



Crystal Weaver
Environmental Specialist
NMOCD District II

September 27, 2017

Re: RDU 54 workplan for the characterization of impacts – Case # 4349

Dear Ms. Weaver,

The purpose of this letter is to propose a workplan for the characterization of impacts associated with the RDU 54 crude oil spill which occurred on August 1, 2017.

Immediately after the spill discovery, the impacted area was mapped with a Trimble to delineate the horizontal extent of the impacts. Six samples were collected from the impacted area to determine if any remedial activities are needed. The sampling results are summarized in table 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 54 S1 0'	9.2	ND	23	ND	ND	ND	ND	5300
RDU 54 S1 1'								20000
RDU 54 S1 2'								2500
RDU 54 S1 3'								330
RDU 54 S2 0'	8.9	ND	16	ND	ND	ND	ND	240
RDU 54 S2 1'								14000
RDU 54 S2 2'								11000
RDU 54 S2 3'								1400

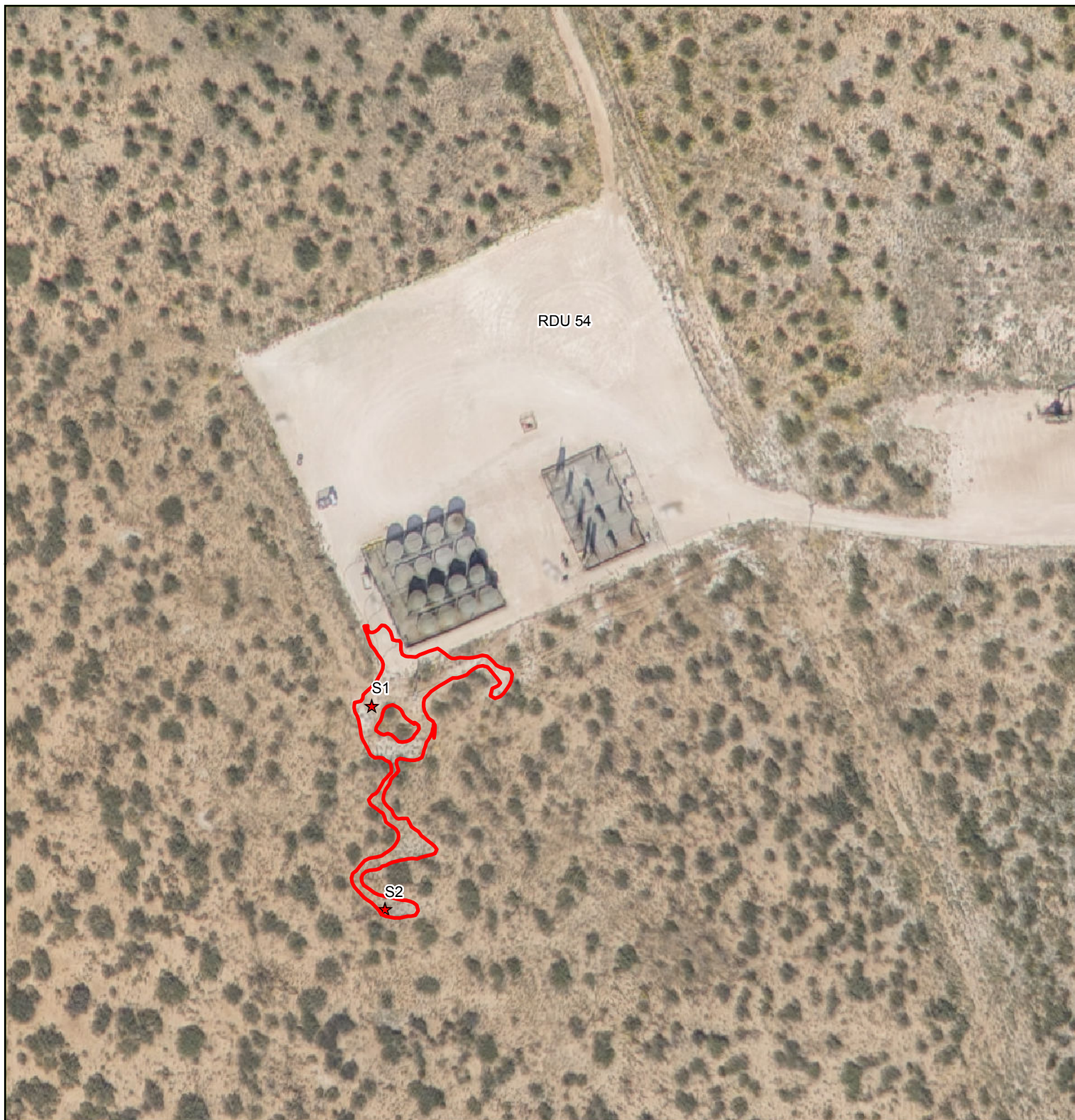
Based on the OSE ground water data and the Trend Map, depth do groundwater is more than 100'. There are no private domestic water sources within 1000' of the site. See attached OSE report for wells located within 5000m from the pad site.

WPX will excavate 2 potholes, near sampling points S1 and S2, to the maximum extent of the back-hoe reach expecting to delineate chloride concentrations to 250 mg/kg. 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,

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



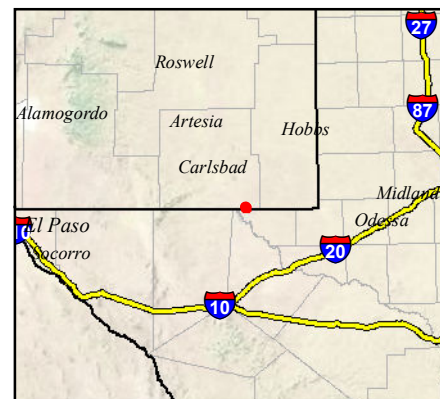
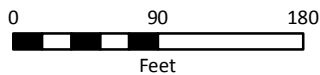
RDU 54
Permian Basin



Date: 9/27/2017
Map Scale (at 8.5" x 11"): 1:1,432
Projection: NAD 1927 UTM Zone 13N
Created By: Sarah Harrison
Geospatial Data Tech II
3800 One Williams Center
Tulsa, OK 74172

Map Symbology

- Area of Interest
- Point of Interest





New Mexico Office of the State Engineer

Wells with Well Log Information

(A CLW#### in the POD suffix indicates the POD has been replaced & no longer serves a water right)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(in feet)

POD											Log File										Depth		License
POD Number	Code	Subbasin	County	Source	q	q	q	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number			
C 04068 POD1			ED		64	16	4	1	16	26S	30E	604397	3546018	3646	05/11/2017	05/12/2017	05/17/2017			JACKIE D ATKINS	1249		
C 02165		C	ED	Shallow				24	26S	30E	610036	3544121*	3715	05/02/1988	05/02/1988	05/05/1988	440	180	CORKY GLENN	421			

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 606484.4

Northing (Y): 3543028.1

Radius: 5000

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

9/27/17 10:29 AM

WELLS WITH WELL LOG INFORMATION



25-Aug-2017

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

Re: **RDU 54**

Work Order: **17081042**

Dear Karolina,

ALS Environmental received 8 samples on 16-Aug-2017 09:00 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 20.

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 54
Work Order: 17081042

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>
17081042-01	RDU 54 S1 0"	Soil		8/15/2017 12:00	8/16/2017 09:00	☐
17081042-02	RDU 54 S1 1"	Soil		8/15/2017 12:05	8/16/2017 09:00	☐
17081042-03	RDU 54 S1 2"	Soil		8/15/2017 12:10	8/16/2017 09:00	☐
17081042-04	RDU 54 S1 3"	Soil		8/15/2017 12:20	8/16/2017 09:00	☐
17081042-05	RDU 54 S2 0"	Soil		8/15/2017 12:30	8/16/2017 09:00	☐
17081042-06	RDU 54 S2 1"	Soil		8/15/2017 12:35	8/16/2017 09:00	☐
17081042-07	RDU 54 S2 2"	Soil		8/15/2017 12:40	8/16/2017 09:00	☐
17081042-08	RDU 54 S2 3"	Soil		8/15/2017 12:45	8/16/2017 09:00	☐

Client: WPX Energy

Project: RDU 54

WorkOrder: 17081042

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: 25-Aug-17

Client: WPX Energy

Project: RDU 54

Sample ID: RDU 54 S1 0"

Collection Date: 8/15/2017 12:00 PM

Work Order: 17081042

Lab ID: 17081042-01

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 8/17/17 10:27	Analyst: KB
DRO (C10-C28)	9.2		5.1	mg/Kg-dry	1	8/17/2017 05:21 PM
ORO (C28-C40)	23		5.1	mg/Kg-dry	1	8/17/2017 05:21 PM
Surr: 4-Terphenyl-d14	93.6		34-130	%REC	1	8/17/2017 05:21 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 8/17/17 09:43	Analyst: KB
GRO (C6-C10)	ND		5.6	mg/Kg-dry	1	8/17/2017 06:40 PM
Surr: Toluene-d8	97.6		71-123	%REC	1	8/17/2017 06:40 PM
VOLATILE ORGANIC COMPOUNDS						
			SW8260B		Prep: SW5035 8/17/17 12:12	Analyst: EMR
Benzene	ND		0.034	mg/Kg-dry	1	8/20/2017 03:50 PM
Ethylbenzene	ND		0.034	mg/Kg-dry	1	8/20/2017 03:50 PM
m,p-Xylene	ND		0.068	mg/Kg-dry	1	8/20/2017 03:50 PM
o-Xylene	ND		0.034	mg/Kg-dry	1	8/20/2017 03:50 PM
Toluene	ND		0.034	mg/Kg-dry	1	8/20/2017 03:50 PM
Xylenes, Total	ND		0.10	mg/Kg-dry	1	8/20/2017 03:50 PM
Surr: 1,2-Dichloroethane-d4	97.8		70-130	%REC	1	8/20/2017 03:50 PM
Surr: 4-Bromofluorobenzene	101		70-130	%REC	1	8/20/2017 03:50 PM
Surr: Dibromofluoromethane	85.8		70-130	%REC	1	8/20/2017 03:50 PM
Surr: Toluene-d8	96.8		70-130	%REC	1	8/20/2017 03:50 PM
CHLORIDE						
			A4500-CL E-97		Prep: EXTRACT 8/23/17 23:30	Analyst: ED
Chloride	5,300		110	mg/Kg-dry	10	8/24/2017 02:00 PM
MOISTURE						
			SW3550C			Analyst: BTG
Moisture	6.0		0.050	% of sample	1	8/20/2017 06:45 PM

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

ALS Group, USA**Date:** 25-Aug-17**Client:** WPX Energy**Project:** RDU 54**Sample ID:** RDU 54 S1 1"**Collection Date:** 8/15/2017 12:05 PM**Work Order:** 17081042**Lab ID:** 17081042-02**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CHLORIDE			A4500-CL E-97	Prep: EXTRACT 8/23/17 23:30		Analyst: ED
Chloride	20,000		330	mg/Kg-dry	30	8/24/2017 02:00 PM
MOISTURE			SW3550C			Analyst: BTG
Moisture	11		0.050	% of sample	1	8/20/2017 06:45 PM

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

ALS Group, USA**Date:** 25-Aug-17**Client:** WPX Energy**Project:** RDU 54**Sample ID:** RDU 54 S1 2"**Collection Date:** 8/15/2017 12:10 PM**Work Order:** 17081042**Lab ID:** 17081042-03**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CHLORIDE			A4500-CL E-97	Prep: EXTRACT	8/23/17 23:30	Analyst: ED
Chloride	2,500		51	mg/Kg-dry	4	8/24/2017 02:00 PM
MOISTURE			SW3550C			Analyst: BTG
Moisture	22		0.050	% of sample	1	8/20/2017 06:45 PM

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

ALS Group, USA**Date:** 25-Aug-17**Client:** WPX Energy**Project:** RDU 54**Sample ID:** RDU 54 S1 3"**Collection Date:** 8/15/2017 12:20 PM**Work Order:** 17081042**Lab ID:** 17081042-04**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CHLORIDE			A4500-CL E-97	Prep: EXTRACT 8/23/17 23:30		Analyst: ED
Chloride	330		13	mg/Kg-dry	1	8/24/2017 02:00 PM
MOISTURE			SW3550C			Analyst: BTG
Moisture	24		0.050	% of sample	1	8/20/2017 06:45 PM

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

ALS Group, USA

Date: 25-Aug-17

Client: WPX Energy

Project: RDU 54

Sample ID: RDU 54 S2 0"

Collection Date: 8/15/2017 12:30 PM

Work Order: 17081042

Lab ID: 17081042-05

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015C		Prep: SW3546 8/17/17 10:27	Analyst: KB
DRO (C10-C28)	8.9		5.1	mg/Kg-dry	1	8/17/2017 05:50 PM
ORO (C28-C40)	16		5.1	mg/Kg-dry	1	8/17/2017 05:50 PM
Surr: 4-Terphenyl-d14	91.1		34-130	%REC	1	8/17/2017 05:50 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 8/17/17 09:43	Analyst: KB
GRO (C6-C10)	ND		5.3	mg/Kg-dry	1	8/17/2017 07:10 PM
Surr: Toluene-d8	99.3		71-123	%REC	1	8/17/2017 07:10 PM
VOLATILE ORGANIC COMPOUNDS						
			SW8260B		Prep: SW5035 8/17/17 12:12	Analyst: EMR
Benzene	ND		0.032	mg/Kg-dry	1	8/20/2017 04:13 PM
Ethylbenzene	ND		0.032	mg/Kg-dry	1	8/20/2017 04:13 PM
m,p-Xylene	ND		0.064	mg/Kg-dry	1	8/20/2017 04:13 PM
o-Xylene	ND		0.032	mg/Kg-dry	1	8/20/2017 04:13 PM
Toluene	ND		0.032	mg/Kg-dry	1	8/20/2017 04:13 PM
Xylenes, Total	ND		0.096	mg/Kg-dry	1	8/20/2017 04:13 PM
Surr: 1,2-Dichloroethane-d4	99.2		70-130	%REC	1	8/20/2017 04:13 PM
Surr: 4-Bromofluorobenzene	102		70-130	%REC	1	8/20/2017 04:13 PM
Surr: Dibromofluoromethane	87.0		70-130	%REC	1	8/20/2017 04:13 PM
Surr: Toluene-d8	93.3		70-130	%REC	1	8/20/2017 04:13 PM
CHLORIDE						
			A4500-CL E-97		Prep: EXTRACT 8/23/17 23:30	Analyst: ED
Chloride	240		10	mg/Kg-dry	1	8/24/2017 02:00 PM
MOISTURE						
			SW3550C			Analyst: BTG
Moisture	3.0		0.050	% of sample	1	8/20/2017 06:45 PM

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

ALS Group, USA**Date:** 25-Aug-17**Client:** WPX Energy**Project:** RDU 54**Sample ID:** RDU 54 S2 1"**Collection Date:** 8/15/2017 12:35 PM**Work Order:** 17081042**Lab ID:** 17081042-06**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CHLORIDE			A4500-CL E-97	Prep: EXTRACT 8/23/17 23:30		Analyst: ED
Chloride	14,000		320	mg/Kg-dry	30	8/24/2017 02:00 PM
MOISTURE			SW3550C			Analyst: BTG
Moisture	8.0		0.050	% of sample	1	8/20/2017 06:45 PM

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

ALS Group, USA**Date:** 25-Aug-17**Client:** WPX Energy**Project:** RDU 54**Sample ID:** RDU 54 S2 2"**Collection Date:** 8/15/2017 12:40 PM**Work Order:** 17081042**Lab ID:** 17081042-07**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CHLORIDE			A4500-CL E-97	Prep: EXTRACT 8/23/17 23:30		Analyst: ED
Chloride	11,000		120	mg/Kg-dry	10	8/24/2017 02:00 PM
MOISTURE			SW3550C			Analyst: BTG
Moisture	15		0.050	% of sample	1	8/20/2017 06:45 PM

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

ALS Group, USA**Date:** 25-Aug-17**Client:** WPX Energy**Project:** RDU 54**Sample ID:** RDU 54 S2 3"**Collection Date:** 8/15/2017 12:45 PM**Work Order:** 17081042**Lab ID:** 17081042-08**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CHLORIDE			A4500-CL E-97	Prep: EXTRACT 8/23/17 23:30		Analyst: ED
Chloride	1,400		45	mg/Kg-dry	4	8/24/2017 02:00 PM
MOISTURE			SW3550C			Analyst: BTG
Moisture	13		0.050	% of sample	1	8/20/2017 06:45 PM

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

Client: WPX Energy
Work Order: 17081042
Project: RDU 54

QC BATCH REPORT

Batch ID: **106027** Instrument ID **GC8** Method: **SW8015C**

MBLK		Sample ID: DBLKS1-106027-106027				Units: mg/Kg		Analysis Date: 8/17/2017 11:40 AM		
Client ID:		Run ID: GC8_170816A				SeqNo: 4588571		Prep Date: 8/17/2017		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								
Surr: 4-Terphenyl-d14	1.917	0	3.33	0	57.6	34-130	0			

LCS		Sample ID: DLCSS1-106027-106027				Units: mg/Kg		Analysis Date: 8/17/2017 12:09 PM		
Client ID:		Run ID: GC8_170816A				SeqNo: 4588572		Prep Date: 8/17/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	366.4	5.0	333	0	110	65-122	0			
ORO (C28-C40)	374.7	5.0	333	0	113	81-116	0			
Surr: 4-Terphenyl-d14	3.233	0	3.33	0	97.1	34-130	0			

MS		Sample ID: 17081003-01B MS				Units: mg/Kg		Analysis Date: 8/17/2017 03:54 PM		
Client ID:		Run ID: GC8_170817A				SeqNo: 4590276		Prep Date: 8/17/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	233.6	4.8	322.8	21.64	65.7	65-122	0			
ORO (C28-C40)	301.8	4.8	322.8	0	93.5	81-116	0			
Surr: 4-Terphenyl-d14	1.891	0	3.228	0	58.6	34-130	0			

MSD		Sample ID: 17081003-01B MSD				Units: mg/Kg		Analysis Date: 8/17/2017 04:23 PM		
Client ID:		Run ID: GC8_170817A				SeqNo: 4590278		Prep Date: 8/17/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	232.1	4.8	322	21.64	65.4	65-122	233.6	0.653	30	
ORO (C28-C40)	293.9	4.8	322	0	91.3	81-116	301.8	2.65	30	
Surr: 4-Terphenyl-d14	1.724	0	3.22	0	53.6	34-130	1.891	9.19	30	

The following samples were analyzed in this batch:

17081042-01A	17081042-05A
--------------	--------------

Client: WPX Energy
 Work Order: 17081042
 Project: RDU 54

QC BATCH REPORT

Batch ID: **106043** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-106043-106043				Units: µg/Kg-dry		Analysis Date: 8/17/2017 04:10 PM		
Client ID:		Run ID: GC9_170817A				SeqNo: 4589877		Prep Date: 8/17/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	5,000								
Surr: Toluene-d8	4866	0	5000	0	97.3	71-123	0			

LCS		Sample ID: LCS-106043-106043				Units: µg/Kg-dry		Analysis Date: 8/17/2017 03:11 PM		
Client ID:		Run ID: GC9_170817A				SeqNo: 4589874		Prep Date: 8/17/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	567600	5,000	500000	0	114	71-123	0			
Surr: Toluene-d8	5172	0	5000	0	103	71-123	0			

MS		Sample ID: 17081045-01A MS				Units: µg/Kg-dry		Analysis Date: 8/17/2017 10:40 PM		
Client ID:		Run ID: GC9_170817A				SeqNo: 4589900		Prep Date: 8/17/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	1567000	9,500	949300	342300	129	71-123	0			S
Surr: Toluene-d8	12350	0	9493	0	130	71-123	0			S

MSD		Sample ID: 17081045-01A MSD				Units: µg/Kg-dry		Analysis Date: 8/17/2017 11:10 PM		
Client ID:		Run ID: GC9_170817A				SeqNo: 4589902		Prep Date: 8/17/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	1704000	9,500	949300	342300	143	71-123	1567000	8.34	30	S
Surr: Toluene-d8	12630	0	9493	0	133	71-123	12350	2.27	30	S

The following samples were analyzed in this batch:

17081042-01A	17081042-05A
--------------	--------------

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

Client: WPX Energy
 Work Order: 17081042
 Project: RDU 54

QC BATCH REPORT

Batch ID: 106054 Instrument ID VMS8 Method: SW8260B

MBLK Sample ID: MBLK-106054-106054				Units: µg/Kg-dry			Analysis Date: 8/18/2017 12:09 PM			
Client ID:		Run ID: VMS8_170818A		SeqNo: 4592188		Prep Date: 8/17/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	30	0	0	0	0-0	0			
Ethylbenzene	ND	30	0	0	0	0-0	0			
m,p-Xylene	ND	60	0	0	0	0-0	0			
o-Xylene	ND	30	0	0	0	0-0	0			
Toluene	ND	30	0	0	0	0-0	0			
Xylenes, Total	ND	90	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	991.5	0	1000	0	99.2	70-130	0			
Surr: 4-Bromofluorobenzene	947	0	1000	0	94.7	70-130	0			
Surr: Dibromofluoromethane	800	0	1000	0	80	70-130	0			
Surr: Toluene-d8	969	0	1000	0	96.9	70-130	0			

MBLK Sample ID: MBLK-106054-106054				Units: µg/Kg-dry			Analysis Date: 8/18/2017 11:39 PM			
Client ID:		Run ID: VMS10_170818A		SeqNo: 4592319		Prep Date: 8/17/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	30	0	0	0	0-0	0			
Ethylbenzene	ND	30	0	0	0	0-0	0			
m,p-Xylene	ND	60	0	0	0	0-0	0			
o-Xylene	ND	30	0	0	0	0-0	0			
Toluene	ND	30	0	0	0	0-0	0			
Xylenes, Total	ND	90	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	1020	0	1000	0	102	70-130	0			
Surr: 4-Bromofluorobenzene	929	0	1000	0	92.9	70-130	0			
Surr: Dibromofluoromethane	944.5	0	1000	0	94.4	70-130	0			
Surr: Toluene-d8	990.5	0	1000	0	99	70-130	0			

LCS Sample ID: LCS-106054-106054				Units: µg/Kg-dry			Analysis Date: 8/18/2017 10:59 AM			
Client ID:		Run ID: VMS8_170818A		SeqNo: 4592187		Prep Date: 8/17/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	941.5	30	1000	0	94.2	75-125	0			
Ethylbenzene	919	30	1000	0	91.9	75-125	0			
m,p-Xylene	1854	60	2000	0	92.7	80-125	0			
o-Xylene	923.5	30	1000	0	92.4	75-125	0			
Toluene	900	30	1000	0	90	70-125	0			
Xylenes, Total	2778	90	3000	0	92.6	75-125	0			
Surr: 1,2-Dichloroethane-d4	978	0	1000	0	97.8	70-130	0			
Surr: 4-Bromofluorobenzene	1006	0	1000	0	101	70-130	0			
Surr: Dibromofluoromethane	1000	0	1000	0	100	70-130	0			
Surr: Toluene-d8	1012	0	1000	0	101	70-130	0			

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

Client: WPX Energy
Work Order: 17081042
Project: RDU 54

QC BATCH REPORT

Batch ID: **106054** Instrument ID **VMS8** Method: **SW8260B**

LCS					Sample ID: LCS-106054-106054			Units: µg/Kg-dry		Analysis Date: 8/18/2017 09:39 PM		
Client ID:			Run ID: VMS10_170818A			SeqNo: 4592318		Prep Date: 8/17/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
Benzene	993	30	1000	0	99.3	75-125	0					
Ethylbenzene	1008	30	1000	0	101	75-125	0					
m,p-Xylene	2120	60	2000	0	106	80-125	0					
o-Xylene	1058	30	1000	0	106	75-125	0					
Toluene	990.5	30	1000	0	99	70-125	0					
Xylenes, Total	3178	90	3000	0	106	75-125	0					
Surr: 1,2-Dichloroethane-d4	985.5	0	1000	0	98.6	70-130	0					
Surr: 4-Bromofluorobenzene	1045	0	1000	0	104	70-130	0					
Surr: Dibromofluoromethane	1006	0	1000	0	101	70-130	0					
Surr: Toluene-d8	1020	0	1000	0	102	70-130	0					

MS				Sample ID: 17081044-04A MS				Units: µg/Kg-dry		Analysis Date: 8/20/2017 06:33 AM	
Client ID:		Run ID: VMS9_170819A			SeqNo: 4593188		Prep Date: 8/17/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	907.5	30	1000	0	90.8	75-125		0			
Ethylbenzene	872	30	1000	0	87.2	75-125		0			
m,p-Xylene	1767	60	2000	0	88.4	80-125		0			
o-Xylene	896	30	1000	0	89.6	75-125		0			
Toluene	872	30	1000	0	87.2	70-125		0			
Xylenes, Total	2663	90	3000	0	88.8	75-125		0			
Surr: 1,2-Dichloroethane-d4	983	0	1000	0	98.3	70-130		0			
Surr: 4-Bromofluorobenzene	1028	0	1000	0	103	70-130		0			
Surr: Dibromofluoromethane	980	0	1000	0	98	70-130		0			
Surr: Toluene-d8	970	0	1000	0	97	70-130		0			

MSD					Sample ID: 17081044-04A MSD		Units: µg/Kg-dry		Analysis Date: 8/20/2017 06:55 AM		
Client ID:			Run ID: VMS9_170819A			SeqNo: 4593189		Prep Date: 8/17/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1024	30	1000	0	102	75-125	907.5	12.1	30		
Ethylbenzene	970	30	1000	0	97	75-125	872	10.6	30		
m,p-Xylene	1960	60	2000	0	98	80-125	1767	10.3	30		
o-Xylene	998	30	1000	0	99.8	75-125	896	10.8	30		
Toluene	977.5	30	1000	0	97.8	70-125	872	11.4	30		
Xylenes, Total	2958	90	3000	0	98.6	75-125	2663	10.5	30		
Surr: 1,2-Dichloroethane-d4	999.5	0	1000	0	100	70-130	983	1.66	30		
Surr: 4-Bromofluorobenzene	1052	0	1000	0	105	70-130	1028	2.36	30		
Surr: Dibromofluoromethane	1004	0	1000	0	100	70-130	980	2.47	30		
Surr: Toluene-d8	975.5	0	1000	0	97.6	70-130	970	0.565	30		

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

Client: WPX Energy
Work Order: 17081042
Project: RDU 54

QC BATCH REPORT

Batch ID: **106054** Instrument ID **VMS8** Method: **SW8260B**

The following samples were analyzed in this batch:

17081042-01A	17081042-05A
--------------	--------------

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

Client: WPX Energy
 Work Order: 17081042
 Project: RDU 54

QC BATCH REPORT

Batch ID: **106424** Instrument ID **GALLERY** Method: **A4500-CI E-97**

MBLK		Sample ID: MBLK-106424-106424				Units: mg/Kg		Analysis Date: 8/24/2017 02:00 PM		
Client ID:		Run ID: GALLERY_170824A		SeqNo: 4601525		Prep Date: 8/23/2017		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: 17081038-01A MS				Units: mg/Kg		Analysis Date: 8/24/2017 02:00 PM		
Client ID:		Run ID: GALLERY_170824A		SeqNo: 4601528		Prep Date: 8/23/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 475.2 10 499 12.46 92.7 75-125 0

MSD		Sample ID: 17081038-01A MSD				Units: mg/Kg		Analysis Date: 8/24/2017 02:00 PM		
Client ID:		Run ID: GALLERY_170824A		SeqNo: 4601529		Prep Date: 8/23/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 473.4 9.9 496 12.46 92.9 75-125 475.2 0.387 25

LCS1		Sample ID: LCS1-106424-106424				Units: mg/Kg		Analysis Date: 8/24/2017 02:00 PM		
Client ID:		Run ID: GALLERY_170824A		SeqNo: 4601545		Prep Date: 8/23/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 96.83 10 100 0 96.8 80-120 0

LCS2		Sample ID: LCS2-106424-106424				Units: mg/Kg		Analysis Date: 8/24/2017 02:00 PM		
Client ID:		Run ID: GALLERY_170824A		SeqNo: 4601546		Prep Date: 8/23/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 442 10 500 0 88.4 80-120 0

The following samples were analyzed in this batch:

17081042-01A	17081042-02A	17081042-03A
17081042-04A	17081042-05A	17081042-06A
17081042-07A	17081042-08A	

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

Client: WPX Energy
Work Order: 17081042
Project: RDU 54

QC BATCH REPORT

Batch ID: **R218228** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R218228				Units: % of sample		Analysis Date: 8/20/2017 06:45 PM		
Client ID:		Run ID: MOIST_170820B		SeqNo: 4593715		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-R218228				Units: % of sample		Analysis Date: 8/20/2017 06:45 PM		
Client ID:		Run ID: MOIST_170820B		SeqNo: 4593714		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: 17081036-05A DUP				Units: % of sample		Analysis Date: 8/20/2017 06:45 PM		
Client ID:		Run ID: MOIST_170820B		SeqNo: 4593700		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 16.5 0.050 0 0 0 0-0 17.7 7.02 5 R

DUP		Sample ID: 17081042-07A DUP				Units: % of sample		Analysis Date: 8/20/2017 06:45 PM		
Client ID: RDU 54 S2 2"		Run ID: MOIST_170820B		SeqNo: 4593709		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 15.1 0.050 0 0 0 0-0 15.32 1.45 5

The following samples were analyzed in this batch:

17081042-01A	17081042-02A	17081042-03A
17081042-04A	17081042-05A	17081042-06A
17081042-07A	17081042-08A	

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



ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r6

WORKORDER #

17081042

PAGE

1 of 1

DISPOSAL

By Lab or Return to Client

PROJECT NAME

RDU 54

SAMPLER

DATE

8/15/2017

PROJECT No.

EDD FORMAT

TURNAROUND

5 days

COMPANY NAME

WPX Energy

PURCHASE ORDER

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

DRO GRO ORO

BTEX

Chloride

Lab ID

Field ID

Matrix

Sample Date

Sample Time

Bottles

Pres.

QC

1

RDU 54 S1 0"

S

8/15/2017

12:00

2

8

x

x

x

x

2

RDU 54 S1 1"

S

8/15/2017

12:05

1

8

x

x

3

RDU 54 S1 2"

S

8/15/2017

12:10

1

8

x

x

4

RDU 54 S1 3"

S

8/15/2017

12:20

1

8

x

x

5

RDU 54 S2 0"

S

8/15/2017

12:30

2

8

x

x

x

x

6

RDU 54 S2 1"

S

8/15/2017

12:35

1

8

x

x

7

RDU 54 S2 2"

S

8/15/2017

12:40

1

8

x

x

8

RDU 54 S2 3"

S

8/15/2017

12:45

1

8

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:

QC PACKAGE (check below)

X

LEVEL II (Standard QC)

LEVEL III (Std QC + forms)

LEVEL IV (Std QC + forms + raw data)

SP2 4.0c
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

8/15/2017

15:00

RECEIVED BY

Diane F. Shen

8/16/17 0900

RELINQUISHED BY

RECEIVED BY

RELINQUISHED BY

RECEIVED BY

Sample Receipt Checklist

Client Name: **WPX - NM**

Date/Time Received: **16-Aug-17 09:00**

Work Order: **17081042**

Received by: **DS**

Checklist completed by Diane Shaw 16-Aug-17
eSignature Date

Reviewed by: Chad Whelton 17-Aug-17
eSignature 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>4.0/4.0 c</u> <u>SR2</u>		
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>8/16/2017 4:32:32 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: