December 12, 2017

Spill Closure Report: Ross Draw Unit 14 (Section 30 T26S R 30E)
API: 30-015-25208
Incident Report: 2RP-2812

Prepared For: **WPX Energy Inc.**
5315 Buena Vista
Carlsbad, New Mexico 88220

NMOCD District 2
811 S. 1st Street
Artesia, New Mexico 88210

Mr. Mike Bratcher,

RKI Exploration, LLC, a subsidiary of WPX Energy Inc., retained Vertex Resource Services Inc. (Vertex) to conduct a Spill Assessment for a release related to wellhead packing on Ross Draw Unit 14, API 30-015-25208 (hereafter referred to as "site"). This letter provides a description of the Spill Assessment and includes a request for Spill Closure.

Site Information

The site is located approximately 36 miles southeast of Carlsbad, New Mexico. The legal location for the site is Section 30, Township 26 South and Range 30 East in Eddy County, New Mexico (approximately 32°00'44.6904"N 103° 51'30.2472"W). The affected property is leased from the Bureau of Land Management (BLM). An aerial photograph and site schematic are included in Attachment 1.

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2014-2017) indicates the site's surface geology is comprised primarily of Eolian and piedmont deposits (Holocene to middle Plesitocene). The Natural Resource Conservation Services identifies the local soils as Pajarito association, 0-3 percent slope (fine sand,). These soils are typically Mixed alluvium and/or eolian sands. These descriptions are consistent with observations during the site visit. Site photographs obtained during the Spill Assessment are included in Attachment 2.

Incident Description

The spill, reported February 12, 2015, involved the release of approximately 12 barrels (bbls) of produced water and oil from the wellhead packing. The release was caused by the closing of tubing and casing valves causing the wellbore to pressure up and rupture packing. Approximately 12 bbls of produced water and oil were estimated to have been released; 12 bbls were recovered.The initial C-141 Report: 2RP-2812 is included in Attachment 3.

Groundwater, Point of Diversion and Site Ranking

The New Mexico State Engineer web site (New Mexico Water Rights Reporting System – Water Column Report) indicates that the nearest ground water data available for S30-T26S-R30E is approximately 9245 ft from the site. The ground water in the area is reported to be at an average depth of 180 feet below ground surface (BGS). The referenced ground water data are presented in Attachment 4.

Based on the information obtained, the ranking for the site in question is **0** based on the following:

Depth to Ground Water	>100 ft
Wellhead Protection Area	>1,000 ft
Distance to Surface Water Body	>1,000 ft

Based on a site ranking of **0**, NMOCD Recommended Remedial Action Levels (RRAL) are 50 mg/kg for BTEX, 10 mg/kg for Benzene, and 5,000 mg/kg for total petroleum hydrocarbons. Based on previous communication with the NMOCD, 1,000 mg/kg for total chlorides is considered to be an acceptable threshold for remediation.

The New Mexico State Engineer web site (New Mexico Water Rights Reporting System – Active & Inactive Points of Diversion) indicates that there are no diversions within 9245 ft (Attachment 5).

Site Assessment

A site visit and soil assessment was completed on September 17, 2017, aimed to identify evidence of the spill in and around the location specified in the initial C-141. There was no evidence of surface staining or crystallization of salts. The Site Visit Report is included in Attachment 6.

Six test pits were advanced at the site using an excavator to assess the soils within the spill source area as well as site background. Soils were observed and field screened for chloride and hydrocarbon impacts prior to sampling.

Using hand sampling techniques and dedicated sample containers, soil samples were collected and submitted to ALS Laboratories. One sample location near the spill source (BH17-02) showed a marginally elevated chloride concentration, the remaining samples tested below the NMOCD desired cleanup concentrations. All of the samples analyzed for volatile organic compounds and hydrocarbons were below the established RRALs for the site. The laboratory results for chloride are summarized in Table 1 and the complete laboratory reports are included in Attachment 7.

Table 1 - Chloride Soil Sampling Results September 17, 2017

Sample ID	Depth	Test	Result	Units
BH17-02	4-6'	Chloride	1,200	mg/Kg-dry
BH17-02	6-8'	Chloride	190	mg/Kg-dry
BH17-03	2-4'	Chloride	890	mg/Kg-dry
BH17-03	8-10'	Chloride	500	mg/Kg-dry
BH17-04	0-2'	Chloride	470	mg/Kg-dry
BH17-05	4-6'	Chloride	900	mg/Kg-dry
BH17-05	8-10'	Chloride	390	mg/Kg-dry
BH17-06	4-6'	Chloride	32	mg/Kg-dry
BH17-06	8-10'	Chloride	160	mg/Kg-dry

RRAL - 50 mg/kg BTEX, 10 mg/kg Benzene, 5,000 mg/kg TPH, 1,000 mg/kg Chloride

Closure Request

No visible impacts were noted where during the site visit on September 17, 2017. One sample location near the spill source showed a marginally elevated chloride concentration but was delineated vertically (Table 1). Four sample locations around the spill showed chlorides below the recommended levels. Complete laboratory results are included in Attachment 7.

According to NMOCD guidelines for remediation, the RRALs suggested for this site are the most conservative based on depth to groundwater, wellhead protection area and distance to the nearest surface water diversion. Given that the impact associated to this spill appears to be marginal and localized (1,200 mg/kg chloride) on site with active infrastructure, WPX Energy Inc. requests that this spill be closed.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 403.542.6426 or cdavison@vertex.ca.

Sincerely,

Carl Davison, B.Sc.
PROJECT MANAGER

Attachments

References

New Mexico Oil Conservation Division. (1993). *Guidelines for Remediation of Leaks, Spills and Releases*. Santa Fe, New Mexico.

New Mexico Water Rights Reporting System. (2010). *Water Column/Average Depth to Water Report.* Retrieved from http://nmwrrs.ose.state.nm.us/index.html

New Mexico Water Rights Reporting System. (2010). *Point of Diversion Location Report.* Retrieved from http://nmwrrs.ose.state.nm.us/index.html

New Mexico Bureau of Geology and Mineral Resources. (2014-2017). *Interactive Geologic Map.* Retrieved from http://geoinfo.nmt.edu

USDA Natural Resources Conservation Service. (2017) *Web Soil Survey.* Retrieved from https://websoilsurvey.nrcs.usda.gov/ app/ WebSoilSurvey.aspx

Limitations

This report has been prepared for the sole benefit of WPX Energy Inc. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and WPX Energy Inc. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

ATTACHMENT 1

Legend

- Sample Location
- Spill Area

0 25 50 100 ft

SCALE 1:1,000

Notes: Aerial Image from Google, 2016

WPXENERGY

Spill Area with Borehole RDU 14

VERTEX

DRAWN:	KU
APPROVED:	RF
DATE:	NOV 17/17

FIGURE: 1

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\WPX\17E-00043 Spill\Figure 1 Site Schematic Ross Draw 14 (17E-00043).mxd

ATTACHMENT 2

Photo 1. West Side of site

Photo Date: September 17, 2017 GPS: N: 32.012414 W: 103.858402

Photo 2. South side of site

Photo Date: September 17, 2017 GPS: N: 32.012414 W: 103.858402

Photo 3. Area by pumpjack where spill occurred

Photo Date: September 17, 2017 GPS: N: 32.012414 W: 103.858402

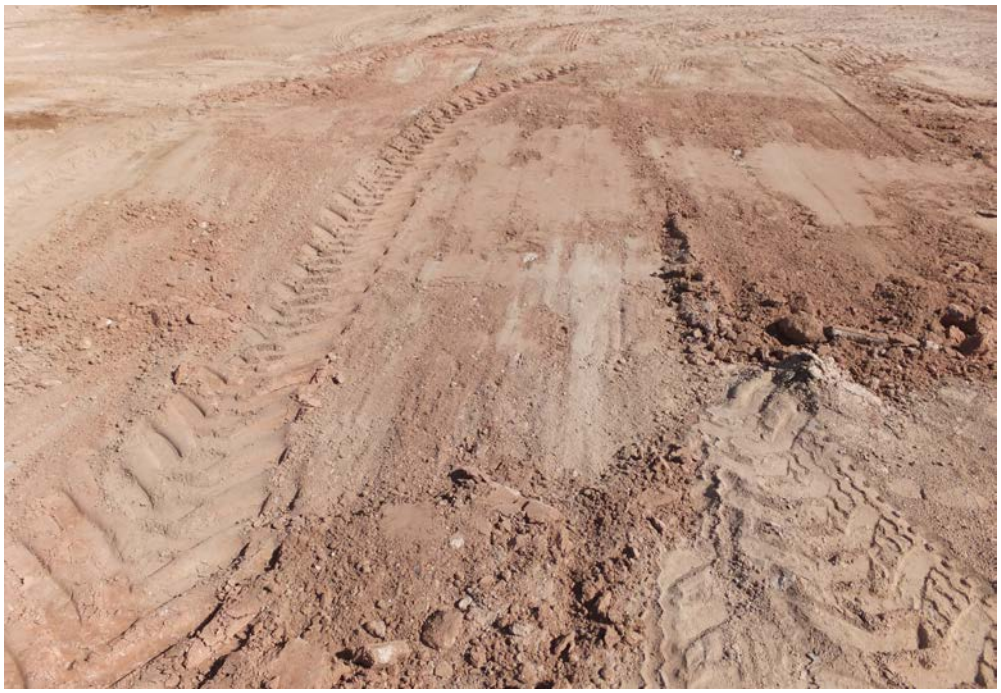

Photo 4. Area by pumpjack where spill occurred

Photo Date: September 17, 2017 GPS: N: 32.012414 W: 103.858402

Photo 5. Background Sample Location

Photo Date: September 17, 2017 GPS: N: 32.012414 W: 103.858402

Photo 6. Background Sample Filled in

Photo Date: September 17, 2017 GPS: N: 32.012414 W: 103.858402

ATTACHMENT 3

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 12 2015
RECEIVED

Form C-141
Revised August 8, 2011
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1504757628

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company RKI E&P, LLC 246289	Contact Taylor Jones
Address 210 Park Ave. – Ste. 900, OKC, OK 73102	Telephone No. 405-996-5782
Facility Name Ross Draw 14	Facility Type Oil and Gas Well

Surface Owner Federal	Mineral Owner Federal	API No. 30-015-25208

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
L	30	26S	30E		2310 FSL		660 FWL	Eddy

Latitude 32.01211 **Longitude** -103.86465

NATURE OF RELEASE

Type of Release. Oil and Produced Water	Volume of Release 12 Bbls	Volume Recovered 12Bbls
Source of Release Wellhead packing	Date and Hour of Occurrence 02/11/15 – Unknown	Date and Hour of Discovery 02/12/15 – 0900hrs
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.* N/A

Describe Cause of Problem and Remedial Action Taken.*

Someone closed tubing and casing valves causing wellbore to pressure up and blow out packing. Well was Shut-in and repacked and placed back into production.

Describe Area Affected and Cleanup Action Taken.*
All fluid remained on well pad. Well was Shut-in and repacked and placed back into production; Vacuum truck dispatched to location to recover free fluids. Affected soil then dug and hauled.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Taylor Jones	OIL CONSERVATION DIVISION
Printed Name: Taylor Jones	Approved by Environmental Specialist:
Title: EHS Systems Specialist	Approval Date: 2/16/15 Expiration Date: N/A
E-mail Address: TJones@rkixp.com	Conditions of Approval: Attached ☐
Date: 02/12/2015 Phone: 405-996-5782	Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 3/16/15

* Attach Additional Sheets If Necessary

2RP-2812

ATTACHMENT 4

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

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

(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 Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02165	C	ED				24	26S	30E	610036	3544121*	2818	440	180	260
C 04068 POD1		ED	1	3	1	16	26S	30E	604397	3546018	4993			

Average Depth to Water: **180 feet**

Minimum Depth: **180 feet**

Maximum Depth: **180 feet**

Record Count: 2

Basin/County Search:

County: Eddy

UTMNAD83 Radius Search (in meters):

Easting (X): 607818.65 **Northing (Y):** 3542381.14 **Radius:** 5000

***UTM location was derived from PLSS - see Help**

ATTACHMENT 5

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum) (R=POD has been replaced and no longer serves this file, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Code	Grant	Source	q q q 6416 4	Sec	Tws	Rng	X	Y	Distance
C 02165	C	PRO	0	GRACE OIL	ED	C 02165			Shallow		24	26S	30E	610036	3544121*	2818
C 03686	CUB	CPS	0	C P MASTERS INC	ED	C 03686 POD1				1 1 4	16	26S	30E	605257	3545585	4101
C 03792	C	STK	3	BECKHAM RANCH INC	ED	C 03792 POD1		NON		1 1 1	29	26S	30E	602879	3543094	4990
C 04068	CUB	EXP	0	RKI EXPLORATION & PROD., LLC	ED	C 04068 POD1		NON		1 3 1	16	26S	30E	604397	3546018	4993

Record Count: 4

POD Search:

POD Basin: Carlsbad

UTMNAD83 Radius Search (in meters):

Easting (X): 607818.65 **Northing (Y):** 3542381.14 **Radius:** 5000

Sorted by: Distance

***UTM location was derived from PLSS - see Help**

ATTACHMENT 6

Client:	WPX	Date:	September 17, 2017
Site Location:	Ross Draw Unit #14	Shift:	Day
Field Consultant:	Robyn Fisher	Project #:	17E-00043
Project Manager:	Carl Davison	AFE #:	

Summary of Daily Operations

Met Gamma out on site to pothole for soil samples with backhoe.
Dug down to 10 feet taking samples every foot for samples. (0-2, 2-4, 4-6, 6-8, 8-10)
Took pictures of each sample location after each hole is dug and after each hole is filled back in.
Completed field Screening using quantabs for chlorides and PID for VOC and Hydrocarbons.
Packing Samples in jars supplied by ALS Environmental Labs.
Drove back to Carlsbad and put all samples collected into the fridge.

Planned Activities and Recommendations

No further Planned activities or Reccommendations at this time.

Cost Summary

Vertex

Name	Hours	Rate	Total	Equipment	Units	Rate	Total
Robyn Fisher	14		$0.00				$0.00
			$0.00				$0.00
			$0.00				$0.00
			$0.00				$0.00
			$0.00				$0.00
			$0.00				$0.00
			$0.00				$0.00
		Total:	$0.00			Total:	$0.00
						Vertex Total:	$0.00

Laboratory Analysis

Laboratory	Lab Report	Estimate

Third Party Service

Date	Contractor	Work Description	Ticket #	Estimate
			Third Party Service Total:	$0.00

ATTACHMENT 7

01-Nov-2017

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

Re: **RDU 14** Work Order: **17091207**

Dear Karolina,

ALS Environmental received 30 samples on 21-Sep-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 25.

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

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Certificate No: MN 998501

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

ALS Group, USA

Date: 01-Nov-17

Client: WPX Energy
Project: RDU 14
Work Order: **17091207**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
17091207-01	BH17-01 (0-2)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-02	BH17-01 (2-4)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-03	BH17-01 (4-6)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-04	BH17-01 (6-8)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-05	BH17-01 (8-10)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-06	BH17-02 (0-2)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-07	BH17-02 (2-4)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-08	BH17-02 (4-6)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-09	BH17-02 (6-8)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-10	BH17-02 (8-10)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-11	BH17-03 (0-2)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-12	BH17-03 (2-4)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-13	BH17-03 (4-6)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-14	BH17-03 (6-8)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-15	BH17-03 (8-10)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-16	BH17-04 (0-2)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-17	BH17-04 (2-4)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-18	BH17-04 (4-6)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-19	BH17-04 (6-8)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-20	BH17-04 (8-10)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-21	BH17-05 (0-2)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-22	BH17-05 (2-4)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-23	BH17-05 (4-6)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-24	BH17-05 (6-8)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-25	BH17-05 (8-10)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-26	BH17-06 (0-2)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-27	BH17-06 (2-4)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-28	BH17-06 (4-6)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-29	BH17-06 (6-8)	Soil		9/17/2017	9/21/2017 09:30	☐
17091207-30	BH17-06 (8-10)	Soil		9/17/2017	9/21/2017 09:30	☐

ALS Group, USA

Date: 01-Nov-17

Client: WPX Energy
Project: RDU 14
Work Order: 17091207

Case Narrative

Samples were activated after hold time expired. Results should be considered estimated.

ALS Group, USA

Date: 01-Nov-17

Client: WPX Energy
Project: RDU 14
WorkOrder: **17091207**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	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.

Acronym	Description
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

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

ALS Group, USA

Date: *01-Nov-17*

Client: WPX Energy
Project: RDU 14
Sample ID: BH17-02 (4-6)
Collection Date: 9/17/2017

Work Order: 17091207
Lab ID: 17091207-08
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 10/3/17 13:19		Analyst: **KB**
DRO (C10-C28)	ND	H	6.2	mg/Kg-dry	1	10/3/2017 03:28 PM
ORO (C28-C40)	ND	H	6.2	mg/Kg-dry	1	10/3/2017 03:28 PM
Surr: 4-Terphenyl-d14	*68.1*		*34-130*	*%REC*	1	10/3/2017 03:28 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 10/3/17 13:26		Analyst: **KB**
GRO (C6-C10)	ND	H	7.7	mg/Kg-dry	1	10/4/2017 07:00 AM
Surr: Toluene-d8	*94.5*		*71-123*	*%REC*	1	10/4/2017 07:00 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**	Prep: SW5035 10/3/17 15:16		Analyst: **EMR**
Benzene	ND	H	0.046	mg/Kg-dry	1	10/6/2017 09:11 AM
Ethylbenzene	ND	H	0.046	mg/Kg-dry	1	10/6/2017 09:11 AM
m,p-Xylene	ND	H	0.092	mg/Kg-dry	1	10/6/2017 09:11 AM
o-Xylene	ND	H	0.046	mg/Kg-dry	1	10/6/2017 09:11 AM
Toluene	ND	H	0.046	mg/Kg-dry	1	10/6/2017 09:11 AM
Xylenes, Total	ND	H	0.14	mg/Kg-dry	1	10/6/2017 09:11 AM
Surr: 1,2-Dichloroethane-d4	*100*		*70-130*	*%REC*	1	10/6/2017 09:11 AM
Surr: 4-Bromofluorobenzene	*97.8*		*70-130*	*%REC*	1	10/6/2017 09:11 AM
Surr: Dibromofluoromethane	*94.5*		*70-130*	*%REC*	1	10/6/2017 09:11 AM
Surr: Toluene-d8	*104*		*70-130*	*%REC*	1	10/6/2017 09:11 AM
CHLORIDE			**A4500-CL E-11**	Prep: EXTRACT 10/11/17 15:30		Analyst: **ED**
Chloride	**1,200**		**50**	**mg/Kg-dry**	4	10/11/2017 03:45 PM
MOISTURE			**SW3550C**			Analyst: **NW**
Moisture	**21**	H	**0.050**	**% of sample**	1	10/3/2017 09:20 AM

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

ALS Group, USA

Date: *01-Nov-17*

Client: WPX Energy
Project: RDU 14
Sample ID: BH17-02 (6-8)
Collection Date: 9/17/2017

Work Order: 17091207
Lab ID: 17091207-09
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor		Date Analyzed
CHLORIDE			**A4500-CL E-11**		Prep: EXTRACT	10/11/17 15:30	Analyst: **ED**
Chloride	**190**		**13**	**mg/Kg-dry**	1		10/11/2017 03:45 PM
MOISTURE			**SW3550C**				Analyst: **BTG**
Moisture	**21**	H	**0.050**	**% of sample**	1		10/4/2017 08:17 AM

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

ALS Group, USA

Date: *01-Nov-17*

Client: WPX Energy
Project: RDU 14
Sample ID: BH17-03 (2-4)
Collection Date: 9/17/2017

Work Order: 17091207
Lab ID: 17091207-12
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor		Date Analyzed
CHLORIDE			**A4500-CL E-11**		Prep: EXTRACT	10/11/17 15:30	Analyst: **ED**
Chloride	**890**		**10**	**mg/Kg-dry**	1		10/11/2017 03:45 PM
MOISTURE			**SW3550C**				Analyst: **BTG**
Moisture	**4.6**	H	**0.050**	**% of sample**	1		10/4/2017 08:17 AM

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

ALS Group, USA

Date: *01-Nov-17*

Client: WPX Energy
Project: RDU 14 **Work Order:** 17091207
Sample ID: BH17-03 (8-10) **Lab ID:** 17091207-15
Collection Date: 9/17/2017 **Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor		Date Analyzed
CHLORIDE			**A4500-CL E-11**		Prep: EXTRACT	10/11/17 15:30	Analyst: **ED**
Chloride	**500**		**11**	**mg/Kg-dry**	1		10/11/2017 03:45 PM
MOISTURE			**SW3550C**				Analyst: **BTG**
Moisture	**6.6**	H	**0.050**	**% of sample**	1		10/4/2017 08:17 AM

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

ALS Group, USA

Date: *01-Nov-17*

Client: WPX Energy
Project: RDU 14
Sample ID: BH17-04 (0-2)
Collection Date: 9/17/2017

Work Order: 17091207
Lab ID: 17091207-16
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor		Date Analyzed
CHLORIDE			**A4500-CL E-11**		Prep: EXTRACT	10/11/17 15:30	Analyst: **ED**
Chloride	**470**		**12**	**mg/Kg-dry**	1		10/11/2017 03:45 PM
MOISTURE			**SW3550C**				Analyst: **BTG**
Moisture	**14**	H	**0.050**	**% of sample**	1		10/4/2017 08:17 AM

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

Client: WPX Energy
Project: RDU 14 **Work Order:** 17091207
Sample ID: BH17-05 (4-6) **Lab ID:** 17091207-23
Collection Date: 9/17/2017 **Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor		Date Analyzed
CHLORIDE			**A4500-CL E-11**		Prep: EXTRACT	10/11/17 15:30	Analyst: **ED**
Chloride	**900**		**12**	**mg/Kg-dry**	1		10/11/2017 03:45 PM
MOISTURE			**SW3550C**				Analyst: **BTG**
Moisture	**15**	H	**0.050**	**% of sample**	1		10/4/2017 08:17 AM

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

ALS Group, USA

Date: *01-Nov-17*

Client: WPX Energy
Project: RDU 14
Sample ID: BH17-05 (8-10)
Collection Date: 9/17/2017

Work Order: 17091207
Lab ID: 17091207-25
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor		Date Analyzed
CHLORIDE			**A4500-CL E-11**		Prep: EXTRACT	10/11/17 15:30	Analyst: **ED**
Chloride	**390**		**11**	**mg/Kg-dry**	1		10/11/2017 03:45 PM
MOISTURE			**SW3550C**				Analyst: **BTG**
Moisture	**9.1**	H	**0.050**	**% of sample**	1		10/4/2017 08:17 AM

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

Client: WPX Energy
Project: RDU 14 **Work Order:** 17091207
Sample ID: BH17-06 (4-6) **Lab ID:** 17091207-28
Collection Date: 9/17/2017 **Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor		Date Analyzed
CHLORIDE			**A4500-CL E-11**		Prep: EXTRACT	10/11/17 15:30	Analyst: **ED**
Chloride	**32**		**12**	**mg/Kg-dry**	1		10/11/2017 03:45 PM
MOISTURE			**SW3550C**				Analyst: **BTG**
Moisture	**14**	H	**0.050**	**% of sample**	1		10/4/2017 08:17 AM

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

ALS Group, USA

Date: *01-Nov-17*

Client: WPX Energy
Project: RDU 14
Sample ID: BH17-06 (8-10)
Collection Date: 9/17/2017

Work Order: 17091207
Lab ID: 17091207-30
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor		Date Analyzed
CHLORIDE			**A4500-CL E-11**		Prep: EXTRACT	10/11/17 15:30	Analyst: **ED**
Chloride	**160**		**12**	**mg/Kg-dry**	1		10/11/2017 03:45 PM
MOISTURE			**SW3550C**				Analyst: **BTG**
Moisture	**15**	H	**0.050**	**% of sample**	1		10/4/2017 08:17 AM

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

ALS Group, USA

Date: 01-Nov-17

Client: WPX Energy

Work Order: 17091207

Project: RDU 14

QC BATCH REPORT

Batch ID: **108365** Instrument ID **GC8** Method: **SW8015C**

MBLK Sample ID: **DBLKS1-108365-108365** Units: **mg/Kg** Analysis Date: **10/3/2017 02:30 PM**

Client ID: Run ID: **GC8_171003A** SeqNo: **4674165** Prep Date: **10/3/2017** 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	*2.4*	0	*3.33*	0	*72.1*	*34-130*	0			

LCS Sample ID: **DLCSS1-108365-108365** Units: **mg/Kg** Analysis Date: **10/3/2017 02:59 PM**

Client ID: Run ID: **GC8_171003A** SeqNo: **4674167** Prep Date: **10/3/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	316.6	5.0	333	0	95.1	65-122	0			
ORO (C28-C40)	312	5.0	333	0	93.7	81-116	0			
Surr: 4-Terphenyl-d14	*2.483*	0	*3.33*	0	*74.6*	*34-130*	0			

MS Sample ID: **17091207-08B MS** Units: **mg/Kg** Analysis Date: **10/3/2017 03:57 PM**

Client ID: **BH17-02 (4-6)** Run ID: **GC8_171003A** SeqNo: **4675542** Prep Date: **10/3/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	296.7	4.8	320.6	2.982	91.6	65-122	0			
ORO (C28-C40)	294.4	4.8	320.6	0	91.8	81-116	0			
Surr: 4-Terphenyl-d14	*2.423*	0	*3.206*	0	*75.6*	*34-130*	0			

MSD Sample ID: **17091207-08B MSD** Units: **mg/Kg** Analysis Date: **10/3/2017 04:26 PM**

Client ID: **BH17-02 (4-6)** Run ID: **GC8_171003A** SeqNo: **4675523** Prep Date: **10/3/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	316.2	4.9	325	2.982	96.4	65-122	296.7	6.37	30	
ORO (C28-C40)	310.7	4.9	325	0	95.6	81-116	294.4	5.4	30	
Surr: 4-Terphenyl-d14	*2.375*	0	*3.25*	0	*73.1*	*34-130*	2.423	*1.99*	*30*	

The following samples were analyzed in this batch:

17091207-03B	17091207-08B

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

Client: WPX Energy
Work Order: 17091207
Project: RDU 14

QC BATCH REPORT

Batch ID: **108407** Instrument ID **GC9** Method: **SW8015D**

MBLK Sample ID: **MBLK-108407-108407** Units: **µg/Kg-dry** Analysis Date: **10/4/2017 01:06 AM**
Client ID: Run ID: **GC9_171003B** SeqNo: **4676839** Prep Date: **10/3/2017** 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	*4792*	0	*5000*	0	*95.8*	*71-123*	0			

LCS Sample ID: **LCS-108407-108407** Units: **µg/Kg-dry** Analysis Date: **10/4/2017 12:07 PM**
Client ID: Run ID: **GC9_171003B** SeqNo: **4676858** Prep Date: **10/3/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	406600	5,000	500000	0	81.3	71-123	0			
Surr: Toluene-d8	*5498*	0	*5000*	0	*110*	*71-123*	0			

MS Sample ID: **17091503-06A MS** Units: **µg/Kg-dry** Analysis Date: **10/4/2017 08:59 AM**
Client ID: Run ID: **GC9_171003B** SeqNo: **4676853** Prep Date: **10/3/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	511900	5,800	577600	0	88.6	71-123	0			
Surr: Toluene-d8	*6567*	0	*5776*	0	*114*	*71-123*	0			

MSD Sample ID: **17091503-06A MSD** Units: **µg/Kg-dry** Analysis Date: **10/4/2017 09:28 AM**
Client ID: Run ID: **GC9_171003B** SeqNo: **4676854** Prep Date: **10/3/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	487200	5,800	577600	0	84.4	71-123	511900	4.94	30	
Surr: Toluene-d8	*6403*	0	*5776*	0	*111*	*71-123*	6567	*2.53*	*30*	

The following samples were analyzed in this batch: 17091207-03A 17091207-08A

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

Client: WPX Energy
Work Order: 17091207
Project: RDU 14

QC BATCH REPORT

Batch ID: **108417** Instrument ID **VMS10** Method: **SW8260B**

MBLK Sample ID: **MBLK-108417-108417** Units: **µg/Kg-dry** Analysis Date: **10/3/2017 06:19 PM**
Client ID: Run ID: **VMS10_171003A** SeqNo: **4676158** Prep Date: **10/3/2017** 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	*1006*	0	*1000*	0	*101*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*910.5*	0	*1000*	0	*91*	*70-130*	0			
Surr: Dibromofluoromethane	*958.5*	0	*1000*	0	*95.8*	*70-130*	0			
Surr: Toluene-d8	*981*	0	*1000*	0	*98.1*	*70-130*	0			

LCS Sample ID: **LCS-108417-108417** Units: **µg/Kg-dry** Analysis Date: **10/3/2017 05:31 PM**
Client ID: Run ID: **VMS10_171003A** SeqNo: **4676157** Prep Date: **10/3/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1013	30	1000	0	101	75-125	0			
Ethylbenzene	1050	30	1000	0	105	75-125	0			
m,p-Xylene	2126	60	2000	0	106	80-125	0			
o-Xylene	1054	30	1000	0	105	75-125	0			
Toluene	1015	30	1000	0	102	70-125	0			
Xylenes, Total	3180	90	3000	0	106	75-125	0			
Surr: 1,2-Dichloroethane-d4	*977*	0	*1000*	0	*97.7*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1054*	0	*1000*	0	*105*	*70-130*	0			
Surr: Dibromofluoromethane	*967.5*	0	*1000*	0	*96.8*	*70-130*	0			
Surr: Toluene-d8	*1034*	0	*1000*	0	*103*	*70-130*	0			

MS Sample ID: **17091503-06A MS** Units: **µg/Kg-dry** Analysis Date: **10/3/2017 11:54 PM**
Client ID: Run ID: **VMS10_171003A** SeqNo: **4676176** Prep Date: **10/3/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1023	35	1155	0	88.6	75-125	0			
Ethylbenzene	1136	35	1155	0	98.4	75-125	0			
m,p-Xylene	2292	69	2310	0	99.2	80-125	0			
o-Xylene	1166	35	1155	0	101	75-125	0			
Toluene	1097	35	1155	0	95	70-125	0			
Xylenes, Total	3459	100	3466	0	99.8	75-125	0			
Surr: 1,2-Dichloroethane-d4	*985.9*	0	*1155*	0	*85.4*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1221*	0	*1155*	0	*106*	*70-130*	0			
Surr: Dibromofluoromethane	*969.2*	0	*1155*	0	*83.9*	*70-130*	0			
Surr: Toluene-d8	*1200*	0	*1155*	0	*104*	*70-130*	0			

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

Client: WPX Energy
Work Order: 17091207
Project: RDU 14

QC BATCH REPORT

Batch ID: **108417** Instrument ID **VMS10** Method: **SW8260B**

MSD	Sample ID: **17091503-06A MSD**				Units: **µg/Kg-dry**		Analysis Date: **10/4/2017 12:10 PM**			
Client ID:		Run ID: **VMS10_171003A**			SeqNo: **4676177**		Prep Date: **10/3/2017**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1075	35	1155	0	93.1	75-125	1023	5.01	30	
Ethylbenzene	1203	35	1155	0	104	75-125	1136	5.68	30	
m,p-Xylene	2393	69	2310	0	104	80-125	2292	4.29	30	
o-Xylene	1211	35	1155	0	105	75-125	1166	3.79	30	
Toluene	1137	35	1155	0	98.4	70-125	1097	3.62	30	
Xylenes, Total	3604	100	3466	0	104	75-125	3459	4.12	30	
Surr: 1,2-Dichloroethane-d4	*978.4*	0	*1155*	0	*84.7*	*70-130*	985.9	*0.764*	*30*	
Surr: 4-Bromofluorobenzene	*1207*	0	*1155*	0	*104*	*70-130*	1221	*1.19*	*30*	
Surr: Dibromofluoromethane	*970.3*	0	*1155*	0	*84*	*70-130*	969.2	*0.119*	*30*	
Surr: Toluene-d8	*1192*	0	*1155*	0	*103*	*70-130*	1200	*0.628*	*30*	

The following samples were analyzed in this batch: 17091207-03A 17091207-08A

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

Client: WPX Energy
Work Order: 17091207
Project: RDU 14

QC BATCH REPORT

Batch ID: **108871** Instrument ID **GALLERY** Method: **A4500-Cl E-11**

MBLK Sample ID: **MBLK-108871-108871** Units: **mg/Kg** Analysis Date: **10/11/2017 03:45 PM**
Client ID: Run ID: **GALLERY_171011A** SeqNo: **4692956** Prep Date: **10/11/2017** 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: **17091851-05B MS** Units: **mg/Kg** Analysis Date: **10/11/2017 03:45 PM**
Client ID: Run ID: **GALLERY_171011A** SeqNo: **4692977** Prep Date: **10/11/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	505.2	9.9	493.1	8.608	101	75-125	0			

MSD Sample ID: **17091851-05B MSD** Units: **mg/Kg** Analysis Date: **10/11/2017 03:45 PM**
Client ID: Run ID: **GALLERY_171011A** SeqNo: **4692978** Prep Date: **10/11/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	499.9	9.9	494.1	8.608	99.4	75-125	505.2	1.06	25	

LCS1 Sample ID: **LCS1-108871-108871** Units: **mg/Kg** Analysis Date: **10/11/2017 03:45 PM**
Client ID: Run ID: **GALLERY_171011A** SeqNo: **4692979** Prep Date: **10/11/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	99.47	10	100	0	99.5	80-120	0			

LCS2 Sample ID: **LCS2-108871-108871** Units: **mg/Kg** Analysis Date: **10/11/2017 03:45 PM**
Client ID: Run ID: **GALLERY_171011A** SeqNo: **4692980** Prep Date: **10/11/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	497.3	10	500	0	99.5	80-120	0			

The following samples were analyzed in this batch:

17091207-03B	17091207-05A	17091207-08B
17091207-09A	17091207-12A	17091207-15A
17091207-16A	17091207-23A	17091207-25A
17091207-28A	17091207-30A	

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

Client: WPX Energy
Work Order: 17091207
Project: RDU 14

QC BATCH REPORT

Batch ID: **R221371** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **MB-R221371-R221371** Units: **% of sample** Analysis Date: **10/3/2017 09:20 AM**
Client ID: Run ID: **MOIST_171003A** SeqNo: **4674609** 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-R221371-R221371** Units: **% of sample** Analysis Date: **10/3/2017 09:20 AM**
Client ID: Run ID: **MOIST_171003A** SeqNo: **4674610** 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: **17091207-08B DUP** Units: **% of sample** Analysis Date: **10/3/2017 09:20 AM**
Client ID: **BH17-02 (4-6)** Run ID: **MOIST_171003A** SeqNo: **4674607** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	20.81	0.050	0	0	0	0-0	20.89	0.384	5	H

The following samples were analyzed in this batch: 17091207-08B

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

Client: WPX Energy
Work Order: 17091207
Project: RDU 14

QC BATCH REPORT

Batch ID: **R221406** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R221406** Units: **% of sample** Analysis Date: **10/4/2017 08:17 AM**
Client ID: Run ID: **MOIST_171003B** SeqNo: **4675697** 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-R221406** Units: **% of sample** Analysis Date: **10/4/2017 08:17 AM**
Client ID: Run ID: **MOIST_171003B** SeqNo: **4675696** 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: **17091509-01B DUP** Units: **% of sample** Analysis Date: **10/4/2017 08:17 AM**
Client ID: Run ID: **MOIST_171003B** SeqNo: **4675684** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.74	0.050	0	0	0	0-0	19.3	2.94	5	

DUP Sample ID: **17091597-01B DUP** Units: **% of sample** Analysis Date: **10/4/2017 08:17 AM**
Client ID: Run ID: **MOIST_171003B** SeqNo: **4675694** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	31.63	0.050	0	0	0	0-0	26	19.5	5	R

The following samples were analyzed in this batch:

17091207-05A	17091207-09A	17091207-12A
17091207-15A	17091207-16A	17091207-23A
17091207-25A	17091207-28A	17091207-30A

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

Client: WPX Energy
Work Order: 17091207
Project: RDU 14

QC BATCH REPORT

Batch ID: **R221420** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R221420** Units: **% of sample** Analysis Date: **10/3/2017 07:45 PM**
Client ID: Run ID: **MOIST_171003H** SeqNo: **4676661** 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-R221420** Units: **% of sample** Analysis Date: **10/3/2017 07:45 PM**
Client ID: Run ID: **MOIST_171003H** SeqNo: **4676660** 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: **17091503-02A DUP** Units: **% of sample** Analysis Date: **10/3/2017 07:45 PM**
Client ID: Run ID: **MOIST_171003H** SeqNo: **4676651** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	15.17	0.050	0	0	0	0-0	15.14	0.198	5	

DUP Sample ID: **17091503-08A DUP** Units: **% of sample** Analysis Date: **10/3/2017 07:45 PM**
Client ID: Run ID: **MOIST_171003H** SeqNo: **4676655** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	14.06	0.050	0	0	0	0-0	14.6	3.77	5	

The following samples were analyzed in this batch: 17091207-03B

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

ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r6

WORKORDER # 1709120 7

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PROJECT NAME	RDU 14	SAMPLER	
PROJECT No.	17E-00043	SITE ID	RDU 14
		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

DATE 18/09/2017

TURNAROUND 5 days

DISPOSAL By Lab or Return to Client

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	DRO + GRO + ORO	BTEX	Chloride	HOLD
1	BH17-01 (0-2)	S	17/09/2017		4						x
2	BH17-01 (2-4)	S	17/09/2017		4						x
3	BH17-01 (4-6)	S	17/09/2017		4						x
4	BH17-01 (6-8)	S	17/09/2017		4						x
5	BH17-01 (8-10)	S	17/09/2017		4						x
6	bh17-02 (0-2)	S	17/09/2017		4						x
7	bh17-02 (2-4)	S	17/09/2017		4						x
8	bh17-02 (4-6)	S	17/09/2017		4						x
9	BH17-02 (6-8)	S	17/09/2017		4						x
10	BH17-02 (8-10)	S	17/09/2017		4						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: SR2 4.2°C 3.8°C

QC PACKAGE (check below)	
X	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + raw data)

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	18/09/2017	15:00
RECEIVED BY		Keith Wiseman	9/21/17	0930
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

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Form 202r8

WORKORDER # 17091207

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DISPOSAL: By Lab or Return to Client

PROJECT NAME	RDU 14	SAMPLER		DATE	24/08/2017
PROJECT No.	17E-00043	SITE ID	RDU 14	TURNAROUND	5 days
		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		HOLD
11	BH17-03 (0-2)	S	17/09/2017		4							x
12	BH17-03 (2-4)	S	17/09/2017		4							x
13	BH17-03 (4-6)	S	17/09/2017		4							x
14	BH17-03 (6-8)	S	17/09/2017		4							x
15	BH17-03 (8-10)	S	17/09/2017		4							x
16	bh17-04 (0-2)	S	17/09/2017		4							x
17	bh17-04 (2-4)	S	17/09/2017		4							x
18	bh17-04 (4-6)	S	17/09/2017		4							x
19	BH17-04 (6-8)	S	17/09/2017		4							x
20	BH17-04 (8-10)	S	17/09/2017		4							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)

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	18/09/2017	15:00
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r8

WORKORDER # 1709207

PAGE 3 of 3

DISPOSAL: By Lab or Return to Client

PROJECT NAME	RDU 14	SITE ID	RDU 14
PROJECT No.	17E-00043	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

SAMPLER:

DATE: 24/08/2017

TURNAROUND: 5 days

Lab ID	Field ID	Matrix	Sample Date	Sample Time	Bottles	Pres.	QC	DRO + GRO + ORO	BTEX	Chloride		HOLD
21	BH17-05 (0-2)	S	17/09/2017		4							x
22	BH17-05 (2-4)	S	17/09/2017		4							x
23	BH17-05 (4-6)	S	17/09/2017		4							x
24	BH17-05 (6-8)	S	17/09/2017		4							x
25	BH17-05 (8-10)	S	17/09/2017		4							x
26	bh17-06 (0-2)	S	17/09/2017		4							x
27	bh17-06 (2-4)	S	17/09/2017		4							x
28	bh17-06 (4-6)	S	17/09/2017		4							x
29	BH17-06 (6-8)	S	17/09/2017		4							x
30	BH17-06 (8-10)	S	17/09/2017		4							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)

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	18/09/2017	15:00
RECEIVED BY		Kenn Workenca	9/21/17	0930
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Group, USA

Sample Receipt Checklist

Client Name: **WPX - NM** Date/Time Received: **21-Sep-17 09:30**

Work Order: **17091207** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 21-Sep-17 (Date) Reviewed by: Chad Whelton (eSignature) 21-Sep-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):	4.2/4.2, 3.8/3.8 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/21/2017 10:43:39 AM		
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:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: