW846 EPA 3051/6020	7/28/2017	MLE
Chromium (VI)	0.40	mg/kg	EPA 7196A	7/27/2017	CB
Chromium (III)	32.1	mg/kg	Calculated (ttl.Cr-CrVI)	8/7/2017	TB
Soluble, Boron	< 0.1*	mg/L	Hot water ext./6010	7/19/2017	CB
pH	7.60	std. units	USDA 60-2,3/150.1	7/19/2017	CB
Conductivity	1,098	µmhos/cm	USDA 60-2,3/120.1	7/19/2017	CB
Calcium	155*	mg/L	USDA 60-2,3/6010	7/25/2017	CB
Magnesium	27.6*	mg/L	USDA 60-2,3/6010	7/25/2017	CB
Sodium	342*	mg/L	USDA 60-2,3/6010	7/25/2017	CB
Sodium Absorption Ratio	6.65	Ratio	Calculated	7/27/2017	TB

*Results are the average of 2 runs

BTEX, GRO, DRO & PAH Analyzed by ALS Lab in Fort Collins Colorado. See attached Report.
ALS Lab Sample ID 1707309-2

End of Report
MLE/tab

Laboratory Manager

WYOMING ANALYTICAL LABORATORIES, INC

1660 Harrison Street
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April Stegall
Dominion Energy Wexpro
PO Box 458
Rock Springs, WY 82901

Date: August 8, 2017
Request Number: 36496R
Date Received: 7/14/17
Matrix: Soil

QUALITY CONTROL

	Reference	Expected	Value	% Recovery
Conductivity	QCI-027-12	756	720	95
pH	iv-6.03 pH QC	6.03	6.14	102
Chromium VI	Hach QC	0.500	0.470	94
Nickel	ERA P1488	0.244	0.221	91
Copper	ERA P1488	1.56	1.46	94
Zinc	ERA P1488	1.65	1.63	99
Arsenic	ERA P1488	0.042	0.048	114
Selenium	ERA P1488	0.079	0.107	135
Silver	ERA P1488	0.087	0.090	103
Cadmium	ERA P1488	0.029	0.034	117
Barium	ERA P1488	0.204	0.205	100
Mercury	Sqc001-1755	0.008	0.008	100
Lead	ERA QC P1488	0.084	0.096	114
Soluble Boron	ESI QC	1.0	1.0	103
Total Chromium	ERA QC P1488	0.072	0.070	97
Calcium	ESI QC	20.0	20.1	101
Magnesium	ESI QC	50.0	49.7	99
Sodium	ESI QC	50.0	48.9	98

BTEX, GRO, DRO & PAH Analyzed by ALS Lab in Fort Collins Colorado. See attached Report.
ALS Lab Sample ID 1707309-1 & 2

End of QC Report
MLE/tab

Laboratory Manager

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Date: August 8, 2017
Request Number: 36496R
Date Received: 7/14/17
Matrix: Soil

BTEX, GRO, DRO & PAH Analyzed by ALS Lab in Fort Collins Colorado.
The following pages apply to the samples listed below.

WAL Lab Number	ALS Lab Number	Wexpro Sample ID
R1560	1707309-1	**BM Musser 15 100392 Sample #2 7/14/17 10:30am**
R1562	1707309-3	**BM Musser 15 116637 Sample #1 7/14/17 2:24pm**

BTEX, GRO, & DRO Analyzed by ALS Lab in Fort Collins Colorado.
The following pages apply to the samples listed below.

WAL Lab Number	ALS Lab Number	Wexpro Sample ID
R1561	1707309-2	**BM Musser 15 100392 Sample #1 7/14/17 11:05am**
R1563	1707309-4	**BM Musser 15 116637 Sample #2 7/14/17 2:52pm**

Laboratory Manager

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Monday, July 31, 2017

Monte Ellis
Wyoming Analytical Laboratories, Inc.
1660 Harrision St.
Laramie, WY 82070

Re: ALS Workorder: 1707309
Project Name:
Project Number: 36496R

Dear Mr. Ellis:

Four soil samples were received from Wyoming Analytical Laboratories, Inc., on 7/20/2017. The samples were scheduled for the following analyses:

GC/MS Semivolatiles
GC/MS Volatiles
Total Extractable Petroleum Hydrocarbons (Diesel)

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Shiloh J. Summy
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
AIHA	214884
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Louisiana (LA)	05057
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

1707309

GC/MS Volatiles:
The samples were analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C. The samples were also analyzed for Gasoline Range Organics (GRO).

All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria with the following exceptions:

Spiked Compound	QC Sample	Direction
Ethylbenzene	MS/MSD	Low
M+P-xylene	MS/MSD	Low
O-xylene	MS/MSD	Low

The recoveries of these compounds in the laboratory control sample and laboratory control sample duplicate were within control limits, which suggest the outliers in the matrix spikes may have been due to matrix effects. No further action was taken.

All remaining acceptance criteria were met.

GC/MS Semivolatiles:
The samples were analyzed using GC/MS following the current revision of SOP 506 based on SW-846 Method 8270D.

All acceptance criteria were met.

DRO:
The samples were analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C10 to C28.

All acceptance criteria were met.

Client:	Wyoming Analytical Laboratories, Inc.	**Date:**	*31-Jul-17*
Project:	36496R	**Work Order:**	1707309
Sample ID:	R1560	**Lab ID:**	1707309-1
Legal Location:		**Matrix:**	SOIL
Collection Date:	7/14/2017 10:30	**Percent Moisture:**	16.2

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Diesel Range Organics		**SW8015M**		Prep Date: **7/25/2017**		PrepBy: **JFN**
Diesel Range Organics	ND		5.9	MG/KG	1	7/27/2017 01:10
Surr: O-TERPHENYL	*90*		*49-114*	*%REC*	1	7/27/2017 01:10
GC/MS Semi-volatiles		**SW8270**		Prep Date: **7/25/2017**		PrepBy: **KJP**
NAPHTHALENE	ND		390	UG/KG	1	7/27/2017 14:33
2-METHYLNAPHTHALENE	ND		390	UG/KG	1	7/27/2017 14:33
ACENAPHTHYLENE	ND		390	UG/KG	1	7/27/2017 14:33
ACENAPHTHENE	ND		390	UG/KG	1	7/27/2017 14:33
FLUORENE	ND		390	UG/KG	1	7/27/2017 14:33
PHENANTHRENE	ND		390	UG/KG	1	7/27/2017 14:33
ANTHRACENE	ND		390	UG/KG	1	7/27/2017 14:33
FLUORANTHENE	ND		390	UG/KG	1	7/27/2017 14:33
PYRENE	ND		390	UG/KG	1	7/27/2017 14:33
BENZO(A)ANTHRACENE	ND		390	UG/KG	1	7/27/2017 14:33
CHRYSENE	ND		390	UG/KG	1	7/27/2017 14:33
BENZO(B)FLUORANTHENE	ND		390	UG/KG	1	7/27/2017 14:33
BENZO(K)FLUORANTHENE	ND		390	UG/KG	1	7/27/2017 14:33
BENZO(A)PYRENE	ND		390	UG/KG	1	7/27/2017 14:33
INDENO(1,2,3-CD)PYRENE	ND		390	UG/KG	1	7/27/2017 14:33
DIBENZO(A,H)ANTHRACENE	ND		390	UG/KG	1	7/27/2017 14:33
BENZO(G,H,I)PERYLENE	ND		390	UG/KG	1	7/27/2017 14:33
Surr: NITROBENZENE-D5	*75*		*32-110*	*%REC*	1	7/27/2017 14:33
Surr: 2-FLUOROBIPHENYL	*67*		*41-111*	*%REC*	1	7/27/2017 14:33
Surr: TERPHENYL-D14	*76*		*23-159*	*%REC*	1	7/27/2017 14:33
GC/MS Volatiles		**SW8260**		Prep Date: **7/24/2017**		PrepBy: **JXK**
BENZENE	ND		6	UG/KG	1	7/24/2017 16:44
TOLUENE	ND		6	UG/KG	1	7/24/2017 16:44
ETHYLBENZENE	ND		6	UG/KG	1	7/24/2017 16:44
M+P-XYLENE	ND		6	UG/KG	1	7/24/2017 16:44
O-XYLENE	ND		6	UG/KG	1	7/24/2017 16:44
TOTAL XYLENES	ND		5	UG/KG	1	7/24/2017 16:44
Surr: DIBROMOFLUOROMETHANE	*106*		*61-134*	*%REC*	1	7/24/2017 16:44
Surr: TOLUENE-D8	*104*		*57-135*	*%REC*	1	7/24/2017 16:44
Surr: 4-BROMOFLUOROBENZENE	*97*		*52-151*	*%REC*	1	7/24/2017 16:44
GASOLINE RANGE ORGANICS	ND		600	UG/KG	1	7/24/2017 16:44

Client:	Wyoming Analytical Laboratories, Inc.	**Date:**	*31-Jul-17*
Project:	36496R	**Work Order:**	1707309
Sample ID:	R1561	**Lab ID:**	1707309-2
Legal Location:		**Matrix:**	SOIL
Collection Date:	7/14/2017 11:05	**Percent Moisture:**	15.5

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Diesel Range Organics			**SW8015M**	Prep Date: **7/25/2017**		PrepBy: **JFN**
Diesel Range Organics	1.9	J	5.8	MG/KG	1	7/27/2017 01:51
Surr: O-TERPHENYL	*96*		*49-114*	*%REC*	1	7/27/2017 01:51
GC/MS Volatiles			**SW8260**	Prep Date: **7/24/2017**		PrepBy: **JXK**
BENZENE	ND		5.9	UG/KG	1	7/24/2017 17:09
TOLUENE	ND		5.9	UG/KG	1	7/24/2017 17:09
ETHYLBENZENE	ND		5.9	UG/KG	1	7/24/2017 17:09
M+P-XYLENE	1.8	J	5.9	UG/KG	1	7/24/2017 17:09
O-XYLENE	ND		5.9	UG/KG	1	7/24/2017 17:09
TOTAL XYLENES	1.8	J	5	UG/KG	1	7/24/2017 17:09
Surr: DIBROMOFLUOROMETHANE	*103*		*61-134*	*%REC*	1	7/24/2017 17:09
Surr: TOLUENE-D8	*104*		*57-135*	*%REC*	1	7/24/2017 17:09
Surr: 4-BROMOFLUOROBENZENE	*95*		*52-151*	*%REC*	1	7/24/2017 17:09
GASOLINE RANGE ORGANICS	ND		590	UG/KG	1	7/24/2017 17:09

Client:	Wyoming Analytical Laboratories, Inc.	**Date:**	*31-Jul-17*
Project:	36496R	**Work Order:**	1707309
Sample ID:	R1562	**Lab ID:**	1707309-3
Legal Location:		**Matrix:**	SOIL
Collection Date:	7/14/2017 14:24	**Percent Moisture:**	7.8

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Diesel Range Organics			**SW8015M**	Prep Date: **7/25/2017**		PrepBy: **JFN**
Diesel Range Organics	3.8	J	5.4	MG/KG	1	7/27/2017 02:32
Surr: O-TERPHENYL	*85*		*49-114*	*%REC*	1	7/27/2017 02:32
GC/MS Semi-volatiles			**SW8270**	Prep Date: **7/25/2017**		PrepBy: **KJP**
NAPHTHALENE	ND		360	UG/KG	1	7/27/2017 15:01
2-METHYLNAPHTHALENE	ND		360	UG/KG	1	7/27/2017 15:01
ACENAPHTHYLENE	ND		360	UG/KG	1	7/27/2017 15:01
ACENAPHTHENE	ND		360	UG/KG	1	7/27/2017 15:01
FLUORENE	ND		360	UG/KG	1	7/27/2017 15:01
PHENANTHRENE	ND		360	UG/KG	1	7/27/2017 15:01
ANTHRACENE	ND		360	UG/KG	1	7/27/2017 15:01
FLUORANTHENE	ND		360	UG/KG	1	7/27/2017 15:01
PYRENE	ND		360	UG/KG	1	7/27/2017 15:01
BENZO(A)ANTHRACENE	ND		360	UG/KG	1	7/27/2017 15:01
CHRYSENE	ND		360	UG/KG	1	7/27/2017 15:01
BENZO(B)FLUORANTHENE	ND		360	UG/KG	1	7/27/2017 15:01
BENZO(K)FLUORANTHENE	ND		360	UG/KG	1	7/27/2017 15:01
BENZO(A)PYRENE	ND		360	UG/KG	1	7/27/2017 15:01
INDENO(1,2,3-CD)PYRENE	ND		360	UG/KG	1	7/27/2017 15:01
DIBENZO(A,H)ANTHRACENE	ND		360	UG/KG	1	7/27/2017 15:01
BENZO(G,H,I)PERYLENE	ND		360	UG/KG	1	7/27/2017 15:01
Surr: NITROBENZENE-D5	*75*		*32-110*	*%REC*	1	7/27/2017 15:01
Surr: 2-FLUOROBIPHENYL	*72*		*41-111*	*%REC*	1	7/27/2017 15:01
Surr: TERPHENYL-D14	*80*		*23-159*	*%REC*	1	7/27/2017 15:01
GC/MS Volatiles			**SW8260**	Prep Date: **7/24/2017**		PrepBy: **JXK**
BENZENE	ND		5.4	UG/KG	1	7/24/2017 17:34
TOLUENE	ND		5.4	UG/KG	1	7/24/2017 17:34
ETHYLBENZENE	ND		5.4	UG/KG	1	7/24/2017 17:34
M+P-XYLENE	ND		5.4	UG/KG	1	7/24/2017 17:34
O-XYLENE	ND		5.4	UG/KG	1	7/24/2017 17:34
TOTAL XYLENES	ND		5	UG/KG	1	7/24/2017 17:34
Surr: DIBROMOFLUOROMETHANE	*106*		*61-134*	*%REC*	1	7/24/2017 17:34
Surr: TOLUENE-D8	*102*		*57-135*	*%REC*	1	7/24/2017 17:34
Surr: 4-BROMOFLUOROBENZENE	*97*		*52-151*	*%REC*	1	7/24/2017 17:34
GASOLINE RANGE ORGANICS	ND		540	UG/KG	1	7/24/2017 17:34

Client:	Wyoming Analytical Laboratories, Inc.	**Date:**	*31-Jul-17*
Project:	36496R	**Work Order:**	1707309
Sample ID:	R1563	**Lab ID:**	1707309-4
Legal Location:		**Matrix:**	SOIL
Collection Date:	7/14/2017 14:52	**Percent Moisture:**	6.8

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Diesel Range Organics			**SW8015M**	**Prep Date: 7/25/2017**		**PrepBy: JFN**
Diesel Range Organics	3	J	5.3	MG/KG	1	7/27/2017 02:52
Surr: O-TERPHENYL	*76*		*49-114*	*%REC*	1	7/27/2017 02:52
GC/MS Volatiles			**SW8260**	**Prep Date: 7/24/2017**		**PrepBy: JXK**
BENZENE	ND		5.4	UG/KG	1	7/24/2017 18:52
TOLUENE	ND		5.4	UG/KG	1	7/24/2017 18:52
ETHYLBENZENE	ND		5.4	UG/KG	1	7/24/2017 18:52
M+P-XYLENE	ND		5.4	UG/KG	1	7/24/2017 18:52
O-XYLENE	ND		5.4	UG/KG	1	7/24/2017 18:52
TOTAL XYLENES	ND		5	UG/KG	1	7/24/2017 18:52
Surr: DIBROMOFLUOROMETHANE	*121*		*61-134*	*%REC*	1	7/24/2017 18:52
Surr: TOLUENE-D8	*96*		*57-135*	*%REC*	1	7/24/2017 18:52
Surr: 4-BROMOFLUOROBENZENE	*103*		*52-151*	*%REC*	1	7/24/2017 18:52
GASOLINE RANGE ORGANICS	ND		540	UG/KG	1	7/24/2017 18:52

Client:	Wyoming Analytical Laboratories, Inc.	**Date:**	*31-Jul-17*
Project:	36496R	**Work Order:**	1707309
Sample ID:	R1563	**Lab ID:**	1707309-4
Legal Location:		**Matrix:**	SOIL
Collection Date:	7/14/2017 14:52	**Percent Moisture:**	6.8

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: HC170725-101-1 Instrument ID FUELS-1 Method: SW8015M

DUP Sample ID: 1707309-1 Units: MG/KG Analysis Date: 7/27/2017 01:31
Client ID: R1560 Run ID: HC170726-8A Prep Date: 7/25/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	1.99	5.79						5.9		30	J
Surr: O-TERPHENYL	6.4		7.24		88	49-114					

LCS Sample ID: HC170725-101 Units: MG/KG Analysis Date: 7/27/2017 00:10
Client ID: Run ID: HC170726-8A Prep Date: 7/25/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	65.6	5	62.5		105	81-129				20	
Surr: O-TERPHENYL	5.24		6.25		84	49-114					

LCSD Sample ID: HC170725-101 Units: MG/KG Analysis Date: 7/27/2017 00:30
Client ID: Run ID: HC170726-8A Prep Date: 7/25/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	65	5	62.5		104	81-129		65.6	1	20	
Surr: O-TERPHENYL	5.15		6.25		82	49-114			2		

MB Sample ID: HC170725-101 Units: MG/KG Analysis Date: 7/26/2017 23:50
Client ID: Run ID: HC170726-8A Prep Date: 7/25/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	ND	5									
Surr: O-TERPHENYL	4.6		6.25		74	49-114					

MS Sample ID: 1707309-2 Units: MG/KG Analysis Date: 7/27/2017 02:11
Client ID: R1561 Run ID: HC170726-8A Prep Date: 7/25/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	67	5.88	73.5	1.9	89	81-129				20	
Surr: O-TERPHENYL	6.33		7.35		86	49-114					*

The following samples were analyzed in this batch: 1707309-1 1707309-2 1707309-3 1707309-4

QC BATCH REPORT

Batch ID: **EX170725-1-1** Instrument ID **HPSV4** Method: **SW8270**

LCS Sample ID: **EX170725-1** Units: **UG/KG** Analysis Date: **7/27/2017 14:05**

Client ID: Run ID: **SV170727-4** Prep Date: **7/25/2017** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
NAPHTHALENE	1420	333	2000		71	51-100				30	
2-METHYLNAPHTHALENE	1470	333	2000		74	51-100				30	
ACENAPHTHYLENE	1560	333	2000		78	60-109				30	
ACENAPHTHENE	1540	333	2000		77	38-103				30	
FLUORENE	1580	333	2000		79	65-106				30	
PHENANTHRENE	1580	333	2000		79	66-107				30	
ANTHRACENE	1510	333	2000		75	65-108				30	
FLUORANTHENE	1580	333	2000		79	64-109				30	
PYRENE	1550	333	2000		77	48-118				30	
BENZO(A)ANTHRACENE	1560	333	2000		78	64-107				30	
CHRYSENE	1530	333	2000		76	65-108				30	
BENZO(B)FLUORANTHENE	1650	333	2000		82	60-111				30	
BENZO(K)FLUORANTHENE	1440	333	2000		72	62-111				30	
BENZO(A)PYRENE	1550	333	2000		78	63-109				30	
INDENO(1,2,3-CD)PYRENE	1650	333	2000		83	55-117				30	
DIBENZO(A,H)ANTHRACENE	1650	333	2000		83	55-120				30	
BENZO(G,H,I)PERYLENE	1590	333	2000		80	37-123				30	
Surr: NITROBENZENE-D5	1360		1670		82	32-110					
Surr: 2-FLUOROBIPHENYL	1250		1670		75	41-111					
Surr: TERPHENYL-D14	1240		1670		74	23-159					

QC BATCH REPORT

Batch ID: EX170725-1-1 Instrument ID HPSV4 Method: SW8270

MB Sample ID: EX170725-1 Units: UG/KG Analysis Date: 7/27/2017 13:38

Client ID: Run ID: SV170727-4 Prep Date: 7/25/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
NAPHTHALENE	ND	330									
2-METHYLNAPHTHALENE	ND	330									
ACENAPHTHYLENE	ND	330									
ACENAPHTHENE	ND	330									
FLUORENE	ND	330									
PHENANTHRENE	ND	330									
ANTHRACENE	ND	330									
FLUORANTHENE	ND	330									
PYRENE	ND	330									
BENZO(A)ANTHRACENE	ND	330									
CHRYSENE	ND	330									
BENZO(B)FLUORANTHENE	ND	330									
BENZO(K)FLUORANTHENE	ND	330									
BENZO(A)PYRENE	ND	330									
INDENO(1,2,3-CD)PYRENE	ND	330									
DIBENZO(A,H)ANTHRACENE	ND	330									
BENZO(G,H,I)PERYLENE	ND	330									
Surr: NITROBENZENE-D5	1400		1670		84	32-110					
Surr: 2-FLUOROBIPHENYL	1240		1670		74	41-111					
Surr: TERPHENYL-D14	1370		1670		82	23-159					

Batch ID: EX170725-1-1 Instrument ID HPSV4 Method: SW8270

MS Sample ID: 1707309-3 Units: UG/KG Analysis Date: 7/27/2017 15:30

Client ID: R1562 Run ID: SV170727-4 Prep Date: 7/25/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
NAPHTHALENE	1380	358	2150	360	64	47-97				30	
2-METHYLNAPHTHALENE	1450	358	2150	360	67	51-99				30	
ACENAPHTHYLENE	1580	358	2150	360	73	60-109				30	
ACENAPHTHENE	1520	358	2150	360	71	47-110				30	
FLUORENE	1570	358	2150	360	73	65-106				30	
PHENANTHRENE	1600	358	2150	360	75	66-107				30	
ANTHRACENE	1540	358	2150	360	72	65-108				30	
FLUORANTHENE	1620	358	2150	360	75	64-109				30	
PYRENE	1570	358	2150	360	73	48-118				30	
BENZO(A)ANTHRACENE	1570	358	2150	360	73	64-107				30	
CHRYSENE	1560	358	2150	360	72	65-108				30	
BENZO(B)FLUORANTHENE	1570	358	2150	360	73	60-111				30	
BENZO(K)FLUORANTHENE	1530	358	2150	360	71	62-111				30	
BENZO(A)PYRENE	1580	358	2150	360	74	63-109				30	
INDENO(1,2,3-CD)PYRENE	1660	358	2150	360	77	55-117				30	
DIBENZO(A,H)ANTHRACENE	1660	358	2150	360	77	55-120				30	
BENZO(G,H,I)PERYLENE	1640	358	2150	360	76	37-123				30	
Surr: NITROBENZENE-D5	1330		1790		75	32-110					
Surr: 2-FLUOROBIPHENYL	1220		1790		68	41-111					
Surr: TERPHENYL-D14	1210		1790		68	23-159					

Client: Wyoming Analytical Laboratories, Inc.
Work Order: 1707309
Project: 36496R

QC BATCH REPORT

Batch ID: EX170725-1-1 Instrument ID HPSV4 Method: SW8270

MSD Sample ID: 1707309-3 Units: UG/KG Analysis Date: 7/27/2017 15:53

Client ID: R1562 Run ID: SV170727-4 Prep Date: 7/25/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
NAPHTHALENE	1520	359	2160	360	71	47-97		1380	10	30	
2-METHYLNAPHTHALENE	1620	359	2160	360	75	51-99		1450	11	30	
ACENAPHTHYLENE	1700	359	2160	360	79	60-109		1580	8	30	
ACENAPHTHENE	1680	359	2160	360	78	47-110		1520	10	30	
FLUORENE	1700	359	2160	360	79	65-106		1570	8	30	
PHENANTHRENE	1740	359	2160	360	81	66-107		1600	8	30	
ANTHRACENE	1650	359	2160	360	77	65-108		1540	7	30	
FLUORANTHENE	1720	359	2160	360	80	64-109		1620	6	30	
PYRENE	1690	359	2160	360	79	48-118		1570	8	30	
BENZO(A)ANTHRACENE	1660	359	2160	360	77	64-107		1570	6	30	
CHRYSENE	1670	359	2160	360	77	65-108		1560	7	30	
BENZO(B)FLUORANTHENE	1650	359	2160	360	77	60-111		1570	5	30	
BENZO(K)FLUORANTHENE	1660	359	2160	360	77	62-111		1530	8	30	
BENZO(A)PYRENE	1680	359	2160	360	78	63-109		1580	6	30	
INDENO(1,2,3-CD)PYRENE	1790	359	2160	360	83	55-117		1660	8	30	
DIBENZO(A,H)ANTHRACENE	1780	359	2160	360	82	55-120		1660	7	30	
BENZO(G,H,I)PERYLENE	1740	359	2160	360	81	37-123		1640	6	30	
Surr: NITROBENZENE-D5	1440		1800		80	32-110			8		
Surr: 2-FLUOROBIPHENYL	1300		1800		73	41-111			7		
Surr: TERPHENYL-D14	1310		1800		73	23-159			8		

The following samples were analyzed in this batch: 1707309-1 1707309-3

Client: Wyoming Analytical Laboratories, Inc.
Work Order: 1707309
Project: 36496R

QC BATCH REPORT

Batch ID: VL170724-2-1 Instrument ID HPV2 Method: SW8260

LCS Sample ID: VL170724-2 Units: UG/KG Analysis Date: 7/24/2017 13:32
Client ID: Run ID: VL170724-2A Prep Date: 7/24/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	41.8	5	40		105	73-126				30	
TOLUENE	41.1	5	40		103	71-127				30	
ETHYLBENZENE	42.7	5	40		107	74-127				30	
M+P-XYLENE	84	5	80		105	79-126				30	
O-XYLENE	41.4	5	40		103	77-125				30	
Surr: DIBROMOFLUOROMETHANE	52.2		50		104	61-134					
Surr: TOLUENE-D8	52		50		104	57-135					
Surr: 4-BROMOFLUOROBENZENE	49.9		50		100	52-151					

LCSD Sample ID: VL170724-2 Units: UG/KG Analysis Date: 7/24/2017 14:22
Client ID: Run ID: VL170724-2A Prep Date: 7/24/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	41.7	5	40		104	73-126		41.8	0	30	
TOLUENE	40.1	5	40		100	71-127		41.1	2	30	
ETHYLBENZENE	41.7	5	40		104	74-127		42.7	2	30	
M+P-XYLENE	83.7	5	80		105	79-126		84	0	30	
O-XYLENE	41.3	5	40		103	77-125		41.4	0	30	
Surr: DIBROMOFLUOROMETHANE	50.5		50		101	61-134			3		
Surr: TOLUENE-D8	52		50		104	57-135			0		
Surr: 4-BROMOFLUOROBENZENE	49.2		50		98	52-151			1		

MB Sample ID: VL170724-2 Units: UG/KG Analysis Date: 7/24/2017 16:21
Client ID: Run ID: VL170724-2A Prep Date: 7/24/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	ND	5									
TOLUENE	ND	5									
ETHYLBENZENE	ND	5									
M+P-XYLENE	ND	5									
O-XYLENE	ND	5									
TOTAL XYLENES	ND	5									
Surr: DIBROMOFLUOROMETHANE	51		50		102	61-134					
Surr: TOLUENE-D8	52		50		104	57-135					
Surr: 4-BROMOFLUOROBENZENE	47.1		50		94	52-151					

Client: Wyoming Analytical Laboratories, Inc.
Work Order: 1707309
Project: 36496R

QC BATCH REPORT

Batch ID: **VL170724-2-1** Instrument ID **HPV2** Method: **SW8260**

MS Sample ID: **1707309-1** Units: **UG/KG** Analysis Date: **7/24/2017 22:23**
Client ID: **R1560** Run ID: **VL170724-2A** Prep Date: **7/24/2017** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	35.1	5.97	47.7	6	73	73-126				30	
TOLUENE	34.6	5.97	47.7	6	72	71-127				30	
ETHYLBENZENE	34.1	5.97	47.7	6	71	74-127				30	*
M+P-XYLENE	68.3	5.97	95.5	6	72	79-126				30	*
O-XYLENE	34.5	5.97	47.7	6	72	77-125				30	*
Surr: DIBROMOFLUOROMETHANE	58.6		59.7		98	61-134					
Surr: TOLUENE-D8	62		59.7		104	57-135					
Surr: 4-BROMOFLUOROBENZENE	59.5		59.7		100	52-151					

MSD Sample ID: **1707309-1** Units: **UG/KG** Analysis Date: **7/24/2017 22:49**
Client ID: **R1560** Run ID: **VL170724-2A** Prep Date: **7/24/2017** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	34.9	5.97	47.7	6	73	73-126		35.1	0	30	
TOLUENE	34.9	5.97	47.7	6	73	71-127		34.6	1	30	
ETHYLBENZENE	34.1	5.97	47.7	6	71	74-127		34.1	0	30	*
M+P-XYLENE	68	5.97	95.5	6	71	79-126		68.3	1	30	*
O-XYLENE	34.3	5.97	47.7	6	72	77-125		34.5	1	30	*
Surr: DIBROMOFLUOROMETHANE	59.7		59.7		100	61-134			2		
Surr: TOLUENE-D8	62.6		59.7		105	57-135			1		
Surr: 4-BROMOFLUOROBENZENE	60.4		59.7		101	52-151			1		

The following samples were analyzed in this batch: 1707309-1 1707309-2 1707309-3 1707309-4

Client: Wyoming Analytical Laboratories, Inc.
Work Order: 1707309
Project: 36496R

QC BATCH REPORT

Batch ID: VL170724-2-3 **Instrument ID** HPV2 **Method:** SW8260

LCS Sample ID: VL170724-5 Units: UG/KG Analysis Date: 7/24/2017 15:10
Client ID: Run ID: VL170724-2A Prep Date: 7/24/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	2030	500	2000		102	80-120				20	

LCSD Sample ID: VL170724-5 Units: UG/KG Analysis Date: 7/24/2017 15:34
Client ID: Run ID: VL170724-2A Prep Date: 7/24/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	2160	500	2000		108	80-120		2030	6	20	

MB Sample ID: VL170724-2 Units: UG/KG Analysis Date: 7/24/2017 16:21
Client ID: Run ID: VL170724-2A Prep Date: 7/24/2017 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	ND	500									

The following samples were analyzed in this batch: 1707309-1 1707309-2 1707309-3 1707309-4