



Crystal Weaver
Environmental Specialist
NMOCD District II

June 16, 2017

Re: RDU 11 workplan for the characterization of impacts – Case # 4197

Dear Ms. Weaver,

The purpose of this letter is to propose a workplan for the characterization of impacts associated with the RDU 11 crude oil spill which occurred on April 20, 2017.

With BLM's approval, the impacted area was excavated to a depth of approximately 1 – 1.5'. After the initial excavation, on 5/3/17, four surface samples were collected; see results below.

Location	DRO (mg/kg)	GRO (mg/kg)	ORO (mg/kg)	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	Xylenes (mg/kg)	Chlorides (mg/kg)
RDU 11 S1 0"	1200	ND	420	ND	ND	ND	ND	11000
RDU 11 S2 0"	1500	ND	740	ND	ND	ND	ND	9200
RDU 11 S3 0"	690	ND	530	ND	ND	ND	ND	20000
RDU 11 S4 0"	1700	ND	1100	ND	0.085	0.049	0.39	5000

On May 23 and 31, 2017 additional samples were collected from the same sampling points but at different depths. The data is consolidated in the table below.

Location	DRO (mg/kg)	GRO (mg/kg)	ORO (mg/kg)	Chlorides (mg/kg)
RDU 11 S1 0"	990	49	470	14000
RDU 11 S1 1'	ND	ND	50	11000
RDU 11 S1 2'	ND	ND	8	15000
RDU 11 S1 3'	ND	ND	ND	4100
RDU 11 S2 1'	20	ND	11	270
RDU 11 S2 2'	ND	ND	ND	5000
RDU 11 S2 3'	ND	ND	ND	10000
RDU 11 S3 0'	120	ND	130	1300
RDU 11 S3 1'	ND	ND	9.7	21
RDU 11 S3 2'	ND	ND	ND	32
RDU 11 S3 3'	ND	ND	ND	83
RDU 11 S4 1'	12	ND	11	230
RDU 11 S4 2'	7.8	ND	14	2600
RDU 11 S4 3'	ND	ND	ND	7800

WPX will excavate 2 potholes to the maximum extent of the back-hoe reach expecting to delineate chloride concentrations to 250 mg/kg. Also, WPX would like to request permission to excavate the impacted area to 4' below the original surface grade. WPX will submit the pothole results to OCD along with the cleanup plan for prior approval.

Please do not hesitate to call me if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Karolina Blaney". The script is cursive and fluid, with the first name and last name clearly distinguishable.

Karolina Blaney
WPX Energy
Environmental Specialist
(970) 589-0743
karolina.blaney@wpxenergy.com



13-Jun-2017

Karolina Blaney
WPX Energy
5315 Buena Vista Dr.
Carlsbad, NM 88220

Re: **RDU 11**

Work Order: **1706207**

Dear Karolina,

ALS Environmental received 8 samples on 03-Jun-2017 09:45 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 19.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Certificate No: MN 998501

Report of Laboratory Analysis

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185

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Environmental 

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RIGHT SOLUTIONS RIGHT PARTNER

Client: WPX Energy
Project: RDU 11
Work Order: 1706207

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1706207-01	RDU 11 S1 Surface	Soil		5/31/2017 12:05	6/3/2017 09:45	☐
1706207-02	RDU 11 S1 1'	Soil		5/31/2017 12:10	6/3/2017 09:45	☐
1706207-03	RDU 11 S1 2'	Soil		5/31/2017 12:12	6/3/2017 09:45	☐
1706207-04	RDU 11 S1 3'	Soil		5/31/2017 12:14	6/3/2017 09:45	☐
1706207-05	RDU 11 S3 Surface	Soil		5/31/2017 12:20	6/3/2017 09:45	☐
1706207-06	RDU 11 S3 1'	Soil		5/31/2017 12:22	6/3/2017 09:45	☐
1706207-07	RDU 11 S3 2'	Soil		5/31/2017 12:24	6/3/2017 09:45	☐
1706207-08	RDU 11 S3 3'	Soil		5/31/2017 12:26	6/3/2017 09:45	☐

Client: WPX Energy**Project:** RDU 11**Work Order:** 1706207**Case Narrative**

Batch 102890, Method DRLVI_8015_S, Samples 1706207-01A, -02A, -03A and -04A: Low DRO surrogate recoveries due to sample matrix effects confirmed by re-extraction.

Batch 102972, Method CL_4500E_DISC_S, Sample 1706207-01A MS/MSD: The MS and MSD recovery was outside of the control limit Chloride; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required.

Client: WPX Energy
Project: RDU 11
WorkOrder: 1706207

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group, USA

Date: 13-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S1 Surface

Collection Date: 5/31/2017 12:05 PM

Work Order: 1706207

Lab ID: 1706207-01

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 6/7/17 15:02	Analyst: IT
DRO (C10-C28)	990		5.2	mg/Kg-dry	1	6/8/2017 01:54 PM
ORO (C28-C40)	470		5.2	mg/Kg-dry	1	6/8/2017 01:54 PM
Surr: 4-Terphenyl-d14	28.5	S	53-140	%REC	1	6/8/2017 01:54 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 6/5/17 13:43	Analyst: IT
GRO (C6-C10)	49		2.8	mg/Kg-dry	1	6/7/2017 06:58 PM
Surr: Toluene-d8	108		50-150	%REC	1	6/7/2017 06:58 PM
CHLORIDE						
Chloride	14,000		A4500-CL E-97		Prep: EXTRACT 6/7/17 12:45	Analyst: LW
			310	mg/Kg-dry	30	6/8/2017 10:00 AM
MOISTURE						
Moisture	4.9		SW3550C			Analyst: EDL
			0.050	% of sample	1	6/6/2017 01:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 13-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S1 1'

Collection Date: 5/31/2017 12:10 PM

Work Order: 1706207

Lab ID: 1706207-02

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 6/7/17 15:02	Analyst: IT
DRO (C10-C28)	ND		5.2	mg/Kg-dry	1	6/8/2017 02:24 PM
ORO (C28-C40)	26		5.2	mg/Kg-dry	1	6/8/2017 02:24 PM
Surr: 4-Terphenyl-d14	18.0	S	53-140	%REC	1	6/8/2017 02:24 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 6/5/17 13:43	Analyst: IT
GRO (C6-C10)	ND		2.8	mg/Kg-dry	1	6/6/2017 04:42 AM
Surr: Toluene-d8	108		50-150	%REC	1	6/6/2017 04:42 AM
CHLORIDE						
Chloride	11,000		A4500-CL E-97		Prep: EXTRACT 6/7/17 12:45	Analyst: LW
			320	mg/Kg-dry	30	6/8/2017 10:00 AM
MOISTURE						
Moisture	6.5		SW3550C			Analyst: EDL
			0.050	% of sample	1	6/6/2017 01:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 13-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S1 2'

Collection Date: 5/31/2017 12:12 PM

Work Order: 1706207

Lab ID: 1706207-03

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 6/7/17 15:02	Analyst: IT
DRO (C10-C28)	ND		5.4	mg/Kg-dry	1	6/8/2017 02:54 PM
ORO (C28-C40)	8.0		5.4	mg/Kg-dry	1	6/8/2017 02:54 PM
Surr: 4-Terphenyl-d14	16.0	S	53-140	%REC	1	6/8/2017 02:54 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 6/5/17 13:43	Analyst: IT
GRO (C6-C10)	ND		3.0	mg/Kg-dry	1	6/6/2017 05:08 AM
Surr: Toluene-d8	108		50-150	%REC	1	6/6/2017 05:08 AM
CHLORIDE						
Chloride	15,000		A4500-CL E-97		Prep: EXTRACT 6/7/17 12:45	Analyst: LW
			320	mg/Kg-dry	30	6/8/2017 10:00 AM
MOISTURE						
Moisture	8.4		SW3550C			Analyst: EDL
			0.050	% of sample	1	6/6/2017 01:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 13-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S1 3'

Collection Date: 5/31/2017 12:14 PM

Work Order: 1706207

Lab ID: 1706207-04

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546 6/7/17 15:02	Analyst: IT	
DRO (C10-C28)	ND		5.7	mg/Kg-dry	1	6/8/2017 03:23 PM
ORO (C28-C40)	ND		5.7	mg/Kg-dry	1	6/8/2017 03:23 PM
Surr: 4-Terphenyl-d14	12.0	S	53-140	%REC	1	6/8/2017 03:23 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035 6/5/17 13:43	Analyst: IT	
GRO (C6-C10)	ND		3.3	mg/Kg-dry	1	6/6/2017 05:33 AM
Surr: Toluene-d8	108		50-150	%REC	1	6/6/2017 05:33 AM
CHLORIDE			A4500-CL E-97	Prep: EXTRACT 6/7/17 12:45	Analyst: LW	
Chloride	4,100		46	mg/Kg-dry	4	6/8/2017 10:00 AM
MOISTURE			SW3550C		Analyst: EDL	
Moisture	14		0.050	% of sample	1	6/6/2017 01:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 13-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S3 Surface

Collection Date: 5/31/2017 12:20 PM

Work Order: 1706207

Lab ID: 1706207-05

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 6/5/17 13:36	Analyst: IT
DRO (C10-C28)	120		5.4	mg/Kg-dry	1	6/6/2017 11:25 AM
ORO (C28-C40)	130		5.4	mg/Kg-dry	1	6/6/2017 11:25 AM
Surr: 4-Terphenyl-d14	64.1		53-140	%REC	1	6/6/2017 11:25 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 6/5/17 13:43	Analyst: IT
GRO (C6-C10)	ND		3.1	mg/Kg-dry	1	6/6/2017 05:59 AM
Surr: Toluene-d8	104		50-150	%REC	1	6/6/2017 05:59 AM
CHLORIDE						
Chloride	1,300		A4500-CL E-97		Prep: EXTRACT 6/7/17 12:45	Analyst: LW
			45	mg/Kg-dry	4	6/8/2017 10:00 AM
MOISTURE						
			SW3550C			Analyst: EDL
Moisture	10		0.050	% of sample	1	6/6/2017 01:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 13-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S3 1'

Collection Date: 5/31/2017 12:22 PM

Work Order: 1706207

Lab ID: 1706207-06

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 6/5/17 13:36	Analyst: IT
DRO (C10-C28)	ND		6.3	mg/Kg-dry	1	6/6/2017 11:54 AM
ORO (C28-C40)	9.7		6.3	mg/Kg-dry	1	6/6/2017 11:54 AM
Surr: 4-Terphenyl-d14	122		53-140	%REC	1	6/6/2017 11:54 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 6/5/17 13:43	Analyst: IT
GRO (C6-C10)	ND		3.8	mg/Kg-dry	1	6/6/2017 06:24 AM
Surr: Toluene-d8	105		50-150	%REC	1	6/6/2017 06:24 AM
CHLORIDE						
Chloride	25		A4500-CL E-97		Prep: EXTRACT 6/7/17 12:45	Analyst: LW
			13	mg/Kg-dry	1	6/8/2017 10:00 AM
MOISTURE						
Moisture	21		SW3550C			Analyst: EDL
			0.050	% of sample	1	6/6/2017 01:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 13-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S3 2'

Collection Date: 5/31/2017 12:24 PM

Work Order: 1706207

Lab ID: 1706207-07

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546 6/5/17 13:36	Analyst: IT	
DRO (C10-C28)	ND		5.4	mg/Kg-dry	1	6/6/2017 12:24 PM
ORO (C28-C40)	ND		5.4	mg/Kg-dry	1	6/6/2017 12:24 PM
Surr: 4-Terphenyl-d14	115		53-140	%REC	1	6/6/2017 12:24 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035 6/5/17 13:43	Analyst: IT	
GRO (C6-C10)	ND		2.9	mg/Kg-dry	1	6/6/2017 06:50 AM
Surr: Toluene-d8	107		50-150	%REC	1	6/6/2017 06:50 AM
CHLORIDE			A4500-CL E-97	Prep: EXTRACT 6/7/17 12:45	Analyst: LW	
Chloride	32		11	mg/Kg-dry	1	6/8/2017 10:00 AM
MOISTURE			SW3550C		Analyst: EDL	
Moisture	7.9		0.050	% of sample	1	6/6/2017 01:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 13-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S3 3'

Collection Date: 5/31/2017 12:26 PM

Work Order: 1706207

Lab ID: 1706207-08

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546 6/5/17 13:36	Analyst: IT	
DRO (C10-C28)	ND		5.9	mg/Kg-dry	1	6/6/2017 12:54 PM
ORO (C28-C40)	ND		5.9	mg/Kg-dry	1	6/6/2017 12:54 PM
Surr: 4-Terphenyl-d14	101		53-140	%REC	1	6/6/2017 12:54 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035 6/5/17 13:43	Analyst: IT	
GRO (C6-C10)	ND		3.4	mg/Kg-dry	1	6/6/2017 07:15 AM
Surr: Toluene-d8	105		50-150	%REC	1	6/6/2017 07:15 AM
CHLORIDE			A4500-CL E-97	Prep: EXTRACT 6/7/17 12:45	Analyst: LW	
Chloride	83		12	mg/Kg-dry	1	6/8/2017 10:00 AM
MOISTURE			SW3550C		Analyst: EDL	
Moisture	15		0.050	% of sample	1	6/6/2017 01:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: WPX Energy
Work Order: 1706207
Project: RDU 11

QC BATCH REPORT

Batch ID: **102780** Instrument ID **GC8** Method: **SW8015C**

MBLK Sample ID: DBLKS1-102780-102780				Units: mg/Kg		Analysis Date: 6/5/2017 03:59 PM				
Client ID:		Run ID: GC8_170605A		SeqNo: 4465067		Prep Date: 6/5/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	5.0								
ORO (C28-C40)	ND	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.8	0	3.33	0	84.1	53-140	0			

LCS Sample ID: DLCSS1-102780-102780				Units: mg/Kg		Analysis Date: 6/5/2017 04:28 PM				
Client ID:		Run ID: GC8_170605A		SeqNo: 4465068		Prep Date: 6/5/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	291	5.0	333	0	87.4	65-122	0			
ORO (C28-C40)	283.4	5.0	333	0	85.1	81-116	0			
<i>Surr: 4-Terphenyl-d14</i>	3.2	0	3.33	0	96.1	53-140	0			

MS Sample ID: 1706131-03A MS				Units: mg/Kg		Analysis Date: 6/5/2017 05:58 PM				
Client ID:		Run ID: GC8_170605A		SeqNo: 4465070		Prep Date: 6/5/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	247.5	4.9	329.2	4.416	73.8	65-122	0			
ORO (C28-C40)	268.3	4.9	329.2	14.2	77.2	81-116	0			S
<i>Surr: 4-Terphenyl-d14</i>	2.521	0	3.292	0	76.6	53-140	0			

MSD Sample ID: 1706131-03A MSD				Units: mg/Kg		Analysis Date: 6/5/2017 06:27 PM				
Client ID:		Run ID: GC8_170605A		SeqNo: 4465071		Prep Date: 6/5/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	251.1	4.9	328.6	4.416	75.1	65-122	247.5	1.43	30	
ORO (C28-C40)	268.3	4.9	328.6	14.2	77.3	81-116	268.3	0.0135	30	S
<i>Surr: 4-Terphenyl-d14</i>	2.434	0	3.286	0	74.1	53-140	2.521	3.52	30	

The following samples were analyzed in this batch:

1706207-01A	1706207-02A	1706207-03A
1706207-04A	1706207-05A	1706207-06A
1706207-07A	1706207-08A	

Client: WPX Energy
 Work Order: 1706207
 Project: RDU 11

QC BATCH REPORT

Batch ID: 102890 Instrument ID GC8 Method: SW8015C

MBLK		Sample ID: DBLKS1-102890-102890				Units: mg/Kg		Analysis Date: 6/7/2017 08:25 PM		
Client ID:		Run ID: GC8_170607A				SeqNo: 4469472		Prep Date: 6/7/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	5.0								
ORO (C28-C40)	2.317	5.0								J
<i>Surr: 4-Terphenyl-d14</i>	3.35	0	3.33	0	101	53-140	0			

LCS		Sample ID: DLCSS1-102890-102890				Units: mg/Kg		Analysis Date: 6/7/2017 08:54 PM		
Client ID:		Run ID: GC8_170607A				SeqNo: 4469473		Prep Date: 6/7/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	266	5.0	333	0	79.9	65-122	0			
ORO (C28-C40)	273.5	5.0	333	0	82.1	81-116	0			
<i>Surr: 4-Terphenyl-d14</i>	3.6	0	3.33	0	108	53-140	0			

MS		Sample ID: 1706366-02A MS				Units: mg/Kg		Analysis Date: 6/7/2017 09:24 PM		
Client ID:		Run ID: GC8_170607A				SeqNo: 4469474		Prep Date: 6/7/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	885.6	4.9	329.4	282.9	183	65-122	0			S
ORO (C28-C40)	322.8	4.9	329.4	57.02	80.7	81-116	0			S
<i>Surr: 4-Terphenyl-d14</i>	2.655	0	3.294	0	80.6	53-140	0			

MSD		Sample ID: 1706366-02A MSD				Units: mg/Kg		Analysis Date: 6/7/2017 09:54 PM		
Client ID:		Run ID: GC8_170607A				SeqNo: 4469475		Prep Date: 6/7/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	1104	4.9	324.3	282.9	253	65-122	885.6	22	30	S
ORO (C28-C40)	354.8	4.9	324.3	57.02	91.8	81-116	322.8	9.44	30	
<i>Surr: 4-Terphenyl-d14</i>	2.126	0	3.243	0	65.6	53-140	2.655	22.1	30	

The following samples were analyzed in this batch:

1706207-01A	1706207-02A	1706207-03A
1706207-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
 Work Order: 1706207
 Project: RDU 11

QC BATCH REPORT

Batch ID: **102804** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-102804-102804				Units: µg/Kg-dry		Analysis Date: 6/6/2017 12:02 PM		
Client ID:		Run ID: GC9_170605A				SeqNo: 4465226		Prep Date: 6/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500								
Surr: Toluene-d8	5034	0	5000	0	101	50-150	0			

LCS		Sample ID: LCS-102804-102804				Units: µg/Kg-dry		Analysis Date: 6/5/2017 11:12 PM		
Client ID:		Run ID: GC9_170605A				SeqNo: 4465205		Prep Date: 6/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	369300	2,500	500000	0	73.9	70-130	0			
Surr: Toluene-d8	5820	0	5000	0	116	50-150	0			

MS		Sample ID: 1706142-01A MS				Units: µg/Kg-dry		Analysis Date: 6/6/2017 03:00 AM		
Client ID:		Run ID: GC9_170605A				SeqNo: 4465211		Prep Date: 6/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	588100	2,800	565000	0	104	70-130	0			
Surr: Toluene-d8	6212	0	5650	0	110	50-150	0			

MSD		Sample ID: 1706142-01A MSD				Units: µg/Kg-dry		Analysis Date: 6/6/2017 03:26 AM		
Client ID:		Run ID: GC9_170605A				SeqNo: 4465212		Prep Date: 6/5/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	591600	2,800	565000	0	105	70-130	588100	0.587	30	
Surr: Toluene-d8	6530	0	5650	0	116	50-150	6212	4.99	30	

The following samples were analyzed in this batch:

1706207-01A	1706207-02A	1706207-03A
1706207-04A	1706207-05A	1706207-06A
1706207-07A	1706207-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
 Work Order: 1706207
 Project: RDU 11

QC BATCH REPORT

Batch ID: **102972** Instrument ID **GALLERY** Method: **A4500-CI E-97**

MBLK		Sample ID: MBLK-102972-102972				Units: mg/Kg		Analysis Date: 6/8/2017 10:00 AM		
Client ID:		Run ID: GALLERY_170608A		SeqNo: 4471163		Prep Date: 6/7/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride ND 10

MS		Sample ID: 1706207-01A MS				Units: mg/Kg		Analysis Date: 6/8/2017 10:00 AM		
Client ID: RDU 11 S1 Surface		Run ID: GALLERY_170608A		SeqNo: 4471196		Prep Date: 6/7/2017		DF: 30		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 14090 300 495 13100 199 75-125 0 SO

MSD		Sample ID: 1706207-01A MSD				Units: mg/Kg		Analysis Date: 6/8/2017 10:00 AM		
Client ID: RDU 11 S1 Surface		Run ID: GALLERY_170608A		SeqNo: 4471197		Prep Date: 6/7/2017		DF: 30		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 11960 300 495 13100 -230 75-125 14090 16.3 25 SO

LCS1		Sample ID: LCS1-102972-102972				Units: mg/Kg		Analysis Date: 6/8/2017 10:00 AM		
Client ID:		Run ID: GALLERY_170608A		SeqNo: 4471173		Prep Date: 6/7/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 100.3 10 100 0 100 80-120 0

LCS2		Sample ID: LCS2-102972-102972				Units: mg/Kg		Analysis Date: 6/8/2017 10:00 AM		
Client ID:		Run ID: GALLERY_170608A		SeqNo: 4471174		Prep Date: 6/7/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 498.6 10 500 0 99.7 80-120 0

The following samples were analyzed in this batch:

1706207-01A	1706207-02A	1706207-03A
1706207-04A	1706207-05A	1706207-06A
1706207-07A	1706207-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 1706207
Project: RDU 11

QC BATCH REPORT

Batch ID: **R213382** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R213382				Units: % of sample		Analysis Date: 6/6/2017 01:35 PM		
Client ID:		Run ID: MOIST_170606B				SeqNo: 4467385		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

LCS		Sample ID: LCS-R213382				Units: % of sample		Analysis Date: 6/6/2017 01:35 PM		
Client ID:		Run ID: MOIST_170606B				SeqNo: 4467384		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1706171-02B DUP				Units: % of sample		Analysis Date: 6/6/2017 01:35 PM		
Client ID:		Run ID: MOIST_170606B				SeqNo: 4467363		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 16.08 0.050 0 0 0 0-0 15.74 2.14 5

DUP		Sample ID: 1706171-04B DUP				Units: % of sample		Analysis Date: 6/6/2017 01:35 PM		
Client ID:		Run ID: MOIST_170606B				SeqNo: 4467366		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 15.64 0.050 0 0 0 0-0 15.73 0.574 5

The following samples were analyzed in this batch:

1706207-01A	1706207-02A	1706207-03A
1706207-04A	1706207-05A	1706207-06A
1706207-07A	1706207-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r8

WORKORDER #

1706207

PAGE

1 of 1

6/2/2017

DATE

5 days

TURNAROUND

DISPOSAL

By Lab or Return to Client

PROJECT NAME

RDU 11

SAMPLER

SITE ID

RDU 11

PROJECT No.

EDD FORMAT

PURCHASE ORDER

COMPANY NAME

WPX Energy

BILL TO COMPANY

WPX Energy

SEND REPORT TO

Blaney

INVOICE ATTN TO

Karolina Blaney

ADDRESS

ADDRESS

5315 Buena Vista Dr

CITY / STATE / ZIP

CITY / STATE / ZIP

Carlsbad, NM 88220

PHONE

PHONE

970 589 0743

FAX

FAX

E-MAIL

Karolina.blaney@wpxenergy.com;
james.raley@wpxenergy.com

E-MAIL

Karolina.blaney@wpxenergy.com;
James.Raley@wpxenergy.com

Lab ID

Field ID

Matrix

Sample Date

Sample Time

Bottles

Pres.

QC

DRO + GRO + ORO

BTEX

Chloride

1

RDU 11 S1 Surface

S

5/31/2017

12:05

2

8

x

x

x

2

RDU 11 S1 1'

S

5/31/2017

12:10

2

8

x

x

x

3

RDU 11 S1 2'

S

5/31/2017

12:12

2

8

x

x

x

4

RDU 11 S1 3'

S

5/31/2017

12:14

2

8

x

x

x

5

RDU 11 S3 Surface

S

5/31/2017

12:20

2

8

x

x

x

6

RDU 11 S3 1'

S

5/31/2017

12:22

2

8

x

x

x

7

RDU 11 S3 2'

S

5/31/2017

12:24

2

8

x

x

x

8

RDU 11 S3 3'

S

5/31/2017

12:26

2

8

x

x

x

*Time Zone (Circle): EST CST MST PST Matrix: O=oil S=soil NS=non-soil solid W=water L=liquid E=extract F=filter

For metals or anions, please detail analytes below.

Comments:

SRZ 4.0%



QC PACKAGE (check below)

X

LEVEL II (Standard QC)

LEVEL III (Std QC + forms)

LEVEL IV (Std QC + forms + raw data)

RELINQUISHED BY

RECEIVED BY

RELINQUISHED BY

RECEIVED BY

RELINQUISHED BY

RECEIVED BY

SIGNATURE

PRINTED NAME

DATE

TIME

Karolina Blaney

Karolina Blaney

6/2/2017

15:00

Diane F. Shaw 6/3/17 0945

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

Sample Receipt Checklist

Client Name: **WPX - NM**

Date/Time Received: **03-Jun-17 09:45**

Work Order: **1706207**

Received by: **DS**

Checklist completed by Diane Shaw
eSignature

05-Jun-17
Date

Reviewed by: Chad Whelton
eSignature

05-Jun-17
Date

Matrices: **soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Sample(s) received on ice?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>4.0 C/4.0 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/5/2017 9:20:19 AM</u>		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



05-Jun-2017

Karolina Blaney
WPX Energy
5315 Buena Vista Dr.
Carlsbad, NM 88220

Re: **RDU 11**

Work Order: **17051484**

Dear Karolina,

ALS Environmental received 6 samples on 25-May-2017 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Certificate No: MN 998501

Report of Laboratory Analysis

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: WPX Energy
Project: RDU 11
Work Order: 17051484

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
17051484-01	RDU 11 S2-1'	Soil		5/23/2017 08:20	5/25/2017 09:30	☐
17051484-02	RDU 11 S2-2'	Soil		5/23/2017 08:25	5/25/2017 09:30	☐
17051484-03	RDU 11 S2-3'	Soil		5/23/2017 08:30	5/25/2017 09:30	☐
17051484-04	RDU 11 S4-1'	Soil		5/23/2017 08:35	5/25/2017 09:30	☐
17051484-05	RDU 11 S4-2'	Soil		5/23/2017 08:40	5/25/2017 09:30	☐
17051484-06	RDU 11 S4-3'	Soil		5/23/2017 08:45	5/25/2017 09:30	☐

Client: WPX Energy
Project: RDU 11
WorkOrder: 17051484

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group, USA

Date: 05-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S2-1'

Collection Date: 5/23/2017 08:20 AM

Work Order: 17051484

Lab ID: 17051484-01

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 5/26/17 15:11	Analyst: RM
DRO (C10-C28)	20		5.6	mg/Kg-dry	1	5/30/2017 05:38 PM
ORO (C28-C40)	11		5.6	mg/Kg-dry	1	5/30/2017 05:38 PM
Surr: 4-Terphenyl-d14	114		50-150	%REC	1	5/30/2017 05:38 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 5/26/17 13:16	Analyst: RM
GRO (C6-C10)	ND		3.2	mg/Kg-dry	1	5/30/2017 05:36 PM
Surr: Toluene-d8	90.3		50-150	%REC	1	5/30/2017 05:36 PM
ANIONS BY ION CHROMATOGRAPHY						
			SW9056A		Prep: EXTRACT 5/31/17 16:00	Analyst: EE
Chloride	270		23	mg/Kg-dry	2	6/2/2017 11:37 AM
MOISTURE						
			SW3550C			Analyst: EDL
Moisture	13		0.050	% of sample	1	5/26/2017 02:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 05-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S2-2'

Collection Date: 5/23/2017 08:25 AM

Work Order: 17051484

Lab ID: 17051484-02

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546 5/26/17 15:11	Analyst: RM	
DRO (C10-C28)	ND		5.8	mg/Kg-dry	1	5/30/2017 06:08 PM
ORO (C28-C40)	ND		5.8	mg/Kg-dry	1	5/30/2017 06:08 PM
Surr: 4-Terphenyl-d14	109		50-150	%REC	1	5/30/2017 06:08 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035 5/26/17 13:16	Analyst: RM	
GRO (C6-C10)	ND		3.3	mg/Kg-dry	1	5/30/2017 05:11 PM
Surr: Toluene-d8	87.4		50-150	%REC	1	5/30/2017 05:11 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A	Prep: EXTRACT 5/31/17 16:00	Analyst: EE	
Chloride	5,000		580	mg/Kg-dry	50	6/2/2017 11:57 AM
MOISTURE			SW3550C		Analyst: EDL	
Moisture	14		0.050	% of sample	1	5/26/2017 02:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 05-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S2-3'

Collection Date: 5/23/2017 08:30 AM

Work Order: 17051484

Lab ID: 17051484-03

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546 5/26/17 15:11		Analyst: RM
DRO (C10-C28)	ND		5.8	mg/Kg-dry	1	5/30/2017 06:37 PM
ORO (C28-C40)	ND		5.8	mg/Kg-dry	1	5/30/2017 06:37 PM
Surr: 4-Terphenyl-d14	96.1		50-150	%REC	1	5/30/2017 06:37 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035 5/26/17 13:16		Analyst: RM
GRO (C6-C10)	ND		3.5	mg/Kg-dry	1	5/30/2017 04:20 PM
Surr: Toluene-d8	89.5		50-150	%REC	1	5/30/2017 04:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A	Prep: EXTRACT 5/31/17 16:00		Analyst: EE
Chloride	10,000		1,200	mg/Kg-dry	100	6/2/2017 12:17 PM
MOISTURE			SW3550C			Analyst: EDL
Moisture	16		0.050	% of sample	1	5/26/2017 02:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 05-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S4-1'

Collection Date: 5/23/2017 08:35 AM

Work Order: 17051484

Lab ID: 17051484-04

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 5/26/17 15:11	Analyst: RM
DRO (C10-C28)	12		5.1	mg/Kg-dry	1	5/30/2017 07:07 PM
ORO (C28-C40)	11		5.1	mg/Kg-dry	1	5/30/2017 07:07 PM
Surr: 4-Terphenyl-d14	105		50-150	%REC	1	5/30/2017 07:07 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 5/26/17 13:16	Analyst: RM
GRO (C6-C10)	ND		2.8	mg/Kg-dry	1	5/30/2017 03:55 PM
Surr: Toluene-d8	91.3		50-150	%REC	1	5/30/2017 03:55 PM
ANIONS BY ION CHROMATOGRAPHY						
			SW9056A		Prep: EXTRACT 5/31/17 16:00	Analyst: EE
Chloride	230		20	mg/Kg-dry	2	6/2/2017 12:38 PM
MOISTURE						
			SW3550C			Analyst: EDL
Moisture	4.8		0.050	% of sample	1	5/26/2017 02:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 05-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S4-2'

Collection Date: 5/23/2017 08:40 AM

Work Order: 17051484

Lab ID: 17051484-05

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 5/26/17 15:11	Analyst: RM
DRO (C10-C28)	7.8		5.4	mg/Kg-dry	1	5/30/2017 07:37 PM
ORO (C28-C40)	14		5.4	mg/Kg-dry	1	5/30/2017 07:37 PM
Surr: 4-Terphenyl-d14	106		50-150	%REC	1	5/30/2017 07:37 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 5/26/17 13:16	Analyst: RM
GRO (C6-C10)	ND		3.1	mg/Kg-dry	1	5/30/2017 03:29 PM
Surr: Toluene-d8	91.7		50-150	%REC	1	5/30/2017 03:29 PM
ANIONS BY ION CHROMATOGRAPHY						
			SW9056A		Prep: EXTRACT 5/31/17 16:00	Analyst: EE
Chloride	2,600		270	mg/Kg-dry	25	6/2/2017 12:58 PM
MOISTURE						
			SW3550C			Analyst: EDL
Moisture	10		0.050	% of sample	1	5/26/2017 02:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 05-Jun-17

Client: WPX Energy

Project: RDU 11

Sample ID: RDU 11 S4-3'

Collection Date: 5/23/2017 08:45 AM

Work Order: 17051484

Lab ID: 17051484-06

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			SW8015C	Prep: SW3546	5/26/17 15:11	Analyst: RM
DRO (C10-C28)	ND		7.3	mg/Kg-dry	1	5/30/2017 08:07 PM
ORO (C28-C40)	ND		7.3	mg/Kg-dry	1	5/30/2017 08:07 PM
Surr: 4-Terphenyl-d14	104		50-150	%REC	1	5/30/2017 08:07 PM
GASOLINE RANGE ORGANICS BY GC-FID			SW8015D	Prep: SW5035	5/26/17 13:16	Analyst: RM
GRO (C6-C10)	ND		4.2	mg/Kg-dry	1	5/30/2017 03:04 PM
Surr: Toluene-d8	91.0		50-150	%REC	1	5/30/2017 03:04 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A	Prep: EXTRACT	5/31/17 16:00	Analyst: EE
Chloride	7,800		650	mg/Kg-dry	50	6/2/2017 02:39 PM
MOISTURE			SW3550C			Analyst: EDL
Moisture	25		0.050	% of sample	1	5/26/2017 02:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: WPX Energy

Work Order: 17051484

Project: RDU 11

QC BATCH REPORT

Batch ID: 102471

Instrument ID GC8

Method: SW8015C

MBLK		Sample ID: DBLKS1-102471-102471				Units: mg/Kg		Analysis Date: 5/30/2017 11:12 AM		
Client ID:		Run ID: GC8_170530A				SeqNo: 4454799		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	5.0								
ORO (C28-C40)	ND	5.0								
<i>Surr: 4-Terphenyl-d14</i>	3.45	0	3.33	0	104	50-150	0			

LCS		Sample ID: DLCSS1-102471-102471				Units: mg/Kg		Analysis Date: 5/30/2017 11:41 AM		
Client ID:		Run ID: GC8_170530A				SeqNo: 4454800		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	320.7	5.0	333	0	96.3	50-150	0			
ORO (C28-C40)	319.8	5.0	333	0	96	50-150	0			
<i>Surr: 4-Terphenyl-d14</i>	3.4	0	3.33	0	102	50-150	0			

LCS		Sample ID: IDC 1-102471				Units: mg/Kg		Analysis Date: 6/1/2017 08:31 PM		
Client ID:		Run ID: GC8_170601A				SeqNo: 4460170		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	293.5	5.0	333	0	88.1	50-150	0			
ORO (C28-C40)	318.4	5.0	333	0	95.6	50-150	0			
<i>Surr: 4-Terphenyl-d14</i>	3.767	0	3.33	0	113	50-150	0			

LCS		Sample ID: IDC 2-102471				Units: mg/Kg		Analysis Date: 6/1/2017 09:01 PM		
Client ID:		Run ID: GC8_170601A				SeqNo: 4460171		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	279.5	5.0	333	0	83.9	50-150	0			
ORO (C28-C40)	301.9	5.0	333	0	90.7	50-150	0			
<i>Surr: 4-Terphenyl-d14</i>	3.75	0	3.33	0	113	50-150	0			

LCS		Sample ID: IDC 3-102471				Units: mg/Kg		Analysis Date: 6/1/2017 09:30 PM		
Client ID:		Run ID: GC8_170601A				SeqNo: 4460172		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	287.4	5.0	333	0	86.3	50-150	0			
ORO (C28-C40)	307.3	5.0	333	0	92.3	50-150	0			
<i>Surr: 4-Terphenyl-d14</i>	3.85	0	3.33	0	116	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
 Work Order: 17051484
 Project: RDU 11

QC BATCH REPORT

Batch ID: **102471** Instrument ID **GC8** Method: **SW8015C**

LCS		Sample ID: IDC 4-102471				Units: mg/Kg		Analysis Date: 6/1/2017 10:00 PM		
Client ID:		Run ID: GC8_170601A				SeqNo: 4460173		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	306.3	5.0	333	0	92	50-150	0			
ORO (C28-C40)	327	5.0	333	0	98.2	50-150	0			
<i>Surr: 4-Terphenyl-d14</i>	3.833	0	3.33	0	115	50-150	0			

MS		Sample ID: 17051414-02A MS				Units: mg/Kg		Analysis Date: 5/30/2017 12:11 PM		
Client ID:		Run ID: GC8_170530A				SeqNo: 4454801		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	460.8	4.9	324.9	56.65	124	50-150	0			
ORO (C28-C40)	405.9	4.9	324.9	78.69	101	50-150	0			
<i>Surr: 4-Terphenyl-d14</i>	3.431	0	3.249	0	106	50-150	0			

MSD		Sample ID: 17051414-02A MSD				Units: mg/Kg		Analysis Date: 5/30/2017 12:41 PM		
Client ID:		Run ID: GC8_170530A				SeqNo: 4454802		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	412.7	5.0	330.4	56.65	108	50-150	460.8	11	30	
ORO (C28-C40)	402.4	5.0	330.4	78.69	98	50-150	405.9	0.866	30	
<i>Surr: 4-Terphenyl-d14</i>	3.655	0	3.304	0	111	50-150	3.431	6.31	30	

The following samples were analyzed in this batch:

17051484-01A	17051484-02A	17051484-03A
17051484-04A	17051484-05A	17051484-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
 Work Order: 17051484
 Project: RDU 11

QC BATCH REPORT

Batch ID: **102504** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-102504-102504				Units: µg/Kg-dry		Analysis Date: 5/30/2017 12:31 PM		
Client ID:		Run ID: GC9_170530A				SeqNo: 4454775		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500								
Surr: Toluene-d8	4442	0	5000	0	88.8	50-150	0			

LCS		Sample ID: LCS-102504-102504				Units: µg/Kg-dry		Analysis Date: 5/30/2017 11:41 AM		
Client ID:		Run ID: GC9_170530A				SeqNo: 4454774		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	574200	2,500	500000	0	115	70-130	0			
Surr: Toluene-d8	5263	0	5000	0	105	50-150	0			

MS		Sample ID: 17051485-01A MS				Units: µg/Kg-dry		Analysis Date: 5/30/2017 01:48 PM		
Client ID:		Run ID: GC9_170530A				SeqNo: 4454779		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	672000	2,800	568400	0	118	70-130	0			
Surr: Toluene-d8	5979	0	5684	0	105	50-150	0			

MSD		Sample ID: 17051485-01A MSD				Units: µg/Kg-dry		Analysis Date: 5/30/2017 02:13 PM		
Client ID:		Run ID: GC9_170530A				SeqNo: 4454780		Prep Date: 5/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	656200	2,800	568400	0	115	70-130	672000	2.38	30	
Surr: Toluene-d8	5971	0	5684	0	105	50-150	5979	0.124	30	

The following samples were analyzed in this batch:

17051484-01A	17051484-02A	17051484-03A
17051484-04A	17051484-05A	17051484-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 17051484
Project: RDU 11

QC BATCH REPORT

Batch ID: **102730** Instrument ID **IC3** Method: **SW9056A**

MBLK		Sample ID: MBLK-102730-102730					Units: mg/Kg		Analysis Date: 6/2/2017 10:15 AM		
Client ID:			Run ID: IC3_170602A			SeqNo: 4461616		Prep Date: 5/31/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Chloride ND 10

LCS		Sample ID: LCS-102730-102730					Units: mg/Kg		Analysis Date: 6/2/2017 10:35 AM		
Client ID:			Run ID: IC3_170602A			SeqNo: 4461617		Prep Date: 5/31/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Chloride 95.44 10 100 0 95.4 80-120 0

MS				Sample ID: 17051484-05A MS				Units: mg/Kg			Analysis Date: 6/2/2017 01:18 PM			
Client ID: RDU 11 S4-2'				Run ID: IC3_170602A				SeqNo: 4461625			Prep Date: 5/31/2017		DF: 25	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

Chloride 2505 240 97.47 2354 155 75-125 0 SO

MSD				Sample ID: 17051484-05A MSD				Units: mg/Kg			Analysis Date: 6/2/2017 02:19 PM			
Client ID: RDU 11 S4-2'				Run ID: IC3_170602A				SeqNo: 4461628			Prep Date: 5/31/2017		DF: 25	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

Chloride 2439 250 98.62 2354 86.4 75-125 2505 2.68 20 O

The following samples were analyzed in this batch:

17051484-01A	17051484-02A	17051484-03A
17051484-04A	17051484-05A	17051484-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: WPX Energy
Work Order: 17051484
Project: RDU 11

QC BATCH REPORT

Batch ID: **R212824** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R212824				Units: % of sample		Analysis Date: 5/26/2017 02:47 PM		
Client ID:		Run ID: MOIST_170526D				SeqNo: 4453549		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS		Sample ID: LCS-R212824				Units: % of sample		Analysis Date: 5/26/2017 02:47 PM		
Client ID:		Run ID: MOIST_170526D				SeqNo: 4453548		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP		Sample ID: 17051457-04A DUP				Units: % of sample		Analysis Date: 5/26/2017 02:47 PM		
Client ID:		Run ID: MOIST_170526D				SeqNo: 4453527		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	26.38	0.050	0	0	0	0-0	26.77	1.47	5	

DUP		Sample ID: 17051457-06A DUP				Units: % of sample		Analysis Date: 5/26/2017 02:47 PM		
Client ID:		Run ID: MOIST_170526D				SeqNo: 4453529		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	19.25	0.050	0	0	0	0-0	19.67	2.16	5	

The following samples were analyzed in this batch:

17051484-01A	17051484-02A	17051484-03A
17051484-04A	17051484-05A	17051484-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r8

WORKORDER
#

17051484

PAGE

1 of 1

DISPOSAL

By Lab or Return to Client

PROJECT NAME RDU 11

SAMPLER

SITE ID RDU 11 ~~Sample 11~~

DATE

5/24/2017

TURNAROUND

5 day

PROJECT No.

EDD FORMAT

PURCHASE ORDER

COMPANY NAME WPX Energy

BILL TO COMPANY WPX Energy

SEND REPORT TO Blaney

INVOICE ATTN TO Karolina Blaney

ADDRESS

ADDRESS 5315 Buena Vista Dr

CITY / STATE / ZIP

CITY / STATE / ZIP Carlsbad, NM 88220

PHONE

PHONE 970 589 0743

FAX

FAX

E-MAIL

Karolina.blaney@wpxenergy.com;
jim.raley@wpxenergy.com

E-MAIL

Karolina.blaney@wpxenergy.com;
Jim.Raley@wpxenergy.com

Lab ID

Field ID

Matrix

Sample
Date

Sample
Time

Bottles

Pres.

QC

1

RDU 11 S2 - 1'

S

5/23/2017

8:20

2

8

x

x

x

2

RDU 11 S2 - 2'

s

5/23/2017

8:25

2

8

x

x

x

3

RDU 11 S2 - 3'

s

5/23/2017

8:30

2

8

x

x

x

4

RDU 11 S4 - 1'

s

5/23/2017

8:35

2

8

x

x

x

5

RDU 11 S4 - 2'

s

5/23/2017

8:40

2

8

x

x

x

6

RDU 11 S4 - 3'

s

5/23/2017

8:45

2

8

x

x

x

*Time Zone (Circle): EST CST MST PST Matrix: O=oil S=sol NS=non-sol solid W=water L=Liquid E=extract F=filter

For metals or anions, please detail analytes below.

Comments:

QC PACKAGE (check below)

X

LEVEL II (Standard QC)

LEVEL III (Std QC + forms)

LEVEL IV (Std QC + forms
+ raw data)

SR2 4.8°C



Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

SIGNATURE

PRINTED NAME

DATE

TIME

RELINQUISHED BY

Karolina Blaney

Karolina Blaney

5/24/2017

15:00

RECEIVED BY

Karolina Blaney

Karolina Blaney

5/25/17

0930

RELINQUISHED BY

RECEIVED BY

RELINQUISHED BY

RECEIVED BY

Sample Receipt Checklist

Client Name: **WPX - NM**

Date/Time Received: **25-May-17 09:30**

Work Order: **17051484**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

25-May-17
Date

Reviewed by: Chad Whelton
eSignature

26-May-17
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Sample(s) received on ice?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>4.8/4.8 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>5/25/2017 2:40:55 PM</u>		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: