

Tammy Fredrickson  
Dominion Energy Wexpro  
PO Box 458  
Rock Springs, WY 82901

Date: December 3, 2018  
Request Number: 37859R  
Date Received: 11/15/18  
Matrix: Soil

**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	Dominion Sample ID
R5206	1811402-1	Resample #5 11/15/18 10:03am



Monte L. Ellis  
Laboratory Manager



## WYOMING ANALYTICAL LABORATORIES, INC

1660 Harrison Street  
Laramie, WY 82070

[www.wal-lab.com](http://www.wal-lab.com)  
[laramie@wal-lab.com](mailto:laramie@wal-lab.com)

ph: 307-742-7995  
fax: 307-721-8956



Friday, November 30, 2018

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

Re: ALS Workorder: 1811402  
Project Name:  
Project Number: 37859R

Dear Mr. Ellis:

One soil sample was received from Wyoming Analytical Laboratories, Inc., on 11/21/2018. The sample was scheduled for the following analyses:

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  
Katie M. O'Brien  
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
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
PJ-LA (DoD ELAP/ISO 170250)	95377
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



## 1811402

### GC/MS Volatiles:

The sample was analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C. The sample was 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
Benzene	MS	Low
Toluene	MS	Low and RPD High
Ethylbenzene	MS	Low and RPD High
M+P-xylene	MS/MSD	Low and RPD High
O-xylene	MS/MSD	Low and RPD High

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.

### DRO:

The sample was 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 matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria with the following exception:

Spiked Compound	QC Sample	Direction
Diesel Range Organics	MSD	High

The recovery of this compound in the laboratory control sample was 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.

Client: Wyoming Analytical Laboratories, Inc.

Date: 30-Nov-18

Project: 37859R

Work Order: 1811402

Sample ID: R5206

Lab ID: 1811402-1

Legal Location:

Matrix: SOIL

Collection Date: 11/15/2018 10:03

Percent Moisture: 5.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>Diesel Range Organics</b>			<b>SW8015M</b>		Prep Date: 11/28/2018	PrepBy: LML
Diesel Range Organics	130	MH	4.1	MG/KG	1	11/29/2018 12:56
Surr: O-TERPHENYL	83		49-114	%REC	1	11/29/2018 12:56
<b>GC/MS Volatiles</b>			<b>SW8260</b>		Prep Date: 11/28/2018	PrepBy: JXK
BENZENE	ND		5.3	UG/KG	1	11/28/2018 13:01
TOLUENE	ND		5.3	UG/KG	1	11/28/2018 13:01
ETHYLBENZENE	ND		5.3	UG/KG	1	11/28/2018 13:01
M+P-XYLENE	ND		5.3	UG/KG	1	11/28/2018 13:01
O-XYLENE	1.7	J	5.3	UG/KG	1	11/28/2018 13:01
TOTAL XYLENES	1.7	J	5	UG/KG	1	11/28/2018 13:01
Surr: DIBROMOFLUOROMETHANE	98		61-134	%REC	1	11/28/2018 13:01
Surr: TOLUENE-D8	102		57-135	%REC	1	11/28/2018 13:01
Surr: 4-BROMOFLUOROBENZENE	87		52-151	%REC	1	11/28/2018 13:01
GASOLINE RANGE ORGANICS	ND		530	UG/KG	1	11/28/2018 13:01

Client: Wyoming Analytical Laboratories, Inc.  
 Project: 37859R  
 Sample ID: R5206  
 Legal Location:  
 Collection Date: 11/15/2018 10:03

Date: 30-Nov-18  
 Work Order: 1811402  
 Lab ID: 1811402-1  
 Matrix: SOIL  
 Percent Moisture: 5.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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### Explanation of Qualifiers

#### Radiochemistry:

- "Report Limit" is the MDC  
 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

## ALS -- Fort Collins

Date: 11/30/2018 1:48

Client: Wyoming Analytical Laboratories, Inc.  
 Work Order: 1811402  
 Project: 37859R

## QC BATCH REPORT

Batch ID: HC181128-81-1 Instrument ID FUELS-1 Method: SW8015M

LCS Sample ID: HC181128-81 Units: MG/KG Analysis Date: 11/29/2018 14:31

Client ID: Run ID: HC181129-8A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	65.8	4	62.5		105	81-129				20	
Surr: O-TERPHENYL	10.1		12.5		81	49-114					

MB Sample ID: HC181128-81 Units: MG/KG Analysis Date: 11/29/2018 12:34

Client ID: Run ID: HC181129-8A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit									Qual
Diesel Range Organics	ND	4									
Surr: O-TERPHENYL	10.4				83	49-114					

MS Sample ID: 1811402-1 Units: MG/KG Analysis Date: 11/29/2018 13:17

Client ID: R5206 Run ID: HC181129-8A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	211	4.15	64.9	130	129	81-129				20	
Surr: O-TERPHENYL	10.5		13		81	49-114					

MSD Sample ID: 1811402-1 Units: MG/KG Analysis Date: 11/29/2018 13:39

Client ID: R5206 Run ID: HC181129-8A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	215	4.18	65.3	130	133	81-129		211	2	20	*
Surr: O-TERPHENYL	10.5		13.1		80	49-114			1		

The following samples were analyzed in this batch:

1811402-1

Client: Wyoming Analytical Laboratories, Inc.  
 Work Order: 1811402  
 Project: 37859R

# QC BATCH REPORT

Batch ID: VL181128-2-1 Instrument ID HPV2 Method: SW8260

LCS Sample ID: VL181128-2 Units: UG/KG Analysis Date: 11/28/2018 10:24

Client ID: Run ID: VL181128-2A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	42.1	5	40		105	73-126				30	
TOLUENE	40.2	5	40		101	71-127				30	
ETHYLBENZENE	41.2	5	40		103	74-127				30	
M+P-XYLENE	81.8	5	80		102	79-126				30	
O-XYLENE	41.3	5	40		103	77-125				30	
Surr: DIBROMOFLUOROMETHANE	50.8		50		102	61-134					
Surr: TOLUENE-D8	48.9		50		98	57-135					
Surr: 4-BROMOFLUOROBENZENE	49.1		50		98	52-151					

LCSD Sample ID: VL181128-2 Units: UG/KG Analysis Date: 11/28/2018 10:46

Client ID: Run ID: VL181128-2A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	41.3	5	40		103	73-126		42.1	2	30	
TOLUENE	39.5	5	40		99	71-127		40.2	2	30	
ETHYLBENZENE	40.5	5	40		101	74-127		41.2	2	30	
M+P-XYLENE	79.6	5	80		100	79-126		81.8	3	30	
O-XYLENE	40.2	5	40		101	77-125		41.3	3	30	
Surr: DIBROMOFLUOROMETHANE	49.6		50		99	61-134				2	
Surr: TOLUENE-D8	48.4		50		97	57-135				1	
Surr: 4-BROMOFLUOROBENZENE	48.3		50		97	52-151				2	

MB Sample ID: VL181128-2 Units: UG/KG Analysis Date: 11/28/2018 12:38

Client ID: Run ID: VL181128-2A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit	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	48.6		97 61-134
Surr: TOLUENE-D8	50.5		101 57-135
Surr: 4-BROMOFLUOROBENZENE	46		92 52-151



Client: Wyoming Analytical Laboratories, Inc.  
 Work Order: 1811402  
 Project: 37859R

## QC BATCH REPORT

Batch ID: VL181128-2-1 Instrument ID: HPV2 Method: SW8260

MS		Sample ID: 1811402-1			Units: UG/KG		Analysis Date: 11/28/2018 13:25				
Client ID: R5206		Run ID: VL181128-2A			Prep Date: 11/28/2018			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	27	5.29	42.3	5.3	64	73-126				30	*
TOLUENE	23.9	5.29	42.3	5.3	56	71-127				30	*
ETHYLBENZENE	21.7	5.29	42.3	5.3	51	74-127				30	*
M+P-XYLENE	42.3	5.29	84.7	5.3	50	79-126				30	*
O-XYLENE	22.3	5.29	42.3	1.7	49	77-125				30	*
Surr: DIBROMOFLUOROMETHANE	52.7		52.9		100	61-134					
Surr: TOLUENE-D8	51.6		52.9		98	57-135					
Surr: 4-BROMOFLUOROBENZENE	49.6		52.9		94	52-151					

MSD	Sample ID: 1811402-1			Units: UG/KG			Analysis Date: 11/28/2018 13:47				
Client ID: R5206		Run ID: VL181128-2A			Prep Date: 11/28/2018			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	36.3	5.28	42.3	5.3	86	73-126		27	29	30	
TOLUENE	36.1	5.28	42.3	5.3	85	71-127		23.9	41	30	+
ETHYLBENZENE	31.7	5.28	42.3	5.3	75	74-127		21.7	38	30	+
M+P-XYLENE	61.6	5.28	84.5	5.3	73	79-126		42.3	37	30	*+
O-XYLENE	32.8	5.28	42.3	1.7	74	77-125		22.3	38	30	*+
Surr: DIBROMOFLUOROMETHANE	54.8		52.8		104	61-134			4		
Surr: TOLUENE-D8	56		52.8		106	57-135			8		
Surr: 4-BROMOFLUOROBENZENE	45.2		52.8		86	52-151			9		

The following samples were analyzed in this batch:

1811402-1

**Client:** Wyoming Analytical Laboratories, Inc.  
**Work Order:** 1811402  
**Project:** 37859R

## QC BATCH REPORT

Batch ID: VL181128-2-2 Instrument ID HPV2 Method: SW8260

**LCS** Sample ID: VL181128-5 Units: UG/KG Analysis Date: 11/28/2018 11:31

Client ID: Run ID: VL181128-2A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	1780	500	2000		89	80-120				20	

**LCSD** Sample ID: VL181128-5 Units: UG/KG Analysis Date: 11/28/2018 11:53

Client ID: Run ID: VL181128-2A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	1820	500	2000		91	80-120		1780	2	20	

**MB** Sample ID: VL181128-2 Units: UG/KG Analysis Date: 11/28/2018 12:38

Client ID: Run ID: VL181128-2A Prep Date: 11/28/2018 DF: 1

Analyte	Result	ReportLimit	Qual
GASOLINE RANGE ORGANICS	ND	500	

The following samples were analyzed in this batch:

1811402-1

Report to: <u>Tammy Fredrickson</u> Company: <u>Dominion Wexpro</u> Address: <u>PO Box 458</u> City, ST, Zip: <u>Rock Springs WY 82902</u> Phone: <u>307-352-7514</u> Fax: <u>307-352-7575</u> Email: <u>Tammy.Fredrickson@DominionEnergy.com</u>		Please <b>PRINT</b> all information		Wyoming Analytical Laboratories, Inc 1660 Harrison St Laramie, WY 82070 307-742-7995 Fax 307-721-8956 laramie@wal-lab.com rocksprings@wal-lab.com		Notes / Lab No. <div style="text-align: right; font-size: 1.2em;">37859R 25206</div>					
*Matrix: W-water, S-soil, SL-sludge, O-oil, G-gaseous, X-other: _____ **Preservation: T-4°C, A-acid, F-filtered, N-none, X-other: _____ TAT: Standard / Expedite _____ days (subject to fee/availability) Project: <u>F. Wilson #26</u> PO#: _____		# of containers Preservation* custody seals?		Organics TPH (circle) by GC 8015 (circle) BTEX, GRO, DRO, Fuel ID (circle) by GC-MS 8260 (circle) VOC, BTEX, GRO (circle) by GC-MS 8270 (circle) SVOA, BNA, PAH (circle)		Inorganics F, Cl, NO2, NO3, NO2+NO3 (circle) Br, PO4, SO4, NH3 (circle) Alkalinity, pH, cond, TDS (circle) TSS, Turbidity (circle) TOC, BOD, COD, H2S, Specific Gravity (circle) Total/cell MPN, Fecal MPN, Total/cell Pass/Fail (circle)		Metals As Rec'd, Total, Dissolved, TCLP, WyoLeach, (circle) Group 1, Ba, RCRA, TRI, Cu, Pb, Hg, List Below (circle)			
Sample ID <u>1 Resample #5</u>		Date/Time <u>11-15-18</u>		Matrix* <u>10-03 PM</u>		# of containers <u>5</u>		Preservation* <u>5</u>		custody seals? <u>NA</u>	
2											
3											
4											
5											
6											
7											
8											
9											
10											

  

Print Name: <u>Maddyn Baucom</u> Signature: <u>Maddyn Baucom</u> Date/Time: <u>11-15-18</u> Shipped VIA: <u>OTC</u>		Relinquished 2nd Print Name: _____ Signature: _____ Date/Time: _____ Shipped VIA: _____	
Received 1st Print Name: <u>Hopie McCoy</u> Signature: <u>Hopie McCoy</u> Date/Time: <u>11/15/18</u>		Received 2nd Print Name: _____ Signature: _____ Date/Time: _____	

WAL use only: Record discrepancies in sample condition upon receipt on WAL Doc#228 - SCUR

# 12.8°C