

## Legend

- Sample Location
- Existing Road
- Existing Pad Limit of Disturbance

**RMV 205-20**  
**Arsenic Background Sample Location Map**  
**T6S R94W, Section 20**

June 2, 2015







09-Apr-2015

Karolina Blaney  
WPX Energy Rocky Mountain, LLC  
1058 Country Rd 215  
Parachute, CO 81635

Re: **RMV 205-20 Cuttings**

Work Order: **1504271**

Dear Karolina,

ALS Environmental received 1 sample on 04-Apr-2015 10:30 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 NELAP standard requirements and QC 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 22.

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

Sincerely,

*Chad Whelton*

Electronically approved by: Chad Whelton

Chad Whelton  
Project Manager



Certificate No: MN 532786

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

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Environmental 

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**Client:** WPX Energy Rocky Mountain, LLC  
**Project:** RMV 205-20 Cuttings  
**Work Order:** 1504271

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**Work Order Sample Summary**

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<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>
1504271-01	RMV 205-20 Cuttings	Soil		4/2/2015 15:00	4/4/2015 10:30	<input type="checkbox"/>

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**Client:** WPX Energy Rocky Mountain, LLC**Project:** RMV 205-20 Cuttings**Work Order:** 1504271**Case Narrative**

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Batch 69450, Method DRO\_8015\_S, Sample 1504271-01A: DRO surrogate recovery high due to matrix interference.

Batch 69668, Method CR6\_7196\_S, Sample 1504271-01A MS/MSD: The MS and MSD recovery was below the lower control limit Hexavalent Chromium. The corresponding result in the parent sample may be biased low.

Batch 69668, Method CR6\_7196\_S, Sample 1504271-01A MSD: The RPD between the MS and MSD was outside of the control limit for Hexavalent Chromium. The corresponding result should be considered estimated.

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
a	Not 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
n	Not offered for accreditation
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 PQL, sample results may exhibit background or reagent contamination at the observed level.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

# ALS Group USA, Corp

Date: 09-Apr-15

**Client:** WPX Energy Rocky Mountain, LLC  
**Project:** RMV 205-20 Cuttings  
**Sample ID:** RMV 205-20 Cuttings  
**Collection Date:** 4/2/2015 03:00 PM

**Work Order:** 1504271  
**Lab ID:** 1504271-01  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015M</b>		Prep: SW3541 / 4/6/15	Analyst: <b>IT</b>
<b>DRO (C10-C28)</b>	<b>140</b>		<b>4.7</b>	<b>mg/Kg-dry</b>	<b>1</b>	4/6/2015 10:25 PM
Surr: 4-Terphenyl-d14	164	S	39-133	%REC	1	4/6/2015 10:25 PM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015D</b>		Prep: SW5035 / 4/6/15	Analyst: <b>IT</b>
<b>GRO (C6-C10)</b>	<b>ND</b>		<b>2.8</b>	<b>mg/Kg-dry</b>	<b>1</b>	4/6/2015 06:16 PM
Surr: Toluene-d8	112		50-150	%REC	1	4/6/2015 06:16 PM
<b>MERCURY BY CVAA</b>						
			<b>SW7471B</b>		Prep: SW7471 / 4/6/15	Analyst: <b>LR</b>
<b>Mercury</b>	<b>0.053</b>		<b>0.015</b>	<b>mg/Kg-dry</b>	<b>1</b>	4/6/2015 07:36 PM
<b>METALS ANALYSIS BY ICP</b>						
			<b>SW846 6010C</b>		Prep: SW3050B / 4/4/15	Analyst: <b>JEC</b>
<b>Arsenic</b>	<b>12</b>		<b>0.44</b>	<b>mg/Kg-dry</b>	<b>1</b>	4/6/2015 04:03 PM
<b>Barium</b>	<b>4,900</b>		<b>4.4</b>	<b>mg/Kg-dry</b>	<b>10</b>	4/7/2015 01:54 PM
Cadmium	ND		0.89	mg/Kg-dry	1	4/6/2015 04:03 PM
<b>Chromium</b>	<b>11</b>		<b>0.44</b>	<b>mg/Kg-dry</b>	<b>1</b>	4/6/2015 04:03 PM
<b>Copper</b>	<b>19</b>		<b>0.89</b>	<b>mg/Kg-dry</b>	<b>1</b>	4/6/2015 04:03 PM
<b>Lead</b>	<b>12</b>		<b>0.44</b>	<b>mg/Kg-dry</b>	<b>1</b>	4/6/2015 04:03 PM
<b>Nickel</b>	<b>18</b>		<b>0.44</b>	<b>mg/Kg-dry</b>	<b>1</b>	4/6/2015 04:03 PM
Selenium	ND		0.89	mg/Kg-dry	1	4/6/2015 04:03 PM
Silver	ND		0.44	mg/Kg-dry	1	4/6/2015 04:03 PM
<b>Zinc</b>	<b>54</b>		<b>0.89</b>	<b>mg/Kg-dry</b>	<b>1</b>	4/6/2015 04:03 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
			<b>SW846 6010C</b>		Prep: USDA Method 20B / 4/7/15	Analyst: <b>JEC</b>
<b>Calcium</b>	<b>970</b>		<b>5.0</b>	<b>mg/L</b>	<b>10</b>	4/7/2015 03:06 PM
<b>Magnesium</b>	<b>270</b>		<b>2.0</b>	<b>mg/L</b>	<b>10</b>	4/7/2015 03:06 PM
<b>Sodium</b>	<b>1,200</b>		<b>2.0</b>	<b>mg/L</b>	<b>10</b>	4/7/2015 03:06 PM
<b>SODIUM ADSORPTION RATIO</b>						
			<b>USDA H60 METHO</b>		Prep: USDA Method 20B / 4/7/15	Analyst: <b>JEC</b>
<b>Sodium Adsorption Ratio</b>	<b>8.5</b>		<b>0.010</b>	<b>none</b>	<b>1</b>	4/7/2015
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3541 / 4/6/15	Analyst: <b>RS</b>
Acenaphthene	ND		7.5	µg/Kg-dry	1	4/7/2015 01:47 PM
Anthracene	ND		7.5	µg/Kg-dry	1	4/7/2015 01:47 PM
<b>Benzo(a)anthracene</b>	<b>40</b>		<b>7.5</b>	<b>µg/Kg-dry</b>	<b>1</b>	4/7/2015 01:47 PM
<b>Benzo(a)pyrene</b>	<b>32</b>		<b>7.5</b>	<b>µg/Kg-dry</b>	<b>1</b>	4/7/2015 01:47 PM
<b>Benzo(b)fluoranthene</b>	<b>53</b>		<b>7.5</b>	<b>µg/Kg-dry</b>	<b>1</b>	4/7/2015 01:47 PM
<b>Benzo(g,h,i)perylene</b>	<b>21</b>		<b>7.5</b>	<b>µg/Kg-dry</b>	<b>1</b>	4/7/2015 01:47 PM
<b>Benzo(k)fluoranthene</b>	<b>23</b>		<b>7.5</b>	<b>µg/Kg-dry</b>	<b>1</b>	4/7/2015 01:47 PM
<b>Chrysene</b>	<b>52</b>		<b>7.5</b>	<b>µg/Kg-dry</b>	<b>1</b>	4/7/2015 01:47 PM
Dibenzo(a,h)anthracene	ND		7.5	µg/Kg-dry	1	4/7/2015 01:47 PM

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

# ALS Group USA, Corp

Date: 09-Apr-15

**Client:** WPX Energy Rocky Mountain, LLC  
**Project:** RMV 205-20 Cuttings  
**Sample ID:** RMV 205-20 Cuttings  
**Collection Date:** 4/2/2015 03:00 PM

**Work Order:** 1504271  
**Lab ID:** 1504271-01  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	92		7.5	µg/Kg-dry	1	4/7/2015 01:47 PM
Fluorene	16		7.5	µg/Kg-dry	1	4/7/2015 01:47 PM
Indeno(1,2,3-cd)pyrene	27		7.5	µg/Kg-dry	1	4/7/2015 01:47 PM
Naphthalene	ND		7.5	µg/Kg-dry	1	4/7/2015 01:47 PM
Pyrene	56		7.5	µg/Kg-dry	1	4/7/2015 01:47 PM
Surr: 2-Fluorobiphenyl	59.3		12-100	%REC	1	4/7/2015 01:47 PM
Surr: 4-Terphenyl-d14	89.9		25-137	%REC	1	4/7/2015 01:47 PM
Surr: Nitrobenzene-d5	52.0		37-107	%REC	1	4/7/2015 01:47 PM
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>	Prep: SW5035 / 4/6/15	Analyst: <b>BG</b>	
Benzene	38		34	µg/Kg-dry	1	4/6/2015 06:59 PM
Ethylbenzene	ND		34	µg/Kg-dry	1	4/6/2015 06:59 PM
m,p-Xylene	260		68	µg/Kg-dry	1	4/6/2015 06:59 PM
o-Xylene	ND		34	µg/Kg-dry	1	4/6/2015 06:59 PM
Toluene	140		34	µg/Kg-dry	1	4/6/2015 06:59 PM
Xylenes, Total	260		100	µg/Kg-dry	1	4/6/2015 06:59 PM
Surr: 1,2-Dichloroethane-d4	98.6		70-130	%REC	1	4/6/2015 06:59 PM
Surr: 4-Bromofluorobenzene	103		70-130	%REC	1	4/6/2015 06:59 PM
Surr: Dibromofluoromethane	92.9		70-130	%REC	1	4/6/2015 06:59 PM
Surr: Toluene-d8	98.2		70-130	%REC	1	4/6/2015 06:59 PM
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			<b>USDA H60 METHO</b>	Prep: USDA Method 20B / 4/7/15	Analyst: <b>JB</b>	
Electrical Conductivity @ Saturation	13		0.050	mmhos/cm @2	10	4/7/2015 10:50 AM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>	Analyst: <b>JB</b>		
Chromium, Trivalent	11		0.56	mg/Kg-dry	1	4/9/2015 05:30 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A / 4/8/15	Analyst: <b>MB</b>	
Chromium, Hexavalent	ND		1.1	mg/Kg-dry	1	4/9/2015 01:00 PM
<b>MOISTURE</b>			<b>E160.3M</b>	Analyst: <b>EVB</b>		
Moisture	11		0.050	% of sample	1	4/6/2015 05:45 PM
<b>PH</b>			<b>SW9045D</b>	Prep: EXTRACT / 4/6/15	Analyst: <b>KF</b>	
pH	8.4			s.u.	1	4/6/2015 03:15 PM

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

# ALS Group USA, Corp

Date: 09-Apr-15

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69450** Instrument ID **GC8** Method: **SW8015M**

<b>MBLK</b>		Sample ID: <b>DBLKS1-69450-69450</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 05:56 PM</b>		
Client ID:		Run ID: <b>GC8_150406A</b>				SeqNo: <b>3213924</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	ND	5.0								
<i>Surr: 4-Terphenyl-d14</i>	1.707	0	2	0	85.3	39-133	0			

<b>LCS</b>		Sample ID: <b>DLCSS1-69450-69450</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 06:26 PM</b>		
Client ID:		Run ID: <b>GC8_150406A</b>				SeqNo: <b>3213925</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	186.9	5.0	200	0	93.4	61-109	0			
<i>Surr: 4-Terphenyl-d14</i>	1.324	0	2	0	66.2	39-133	0			

<b>MS</b>		Sample ID: <b>1504123-01B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 06:55 PM</b>		
Client ID:		Run ID: <b>GC8_150406A</b>				SeqNo: <b>3213926</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	285.1	7.8	313.4	27.05	82.3	48-110	0			
<i>Surr: 4-Terphenyl-d14</i>	1.894	0	3.134	0	60.4	39-133	0			

<b>MSD</b>		Sample ID: <b>1504123-01B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 07:25 PM</b>		
Client ID:		Run ID: <b>GC8_150406A</b>				SeqNo: <b>3213927</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	325.3	7.8	312.9	27.05	95.3	48-110	285.1	13.2	30	
<i>Surr: 4-Terphenyl-d14</i>	2.183	0	3.129	0	69.8	39-133	1.894	14.2	30	

The following samples were analyzed in this batch: 1504271-01A

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



**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69455**      Instrument ID **GC9**      Method: **SW8015D**

<b>MBLK</b>		Sample ID: <b>MBLK-69455-69455</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>4/6/2015 12:55 PM</b>		
Client ID:		Run ID: <b>GC9_150406A</b>				SeqNo: <b>3213817</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
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	5404	0	5000	0	108	50-150	0			

<b>LCS</b>		Sample ID: <b>LCS-69455-69455</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>4/6/2015 12:30 PM</b>		
Client ID:		Run ID: <b>GC9_150406A</b>				SeqNo: <b>3213816</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	385800	2,500	500000	0	77.2	70-130	0			
Surr: Toluene-d8	5108	0	5000	0	102	50-150	0			

<b>MS</b>		Sample ID: <b>1504276-01A MS</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>4/6/2015 08:20 PM</b>		
Client ID:		Run ID: <b>GC9_150406A</b>				SeqNo: <b>3213843</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	451700	2,500	500000	0	90.3	70-130	0			
Surr: Toluene-d8	5736	0	5000	0	115	50-150	0			

<b>MSD</b>		Sample ID: <b>1504276-01A MSD</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>4/6/2015 08:45 PM</b>		
Client ID:		Run ID: <b>GC9_150406A</b>				SeqNo: <b>3213844</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	447100	2,500	500000	0	89.4	70-130	451700	1.03	30	
Surr: Toluene-d8	5540	0	5000	0	111	50-150	5736	3.47	30	

The following samples were analyzed in this batch:

1504271-01A

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69457**      Instrument ID **HG1**      Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-69457-69457</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 06:12 PM</b>		
Client ID:		Run ID: <b>HG1_150406A</b>				SeqNo: <b>3213707</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.006917	0.020								J

<b>LCS</b>		Sample ID: <b>LCS-69457-69457</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 06:15 PM</b>		
Client ID:		Run ID: <b>HG1_150406A</b>				SeqNo: <b>3213709</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1957	0.020	0.1665	0	118	80-120	0			

<b>MS</b>		Sample ID: <b>1504123-05BMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 06:56 PM</b>		
Client ID:		Run ID: <b>HG1_150406A</b>				SeqNo: <b>3213741</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1214	0.012	0.1027	0.003754	115	75-125	0			

<b>MSD</b>		Sample ID: <b>1504123-05BMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 06:59 PM</b>		
Client ID:		Run ID: <b>HG1_150406A</b>				SeqNo: <b>3213743</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1209	0.012	0.1037	0.003754	113	75-125	0.1214	0.459	35	

The following samples were analyzed in this batch:

1504271-01A

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

# QC BATCH REPORT

Batch ID: **69440** Instrument ID **ICP2** Method: **SW846 6010C**

<b>MBLK</b>		Sample ID: <b>MBLK-69440-69440</b>				Units: <b>mg/L</b>		Analysis Date: <b>4/6/2015 02:00 PM</b>		
Client ID:		Run ID: <b>ICP2_150406A</b>				SeqNo: <b>3212290</b>		Prep Date: <b>4/4/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Barium	ND	0.25								
Cadmium	ND	0.50								
Chromium	0.01175	0.25								J
Copper	ND	0.50								
Lead	ND	0.25								
Nickel	ND	0.25								
Selenium	ND	0.50								
Silver	ND	0.25								
Zinc	ND	0.50								

<b>LCS</b>		Sample ID: <b>LCS-69440-69440</b>				Units: <b>mg/L</b>		Analysis Date: <b>4/6/2015 02:06 PM</b>		
Client ID:		Run ID: <b>ICP2_150406A</b>				SeqNo: <b>3212291</b>		Prep Date: <b>4/4/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.933	0.25	5	0	98.7	80-120	0			
Barium	4.774	0.25	5	0	95.5	80-120	0			
Cadmium	4.869	0.50	5	0	97.4	80-120	0			
Chromium	5.274	0.25	5	0	105	80-120	0			
Copper	5.051	0.50	5	0	101	80-120	0			
Lead	4.974	0.25	5	0	99.5	80-120	0			
Nickel	5.215	0.25	5	0	104	80-120	0			
Selenium	5.183	0.50	5	0	104	80-120	0			
Silver	5.321	0.25	5	0	106	80-120	0			
Zinc	5.047	0.50	5	0	101	80-120	0			

<b>MS</b>		Sample ID: <b>1504276-06AMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 02:16 PM</b>		
Client ID:		Run ID: <b>ICP2_150406A</b>				SeqNo: <b>3212293</b>		Prep Date: <b>4/4/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	15.43	0.35	7.022	7.601	111	75-125	0			
Barium	170.2	0.35	7.022	164.7	77.7	75-125	0			O
Cadmium	7.287	0.70	7.022	0.06439	103	75-125	0			
Chromium	21.97	0.35	7.022	10.7	160	75-125	0			S
Copper	22.78	0.70	7.022	15.04	110	75-125	0			
Lead	22.47	0.35	7.022	15.39	101	75-125	0			
Nickel	27.53	0.35	7.022	20.06	106	75-125	0			
Selenium	8.535	0.70	7.022	1.147	105	75-125	0			
Silver	8.281	0.35	7.022	-0.09526	119	75-125	0			
Zinc	86.79	0.70	7.022	77.94	126	75-125	0			SO

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69440**      Instrument ID **ICP2**      Method: **SW846 6010C**

MSD		Sample ID: <b>1504276-06AMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/6/2015 02:22 PM</b>		
Client ID:		Run ID: <b>ICP2_150406A</b>				SeqNo: <b>3212294</b>		Prep Date: <b>4/4/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	15.59	0.35	7.013	7.601	114	75-125	15.43	1.03	20	
Barium	174	0.35	7.013	164.7	132	75-125	170.2	2.2	20	SO
Cadmium	7.152	0.70	7.013	0.06439	101	75-125	7.287	1.86	20	
Chromium	21.78	0.35	7.013	10.7	158	75-125	21.97	0.862	20	S
Copper	22.77	0.70	7.013	15.04	110	75-125	22.78	0.0723	20	
Lead	22.72	0.35	7.013	15.39	105	75-125	22.47	1.12	20	
Nickel	27.08	0.35	7.013	20.06	100	75-125	27.53	1.64	20	
Selenium	8.662	0.70	7.013	1.147	107	75-125	8.535	1.48	20	
Silver	8.487	0.35	7.013	-0.09526	122	75-125	8.281	2.46	20	
Zinc	89.8	0.70	7.013	77.94	169	75-125	86.79	3.42	20	SO

The following samples were analyzed in this batch: 1504271-01A

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69443** Instrument ID **ICP2** Method: **SW846 6010C**

<b>DUP</b>		Sample ID: <b>1504272-01ADUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>4/7/2015 03:18 PM</b>		
Client ID:		Run ID: <b>ICP2_150407A</b>				SeqNo: <b>3214490</b>		Prep Date: <b>4/7/2015</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Magnesium	0.2765	2.0	0	0	0	0-0	0.27	0		J
Sodium	785.2	2.0	0	0	0	0-0	856.7	8.71		

<b>DUP</b>		Sample ID: <b>1504272-01ADUP</b>				Units: <b>none</b>		Analysis Date: <b>4/7/2015</b>		
Client ID:		Run ID: <b>SAR_150407A</b>				SeqNo: <b>3215271</b>		Prep Date: <b>4/7/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	3.006	0.010	0	0	0		3.178	5.56	50	

The following samples were analyzed in this batch:

1504271-01A

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



**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69451**      Instrument ID **SVMS5**      Method: **SW846 8270D**

MBLK		Sample ID: <b>SBLKS1-69451-69451</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>4/6/2015 08:14 PM</b>		
Client ID:		Run ID: <b>SVMS5_150406A</b>				SeqNo: <b>3214450</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	6.7								
Anthracene	ND	6.7								
Benzo(a)anthracene	ND	6.7								
Benzo(a)pyrene	ND	6.7								
Benzo(b)fluoranthene	ND	6.7								
Benzo(g,h,i)perylene	ND	6.7								
Benzo(k)fluoranthene	ND	6.7								
Chrysene	ND	6.7								
Dibenzo(a,h)anthracene	ND	6.7								
Fluoranthene	ND	6.7								
Fluorene	ND	6.7								
Indeno(1,2,3-cd)pyrene	ND	6.7								
Naphthalene	ND	6.7								
Pyrene	ND	6.7								
Surr: 2-Fluorobiphenyl	1254	0	1667	0	75.2	12-100	0			
Surr: 4-Terphenyl-d14	2036	0	1667	0	122	25-137	0			
Surr: Nitrobenzene-d5	1288	0	1667	0	77.3	37-107	0			

LCS		Sample ID: <b>SLCSS1-69451-69451</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>4/6/2015 08:36 PM</b>		
Client ID:		Run ID: <b>SVMS5_150406A</b>				SeqNo: <b>3214451</b>		Prep Date: <b>4/6/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	499.7	6.7	666.7	0	74.9	45-110	0			
Anthracene	604.3	6.7	666.7	0	90.6	55-105	0			
Benzo(a)anthracene	591.7	6.7	666.7	0	88.7	50-110	0			
Benzo(a)pyrene	553	6.7	666.7	0	82.9	50-110	0			
Benzo(b)fluoranthene	541.3	6.7	666.7	0	81.2	45-115	0			
Benzo(g,h,i)perylene	509.7	6.7	666.7	0	76.4	40-125	0			
Benzo(k)fluoranthene	546.7	6.7	666.7	0	82	45-115	0			
Chrysene	615.3	6.7	666.7	0	92.3	55-110	0			
Dibenzo(a,h)anthracene	561.3	6.7	666.7	0	84.2	40-125	0			
Fluoranthene	557	6.7	666.7	0	83.5	55-115	0			
Fluorene	522.7	6.7	666.7	0	78.4	50-110	0			
Indeno(1,2,3-cd)pyrene	537.7	6.7	666.7	0	80.6	40-120	0			
Naphthalene	492.7	6.7	666.7	0	73.9	40-105	0			
Pyrene	675	6.7	666.7	0	101	45-125	0			
Surr: 2-Fluorobiphenyl	1131	0	1667	0	67.9	12-100	0			
Surr: 4-Terphenyl-d14	1740	0	1667	0	104	25-137	0			
Surr: Nitrobenzene-d5	1213	0	1667	0	72.8	37-107	0			

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

Client: WPX Energy Rocky Mountain, LLC  
 Work Order: 1504271  
 Project: RMV 205-20 Cuttings

# QC BATCH REPORT

Batch ID: 69451 Instrument ID SVMS5 Method: SW846 8270D

MS				Sample ID: 1504123-01B MS			Units: µg/Kg		Analysis Date: 4/7/2015 12:52 PM		
Client ID:			Run ID: SVMS5_150406A		SeqNo: 3214454		Prep Date: 4/6/2015		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	883.2	13	1323	0	66.7	45-110	0				
Anthracene	1115	13	1323	0	84.3	55-105	0				
Benzo(a)anthracene	1076	13	1323	0	81.3	50-110	0				
Benzo(a)pyrene	1090	13	1323	0	82.3	50-110	0				
Benzo(b)fluoranthene	1103	13	1323	0	83.3	45-115	0				
Benzo(g,h,i)perylene	1066	13	1323	0	80.5	40-125	0				
Benzo(k)fluoranthene	1095	13	1323	0	82.7	45-115	0				
Chrysene	1107	13	1323	0	83.7	55-110	0				
Dibenzo(a,h)anthracene	1058	13	1323	0	79.9	40-125	0				
Fluoranthene	1015	13	1323	0	76.7	55-115	0				
Fluorene	988.4	13	1323	0	74.7	50-110	0				
Indeno(1,2,3-cd)pyrene	976.4	13	1323	0	73.8	40-120	0				
Naphthalene	835.5	13	1323	0	63.1	40-105	0				
Pyrene	1252	13	1323	0	94.6	45-125	0				
Surr: 2-Fluorobiphenyl	2001	0	3308	0	60.5	12-100	0				
Surr: 4-Terphenyl-d14	3310	0	3308	0	100	25-137	0				
Surr: Nitrobenzene-d5	1961	0	3308	0	59.3	37-107	0				

MSD				Sample ID: 1504123-01B MSD			Units: µg/Kg		Analysis Date: 4/7/2015 01:14 AM		
Client ID:			Run ID: SVMS5_150406A			SeqNo: 3214452		Prep Date: 4/6/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	943.8	13	1309	0	72.1	45-110	883.2	6.63	30		
Anthracene	1135	13	1309	0	86.7	55-105	1115	1.73	30		
Benzo(a)anthracene	1099	13	1309	0	83.9	50-110	1076	2.07	30		
Benzo(a)pyrene	1082	13	1309	0	82.6	50-110	1090	0.709	30		
Benzo(b)fluoranthene	1097	13	1309	0	83.8	45-115	1103	0.534	30		
Benzo(g,h,i)perylene	1020	13	1309	0	77.9	40-125	1066	4.42	30		
Benzo(k)fluoranthene	1069	13	1309	0	81.6	45-115	1095	2.41	30		
Chrysene	1118	13	1309	0	85.4	55-110	1107	0.938	30		
Dibenzo(a,h)anthracene	1041	13	1309	0	79.5	40-125	1058	1.57	30		
Fluoranthene	1054	13	1309	0	80.5	55-115	1015	3.76	30		
Fluorene	993.5	13	1309	0	75.9	50-110	988.4	0.521	30		
Indeno(1,2,3-cd)pyrene	1024	13	1309	0	78.2	40-120	976.4	4.72	30		
Naphthalene	951	13	1309	0	72.6	40-105	835.5	12.9	30		
Pyrene	1313	13	1309	0	100	45-125	1252	4.72	30		
Surr: 2-Fluorobiphenyl	2150	0	3273	0	65.7	12-100	2001	7.17	40		
Surr: 4-Terphenyl-d14	3156	0	3273	0	96.4	25-137	3310	4.78	40		
Surr: Nitrobenzene-d5	2312	0	3273	0	70.6	37-107	1961	16.4	40		

The following samples were analyzed in this batch: 1504271-01A

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

Client: WPX Energy Rocky Mountain, LLC  
 Work Order: 1504271  
 Project: RMV 205-20 Cuttings

# QC BATCH REPORT

Batch ID: **69453** Instrument ID **VMS6** Method: **SW8260B**

MBLK				Sample ID: MBLK-69453-69453				Units: µg/Kg			Analysis Date: 4/6/2015 01:38 PM			
Client ID:				Run ID: VMS6_150406A				SeqNo: 3213306			Prep Date: 4/6/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Benzene	ND	30												
Ethylbenzene	ND	30												
m,p-Xylene	ND	60												
o-Xylene	ND	30												
Toluene	ND	30												
Xylenes, Total	ND	90												
Surr: 1,2-Dichloroethane-d4	987.5	0	1000	0	98.8	70-130		0						
Surr: 4-Bromofluorobenzene	985.5	0	1000	0	98.6	70-130		0						
Surr: Dibromofluoromethane	910.5	0	1000	0	91	70-130		0						
Surr: Toluene-d8	998	0	1000	0	99.8	70-130		0						

LCS				Sample ID: LCS-69453-69453			Units: µg/Kg		Analysis Date: 4/6/2015 12:20 PM		
Client ID:			Run ID: VMS6_150406A			SeqNo: 3213305		Prep Date: 4/6/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	933.5	30	1000	0	93.4	75-125	0				
Ethylbenzene	934	30	1000	0	93.4	75-125	0				
m,p-Xylene	1866	60	2000	0	93.3	80-125	0				
o-Xylene	913.5	30	1000	0	91.4	75-125	0				
Toluene	929	30	1000	0	92.9	70-125	0				
Xylenes, Total	2780	90	3000	0	92.6	75-125	0				
Surr: 1,2-Dichloroethane-d4	996	0	1000	0	99.6	70-130	0				
Surr: 4-Bromofluorobenzene	1004	0	1000	0	100	70-130	0				
Surr: Dibromofluoromethane	990.5	0	1000	0	99	70-130	0				
Surr: Toluene-d8	989	0	1000	0	98.9	70-130	0				

The following samples were analyzed in this batch:

1504271-01A

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69443** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1504272-01A DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>4/7/2015 10:50 AM</b>		
Client ID:		Run ID: <b>WETCHEM_150407C</b>				SeqNo: <b>3213849</b>		Prep Date: <b>4/7/2015</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	35.9	0.050	0	0	0		40.5	12	50	

The following samples were analyzed in this batch:

1504271-01A

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69490** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-69490-69490				Units: s.u.			Analysis Date: 4/6/2015 03:15 PM			
Client ID:				Run ID: WETCHEM_150406F				SeqNo: 3212398			Prep Date: 4/6/2015		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH		3.94	0	4	0	98.5	90-110	0						

DUP		Sample ID: 1504156-01A DUP				Units: s.u.		Analysis Date: 4/6/2015 03:15 PM		
Client ID:		Run ID: WETCHEM_150406F				SeqNo: 3212393		Prep Date: 4/6/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	5.65	0	0	0	0	0-0	5.52	2.33	20	

The following samples were analyzed in this batch:

1504271-01A

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



**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69668**      Instrument ID **WETCHEM**      Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-69668-69668</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/9/2015 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_150409J</b>		SeqNo: <b>3218377</b>		Prep Date: <b>4/8/2015</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      ND      1.0

<b>LCS</b>		Sample ID: <b>LCS-69668-69668</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/9/2015 01:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_150409J</b>		SeqNo: <b>3218376</b>		Prep Date: <b>4/8/2015</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      4.65      1.0      5      0      93      80-120      0

<b>MS</b>		Sample ID: <b>1504271-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/9/2015 01:00 PM</b>		
Client ID: <b>RMV 205-20 Cuttings</b>		Run ID: <b>WETCHEM_150409J</b>		SeqNo: <b>3218367</b>		Prep Date: <b>4/8/2015</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      2.02      0.98      4.902      0.7476      25.9      75-125      0      S

<b>MS</b>		Sample ID: <b>1504271-01A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/9/2015 01:00 PM</b>		
Client ID: <b>RMV 205-20 Cuttings</b>		Run ID: <b>WETCHEM_150409J</b>		SeqNo: <b>3218369</b>		Prep Date: <b>4/8/2015</b>		DF: <b>100</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      2714      97      2859      0.7476      94.9      75-125      0

<b>MSD</b>		Sample ID: <b>1504271-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>4/9/2015 01:00 PM</b>		
Client ID: <b>RMV 205-20 Cuttings</b>		Run ID: <b>WETCHEM_150409J</b>		SeqNo: <b>3218368</b>		Prep Date: <b>4/8/2015</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      2.481      0.96      4.808      0.7476      36.1      75-125      2.02      20.5      20      SR

The following samples were analyzed in this batch:

1504271-01A

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504271  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **R160710** Instrument ID **MOIST** Method: **E160.3M**

<b>MBLK</b>		Sample ID: <b>WBLKS-R160710</b>				Units: % of sample		Analysis Date: <b>4/6/2015 05:45 PM</b>		
Client ID:		Run ID: <b>MOIST_150406C</b>				SeqNo: <b>3214018</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

<b>LCS</b>		Sample ID: <b>LCS-R160710</b>				Units: % of sample		Analysis Date: <b>4/6/2015 05:45 PM</b>		
Client ID:		Run ID: <b>MOIST_150406C</b>				SeqNo: <b>3214017</b>		Prep Date:		DF: <b>1</b>
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

<b>DUP</b>		Sample ID: <b>1504260-03B DUP</b>				Units: % of sample		Analysis Date: <b>4/6/2015 05:45 PM</b>		
Client ID:		Run ID: <b>MOIST_150406C</b>				SeqNo: <b>3214014</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 18.63 0.050 0 0 0 17.81 4.5 20

The following samples were analyzed in this batch:

1504271-01A

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

WORKORDER  
#

1504271

PAGE

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**DISPOSAL**

By Lab or Return to Client

[illegible]

\*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.**

<b>Comments:</b>  <div style="text-align: center;">  </div>	<b>QC PACKAGE (check below)</b>	
	<b>X</b>	LEVEL II (Standard QC)
		LEVEL III (Std QC + forms)
		LEVEL IV (Std QC + forms + raw data)
<b>Preservative Key:</b> 1-HCl   2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH   5-NaHSO <sub>4</sub> 7-Other   8-4 degrees C   9-5035		

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	<i>Karolina Blaney</i>	Karolina Blaney	4/3/2015	11:00
RECEIVED BY	<i>NIM</i>	<i>NIM</i>	4-3-15	11:00
RELINQUISHED BY	<i>Wm</i>	<i>Wm</i>	4-3-15	11:00
RECEIVED BY	<i>Kathy</i>	KATHY WIERENKA	4/4/15	1030
RELINQUISHED BY				
RECEIVED BY				

4/3/2015

FedEx Ship Manager - Print Your Label(s)

From: (816) 298-1033  
Nick Martinez  
ALS Environmental  
127 E. 1st Street

Origin ID: RILA



Ship Date: 03APR15  
ActWgt: 58.0 LB  
CAD: 2284840/NET3810

Dims: 24 X 15 X 15 IN

PARACHUTE, CO 81635

Delivery Address Bar Code



SHIP TO: (616) 399-6070  
sample receiving  
ALS Laboratory Group  
3352 128TH AVE

BILL SENDER

Ref # 040315-1  
Invoice #  
PO # Parachute  
Dept #

HOLLAND, MI 49424

2 of 3

SATURDAY 12:00P  
PRIORITY OVERNIGHT

MPS# 7732 9271 8594

0263

Mstr# 7732 9271 8572

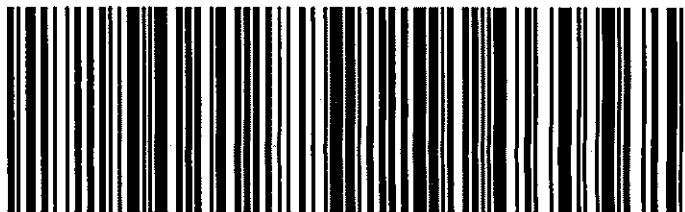
0261

49424

MI-US

GRR

**X0 HLMA**



537J26FC5EE48

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ALS Parachute Delivery Seal  
Name: [Signature]  
Time: 12:30  
Date: 4-3-15

Sample Receipt Checklist

Client Name: **WPX**

Date/Time Received: **04-Apr-15 10:30**

Work Order: **1504271**

Received by: **KRW**

Checklist completed by Keith Wurenga  
eSignature

04-Apr-15  
Date

Reviewed by: Chad Whelton  
eSignature

06-Apr-15  
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 C SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 4/4/2015 11:13:37 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:





13-Apr-2015

Karolina Blaney  
WPX Energy Rocky Mountain, LLC  
1058 Country Rd 215  
Parachute, CO 81635

Re: **RMV 205-20 Cuttings**

Work Order: **1504592**

Dear Karolina,

ALS Environmental received 1 sample on 10-Apr-2015 10:30 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 NELAP standard requirements and QC 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 9.

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

Sincerely,

*Chad Whelton*

Electronically approved by: Chad Whelton

Chad Whelton  
Project Manager



Certificate No: MN 532786

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

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---

**Client:** WPX Energy Rocky Mountain, LLC  
**Project:** RMV 205-20 Cuttings  
**Work Order:** 1504592

---

**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>
1504592-01	RMV 205-20 Cuttings	Soil		4/9/2015 13:00	4/10/2015 10:30	<input type="checkbox"/>

---

**Client:** WPX Energy Rocky Mountain, LLC  
**Project:** RMV 205-20 Cuttings  
**WorkOrder:** 1504592

## **QUALIFIERS, ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
a	Not 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
n	Not offered for accreditation
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 PQL, sample results may exhibit background or reagent contamination at the observed level.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight

**ALS Group USA, Corp****Date:** 13-Apr-15**Client:** WPX Energy Rocky Mountain, LLC**Project:** RMV 205-20 Cuttings**Work Order:** 1504592**Sample ID:** RMV 205-20 Cuttings**Lab ID:** 1504592-01**Collection Date:** 4/9/2015 01:00 PM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>			<b>SW846 8270D</b>	Prep: SW3541 / 4/10/15		Analyst: <b>RS</b>
Benzo(a)pyrene	ND		7.3	µg/Kg-dry	1	4/11/2015 07:38 AM
Surr: 2-Fluorobiphenyl	60.0		12-100	%REC	1	4/11/2015 07:38 AM
Surr: 4-Terphenyl-d14	111		25-137	%REC	1	4/11/2015 07:38 AM
Surr: Nitrobenzene-d5	63.0		37-107	%REC	1	4/11/2015 07:38 AM
<b>MOISTURE</b>			<b>E160.3M</b>			Analyst: <b>EVB</b>
Moisture	9.1		0.050	% of sample	1	4/10/2015 03:00 PM

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

# ALS Group USA, Corp

Date: 13-Apr-15

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504592  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **69681** Instrument ID **SVMS4** Method: **SW846 8270D**

MBLK		Sample ID: <b>SBLKS1-69681-69681</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>4/10/2015 07:29 PM</b>		
Client ID:		Run ID: <b>SVMS4_150410A</b>		SeqNo: <b>3220855</b>		Prep Date: <b>4/10/2015</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzo(a)pyrene	ND	6.7								
Surr: 2-Fluorobiphenyl	1124	0	1667	0	67.4	12-100	0			
Surr: 4-Terphenyl-d14	1790	0	1667	0	107	25-137	0			
Surr: Nitrobenzene-d5	1196	0	1667	0	71.8	37-107	0			

LCS				Sample ID: SLCSS1-69681-69681				Units: µg/Kg		Analysis Date: 4/10/2015 07:54 PM	
Client ID:			Run ID: SVMS4_150410A			SeqNo: 3220856		Prep Date: 4/10/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzo(a)pyrene	597.3	6.7	666.7	0	89.6	50-110	0				
Surr: 2-Fluorobiphenyl	1175	0	1667	0	70.5	12-100	0				
Surr: 4-Terphenyl-d14	1715	0	1667	0	103	25-137	0				
Surr: Nitrobenzene-d5	1286	0	1667	0	77.2	37-107	0				

MS				Sample ID: 1504428-02A MS				Units: µg/Kg		Analysis Date: 4/10/2015 11:03 PM	
Client ID:			Run ID: SVMS4_150410A			SeqNo: 3220857		Prep Date: 4/10/2015		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzo(a)pyrene	17300	130	1308	60530	-3310	50-110		0		SO	
Surr: 2-Fluorobiphenyl	2465	0	3270	0	75.4	12-100		0			
Surr: 4-Terphenyl-d14	3498	0	3270	0	107	25-137		0			
Surr: Nitrobenzene-d5	2393	0	3270	0	73.2	37-107		0			

MSD				Sample ID: 1504428-02A MSD			Units: µg/Kg		Analysis Date: 4/10/2015 11:28 PM		
Client ID:		Run ID: SVMS4_150410A			SeqNo: 3220858		Prep Date: 4/10/2015		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzo(a)pyrene	11740	130	1290	60530	-3780	50-110	17300	38.3	30	SRO	
Surr: 2-Fluorobiphenyl	2290	0	3225	0	71	12-100	2465	7.37	40		
Surr: 4-Terphenyl-d14	3032	0	3225	0	94	25-137	3498	14.3	40		
Surr: Nitrobenzene-d5	2148	0	3225	0	66.6	37-107	2393	10.8	40		

The following samples were analyzed in this batch:

1504592-01A

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 1504592  
**Project:** RMV 205-20 Cuttings

## QC BATCH REPORT

Batch ID: **R161143** Instrument ID **MOIST** Method: **E160.3M**

<b>MBLK</b>		Sample ID: <b>WBLKS-R161143</b>				Units: % of sample		Analysis Date: <b>4/10/2015 03:00 PM</b>		
Client ID:		Run ID: <b>MOIST_150410A</b>				SeqNo: <b>3222522</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

<b>LCS</b>		Sample ID: <b>LCS-R161143</b>				Units: % of sample		Analysis Date: <b>4/10/2015 03:00 PM</b>		
Client ID:		Run ID: <b>MOIST_150410A</b>				SeqNo: <b>3222521</b>		Prep Date:		DF: <b>1</b>
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

<b>DUP</b>		Sample ID: <b>1504394-01A DUP</b>				Units: % of sample		Analysis Date: <b>4/10/2015 03:00 PM</b>		
Client ID:		Run ID: <b>MOIST_150410A</b>				SeqNo: <b>3222503</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 3.41 0.050 0 0 0 2.97 13.8 20

<b>DUP</b>		Sample ID: <b>1504404-04B DUP</b>				Units: % of sample		Analysis Date: <b>4/10/2015 03:00 PM</b>		
Client ID:		Run ID: <b>MOIST_150410A</b>				SeqNo: <b>3222508</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 8.91 0.050 0 0 0 8.88 0.337 20

The following samples were analyzed in this batch:

1504592-01A

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

[illegible]

\*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.**

<b>Comments:</b>  <div style="text-align: center; font-size: 2em;">2.8'c</div> <div style="text-align: center; font-size: 3em;">@</div>	<b>QC PACKAGE (check below)</b>	
	<b>X</b>	LEVEL II (Standard QC)
		LEVEL III (Std QC + forms)
		LEVEL IV (Std QC + forms + raw data)
<b>Preservative Key:</b> 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	<i>Karolina Blaney</i>	Karolina Blaney	4/9/2015	16:00
RECEIVED BY	<i>[Signature]</i>	<i>[Signature]</i>	4-9-15	1630
RELINQUISHED BY	<i>[Signature]</i>	<i>[Signature]</i>	4-9-15	1700
RECEIVED BY	<i>[Signature]</i>	Diane F. Shew	4/10/15	1030
RELINQUISHED BY				
RECEIVED BY				

4/9/2015

FedEx Ship Manager - Print Your Label(s)

From: (616) 298-1033  
Nick Martinez  
ALS Environmental  
127 E. 1st Street

Origin ID: RILA



J151215022303UN

PARACHUTE, CO 81635

SHIP TO: (616) 399-6078  
sample receiving  
ALS Laboratory Group  
3352 128TH AVE

BILL SENDER

HOLLAND, MI 49424

Ship Date: 09APR15  
ActWgt: 84.0 LB  
CAD: 22648404NET3610

Dims: 24 X 15 X 15 IN

Delivery Address Bar Code



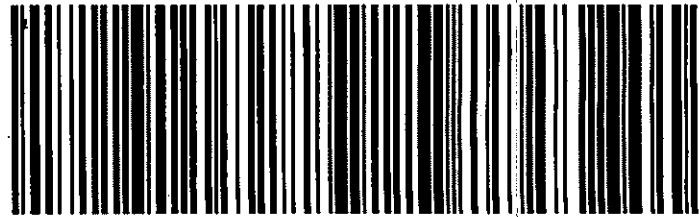
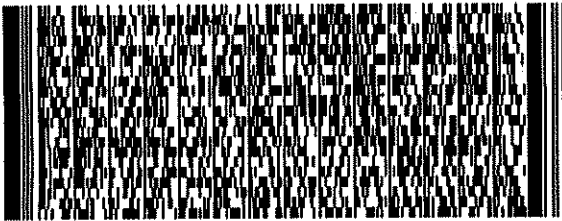
Ref # 040915-1  
Invoice #  
PO # Parachute  
Dept #

FRI - 10 APR 10:30A  
PRIORITY OVERNIGHT

TRK# 7733 3642 6689  
8281

**XX HLMA**

**49424**  
MI-US  
**GRR**

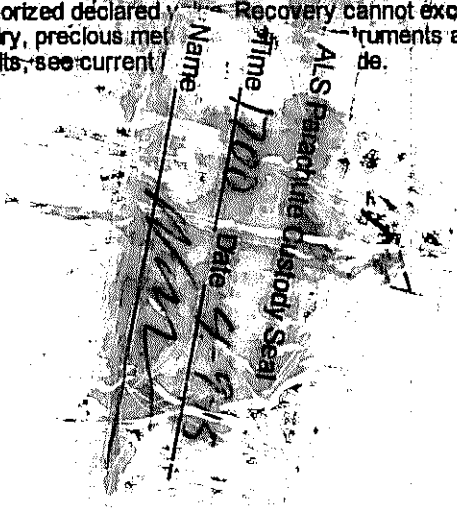


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Sample Receipt Checklist

Client Name: **WPX**

Date/Time Received: **10-Apr-15 10:30**

Work Order: **1504592**

Received by: **DS**

Checklist completed by Diane Shaw 10-Apr-15  
eSignature Date

Reviewed by: Chad Whelton 10-Apr-15  
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): 2.8 c SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 4/10/2015 11:50:19 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:



30-Jul-2015

Karolina Blaney  
WPX Energy Rocky Mountain, LLC  
1058 Country Rd 215  
Parachute, CO 81635

Re: **RMV 205-20 Backgrounds**

Work Order: **15071325**

Dear Karolina,

ALS Environmental received 5 samples on 23-Jul-2015 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 NELAP standard requirements and QC 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 15.

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

Sincerely,

*Chad Whelton*

Electronically approved by: Chad Whelton

Chad Whelton  
Project Manager



Certificate No: MN 532786

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

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

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**Client:** WPX Energy Rocky Mountain, LLC  
**Project:** RMV 205-20 Backgrounds  
**Work Order:** 15071325

---

**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>
15071325-01	RMV 205-20-B-1	Soil		7/22/2015 11:55	7/23/2015 09:30	<input type="checkbox"/>
15071325-02	RMV 205-20-B-2	Soil		7/22/2015 12:00	7/23/2015 09:30	<input type="checkbox"/>
15071325-03	RMV 205-20-B-3	Soil		7/22/2015 12:05	7/23/2015 09:30	<input type="checkbox"/>
15071325-04	RMV 205-20-B-4	Soil		7/22/2015 12:10	7/23/2015 09:30	<input type="checkbox"/>
15071325-05	RMV 205-20-B-5	Soil		7/22/2015 12:15	7/23/2015 09:30	<input type="checkbox"/>

---

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
a	Not 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
n	Not offered for accreditation
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 PQL, sample results may exhibit background or reagent contamination at the observed level.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

**ALS Group USA, Corp****Date:** 30-Jul-15**Client:** WPX Energy Rocky Mountain, LLC**Project:** RMV 205-20 Backgrounds**Work Order:** 15071325**Sample ID:** RMV 205-20-B-1**Lab ID:** 15071325-01**Collection Date:** 7/22/2015 11:55 AM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>						
<b>METALS ANALYSIS BY ICP</b>			<b>SW846 6010C</b>		Prep: SW3050B / 7/24/15	Analyst: <b>JEC</b>
Arsenic	15		0.41	mg/Kg-dry	1	7/28/2015 04:46 PM
<b>MOISTURE</b>			<b>E160.3M</b>			Analyst: <b>EVB</b>
Moisture	4.4		0.050	% of sample	1	7/27/2015 05:10 PM

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

**ALS Group USA, Corp****Date:** 30-Jul-15**Client:** WPX Energy Rocky Mountain, LLC**Project:** RMV 205-20 Backgrounds**Work Order:** 15071325**Sample ID:** RMV 205-20-B-2**Lab ID:** 15071325-02**Collection Date:** 7/22/2015 12:00 PM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	18		<b>SW846 6010C</b> 0.39	mg/Kg-dry	1	Prep: SW3050B / 7/24/15 Analyst: <b>JEC</b> 7/28/2015 04:52 PM
<b>MOISTURE</b>						
Moisture	3.8		<b>E160.3M</b> 0.050	% of sample	1	Analyst: <b>EVB</b> 7/27/2015 05:10 PM

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

**ALS Group USA, Corp****Date:** 30-Jul-15**Client:** WPX Energy Rocky Mountain, LLC**Project:** RMV 205-20 Backgrounds**Work Order:** 15071325**Sample ID:** RMV 205-20-B-3**Lab ID:** 15071325-03**Collection Date:** 7/22/2015 12:05 PM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	15		<b>SW846 6010C</b> 0.39	mg/Kg-dry	1	Prep: SW3050B / 7/24/15 Analyst: <b>JEC</b> 7/28/2015 05:42 PM
<b>MOISTURE</b>						
Moisture	5.8		<b>E160.3M</b> 0.050	% of sample	1	Analyst: <b>EVB</b> 7/27/2015 05:10 PM

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

**ALS Group USA, Corp****Date:** 30-Jul-15**Client:** WPX Energy Rocky Mountain, LLC**Project:** RMV 205-20 Backgrounds**Work Order:** 15071325**Sample ID:** RMV 205-20-B-4**Lab ID:** 15071325-04**Collection Date:** 7/22/2015 12:10 PM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	17		<b>SW846 6010C</b> 0.39	mg/Kg-dry	1	Prep: SW3050B / 7/24/15 Analyst: <b>JEC</b> 7/28/2015 05:48 PM
<b>MOISTURE</b>						
Moisture	5.4		<b>E160.3M</b> 0.050	% of sample	1	Analyst: <b>EVB</b> 7/27/2015 05:10 PM

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



# ALS Group USA, Corp

Date: 30-Jul-15

**Client:** WPX Energy Rocky Mountain, LLC  
**Project:** RMV 205-20 Backgrounds  
**Sample ID:** RMV 205-20-B-5  
**Collection Date:** 7/22/2015 12:15 PM

**Work Order:** 15071325  
**Lab ID:** 15071325-05  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	12		SW846 6010C 0.39	mg/Kg-dry	Prep: SW3050B / 7/24/15 1	Analyst: JEC 7/28/2015 05:54 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
Calcium	150		SW846 6010C 5.0	mg/L	Prep: USDA Method 20B / 7/27/15 10	Analyst: JEC 7/28/2015 03:58 PM
Magnesium	24		2.0	mg/L	10	7/28/2015 03:58 PM
Sodium	64		2.0	mg/L	10	7/28/2015 03:58 PM
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.3		USDA H60 METHO 0.010	none	Prep: USDA Method 20B / 7/27/15 1	Analyst: JEC 7/28/2015
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>						
Electrical Conductivity @ Saturation	1.1		USDA H60 METHO 0.050	mmhos/cm @2	Prep: USDA Method 20B / 7/27/15 10	Analyst: JB 7/27/2015 01:45 PM
<b>MOISTURE</b>						
Moisture	3.1		E160.3M 0.050	% of sample	1	Analyst: EVB 7/27/2015 05:10 PM
<b>PH</b>						
pH	8.4		SW9045D	s.u.	Prep: EXTRACT / 7/24/15 1	Analyst: STP 7/24/2015 02:00 PM

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

# ALS Group USA, Corp

Date: 30-Jul-15

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 15071325  
**Project:** RMV 205-20 Backgrounds

## QC BATCH REPORT

Batch ID: **73973** Instrument ID **ICP2** Method: **SW846 6010C**

DUP		Sample ID: 15071305-01ADUP				Units: mg/L		Analysis Date: 7/28/2015 03:35 PM		
Client ID:		Run ID: ICP2_150728A				SeqNo: 3390478		Prep Date: 7/27/2015		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	292.1	5.0	0	0	0	0-0	292.1	0		
Magnesium	0.5489	2.0	0	0	0	0-0	0.5489	0		J
Sodium	2461	2.0	0	0	0	0-0	2461	0		

DUP		Sample ID: 15071305-01ADUP				Units: none		Analysis Date: 7/28/2015		
Client ID:		Run ID: SAR_150728B				SeqNo: 3390525		Prep Date: 7/27/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	39.6	0.010	0	0	0		39.89	0.722	50	

The following samples were analyzed in this batch:

15071325-05B

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 15071325  
**Project:** RMV 205-20 Backgrounds

## QC BATCH REPORT

Batch ID: **73974**      Instrument ID **ICP2**      Method: **SW846 6010C**

<b>MBLK</b>		Sample ID: <b>MBLK-73974-73974</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/28/2015 04:29 PM</b>		
Client ID:		Run ID: <b>ICP2_150728A</b>				SeqNo: <b>3390868</b>		Prep Date: <b>7/24/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic      ND      0.25

<b>LCS</b>		Sample ID: <b>LCS-73974-73974</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/28/2015 04:35 PM</b>		
Client ID:		Run ID: <b>ICP2_150728A</b>				SeqNo: <b>3390869</b>		Prep Date: <b>7/24/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic      5.575      0.25      5      0      112      80-120      0

<b>MS</b>		Sample ID: <b>15071341-07CMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/28/2015 07:00 PM</b>		
Client ID:		Run ID: <b>ICP2_150728A</b>				SeqNo: <b>3390904</b>		Prep Date: <b>7/24/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic      24.35      0.39      7.825      9.898      185      75-125      0      S

<b>MSD</b>		Sample ID: <b>15071341-07CMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/28/2015 07:06 PM</b>		
Client ID:		Run ID: <b>ICP2_150728A</b>				SeqNo: <b>3390907</b>		Prep Date: <b>7/24/2015</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic      24.13      0.39      7.74      9.898      184      75-125      24.35      0.922      20      S

The following samples were analyzed in this batch:

15071325-01A	15071325-02A	15071325-03A
15071325-04A	15071325-05A	

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 15071325  
**Project:** RMV 205-20 Backgrounds

## QC BATCH REPORT

Batch ID: **73973** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>15071305-01A DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>7/27/2015 01:45 PM</b>		
Client ID:		Run ID: <b>WETCHEM_150727I</b>				SeqNo: <b>3387922</b>		Prep Date: <b>7/27/2015</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	14.51	0.050	0	0	0		14.51	0	50	

The following samples were analyzed in this batch:

15071325-05B

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 15071325  
**Project:** RMV 205-20 Backgrounds

## QC BATCH REPORT

Batch ID: **73988** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-73988-73988					Units: s.u.		Analysis Date: 7/24/2015 02:00 PM		
Client ID:		Run ID: WETCHEM_150724D			SeqNo: 3385620		Prep Date: 7/24/2015		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

pH 3.9 0 4 0 97.5 90-110 0

DUP		Sample ID: 15071315-01A DUP				Units: s.u.		Analysis Date: 7/24/2015 02:00 PM		
Client ID:		Run ID: WETCHEM_150724D				SeqNo: 3385623		Prep Date: 7/24/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH 8.06 0 0 0 0 0-0 8.08 0.248 20

DUP				Sample ID: 15071316-01A DUP				Units: s.u.			Analysis Date: 7/24/2015 02:00 PM			
Client ID:				Run ID: WETCHEM_150724D				SeqNo: 3385625			Prep Date: 7/24/2015		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			

pH 8.11 0 0 0 0 0-0 8.05 0.743 20

The following samples were analyzed in this batch:

15071325-05A

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

**Client:** WPX Energy Rocky Mountain, LLC  
**Work Order:** 15071325  
**Project:** RMV 205-20 Backgrounds

## QC BATCH REPORT

Batch ID: **R168484** Instrument ID **MOIST** Method: **E160.3M**

<b>MBLK</b>		Sample ID: <b>WBLKS-R168484</b>				Units: % of sample		Analysis Date: <b>7/27/2015 05:10 PM</b>		
Client ID:		Run ID: <b>MOIST_150727D</b>				SeqNo: <b>3389856</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

<b>LCS</b>		Sample ID: <b>LCS-R168484</b>				Units: % of sample		Analysis Date: <b>7/27/2015 05:10 PM</b>		
Client ID:		Run ID: <b>MOIST_150727D</b>				SeqNo: <b>3389855</b>		Prep Date:		DF: <b>1</b>
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

<b>DUP</b>		Sample ID: <b>15071198-01A DUP</b>				Units: % of sample		Analysis Date: <b>7/27/2015 05:10 PM</b>		
Client ID:		Run ID: <b>MOIST_150727D</b>				SeqNo: <b>3389834</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 69.57 0.050 0 0 0 69.59 0.0287 20

<b>DUP</b>		Sample ID: <b>15071341-32B DUP</b>				Units: % of sample		Analysis Date: <b>7/27/2015 05:10 PM</b>		
Client ID:		Run ID: <b>MOIST_150727D</b>				SeqNo: <b>3389854</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 10.95 0.050 0 0 0 10.31 6.02 20

The following samples were analyzed in this batch:

15071325-01A	15071325-02A	15071325-03A
15071325-04A	15071325-05A	

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



# ALS Laboratory Group

HOLLAND, Michigan 49424

## Chain-of-Custody

Form 202r8

WORKORDER  
#

15071325

PROJECT NAME		RMV 205-20 backgrounds		SAMPLER				DATE		7/22/2015		PAGE		1 of 1	
PROJECT No.				SITE ID		RMV 205-20 backgrounds		TURNAROUND		5 day		DISPOSAL		By Lab or Return to Client	
EDD FORMAT				PURCHASE ORDER				arsenic pH, EC, SAR							
COMPANY NAME		WPX Energy		BILL TO COMPANY		WPX Energy									
SEND REPORT TO		Blaney		INVOICE ATTN TO		Karolina Blaney; Leo Braun									
ADDRESS				ADDRESS		1058 Co Rd 215									
CITY / STATE / ZIP				CITY / STATE / ZIP		Parachure CO 81635									
PHONE				PHONE		970-683-2295									
FAX				FAX											
E-MAIL		Karolina.blaney@wpxenergy.com;		E-MAIL		Karolina.blaney@wpxenergy.com; leo.braun@wpxenergy.com									
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC								
1	RMV 205-20-B-1	S	7/22/2015	11:55	1		x	x							
2	RMV 205-20-B-2	S	7/22/2015	12:00	2			x							
3	RMV 205-20-B-3	S	7/22/2015	12:05	3			x							
4	RMV 205-20-B-4	S	7/22/2015	12:10	4			x							
5	RMV 205-20-B-5	S	7/22/2015	12:15	5			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)
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	7/22/2015	16:00:00 PM
RECEIVED BY		7-22-15	1643
RELINQUISHED BY		7-22-15	1655
RECEIVED BY	KEITH WIERENCA	7/23/15	0930
RELINQUISHED BY			
RECEIVED BY			

Sample Receipt Checklist

Client Name: **WPX**

Date/Time Received: **23-Jul-15 09:30**

Work Order: **15071325**

Received by: **KRW**

Checklist completed by Keith Wurenga  
eSignature

23-Jul-15  
Date

Reviewed by: Chad Whelton  
eSignature

23-Jul-15  
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>3.8 C</u>		<u>Sr2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>7/23/2015 3:23:12 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: