

Technical Report for

WPX Energy Rocky Mountain, LLC

WWLCOGJ: RU 11-7 BWQ

Accutest Job Number: D55644

Sampling Date: 03/05/14


Report to:

Western Water and Land, Inc.
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Grand Junction, CO 80506
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ATTN: Bruce Smith

Total number of pages in report: 50



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Test results relate only to samples analyzed.

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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D55644

WWLCOGJ: RU 11-7 BWQ

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D55644-1	03/05/14	12:45 SLK	03/06/14	AQ	Surface Water	SPG RU 11-7
D55644-1F	03/05/14	12:45 SLK	03/06/14	AQ	Surface H2O Filtered	SPG RU 11-7
D55644-2	03/05/14	00:00 SLK	03/06/14	AQ	Trip Blank Water	TRIP BLANK



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: WPX Energy Rocky Mountain, LLC

Job No D55644

Site: WWLCOGJ: RU 11-7 BWQ

Report Date 5/27/2014 4:15:31 PM

On 03/06/2014, 1 sample(s), 1 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D55644 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ	Batch ID: V7V1397
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55527-1DUP, D55504-20MS were used as the QC samples indicated.
- D55504-20MS: The pH of the sample aliquot for VOA analysis was >2 at time of analysis.

Volatiles by GC By Method RSK175 MOD

Matrix AQ	Batch ID: GFB480
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D55737-1MS, D55737-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix AQ	Batch ID: OP9527
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55504-16MS, D55504-16MSD were used as the QC samples indicated.
- The matrix spike (MS) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Outside control limits due to possible matrix interference.

Metals By Method EPA 200.7

Matrix AQ	Batch ID: MP12457
------------------	--------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55638-1MS, D55638-1MSD were used as the QC samples for the metals analysis.

Metals By Method EPA 200.8

Matrix AQ	Batch ID: MP12447
------------------	--------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55622-1MS, D55622-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix AQ **Batch ID:** GP12088

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55622-8MS, D55622-8MSD were used as the QC samples for the Bromide, Chloride, Fluoride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Bromide analysis.

Wet Chemistry By Method HACH IRB-BART

Matrix AQ **Batch ID:** MB332

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method HACH SLYM-BART

Matrix AQ **Batch ID:** MB333

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method HACH SRB-BART

Matrix AQ **Batch ID:** MB334

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method HACH8190/SM4500P-B/E

Matrix AQ **Batch ID:** GP12105

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55584-1MS, D55584-1MSD, D55590-41DUP were used as the QC samples for the Phosphorus, Total analysis.

Wet Chemistry By Method SM 2320B-2011

Matrix AQ **Batch ID:** GN23932

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55548-3ADUP, D55548-3AMS, D55548-3AMSD were used as the QC samples for the Alkalinity, Total as CaCO₃ analysis.

Matrix AQ **Batch ID:** GN23933

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix AQ **Batch ID:** GN23934

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM 2510B-2011

Matrix AQ **Batch ID:** GP12104

- Sample(s) D55590-28DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM 2540C-2011

Matrix AQ	Batch ID: GN23919
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55656-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM4500HB+-2011/9040C

Matrix AQ	Batch ID: GN23894
------------------	--------------------------

- The following samples were run outside of holding time for method SM4500HB+-2011/9040C: D55644-1

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D55644
 Account: WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ
 Collected: 03/05/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

D55644-1 SPG RU 11-7

Methane		0.0463	0.00080	0.00040	mg/l	RSK175 MOD
Alkalinity, Bicarbonate as CaCO3		300	5.0	2.0	mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		300	5.0	2.0	mg/l	SM 2320B-2011
Bromide		0.071	0.050	0.025	mg/l	EPA 300.0/SW846 9056
Chloride		8.3	0.50	0.20	mg/l	EPA 300.0/SW846 9056
Fluoride		0.21	0.10	0.050	mg/l	EPA 300.0/SW846 9056
Iron Reducing Bacteria		74500	25		CFU/ml	HACH IRB-BART
Nitrogen, Nitrate		0.11	0.010	0.0060	mg/l	EPA 300.0/SW846 9056
Phosphorus, Total		0.13	0.010	0.0080	mg/l	HACH8190/SM4500P-B/E
Slime Forming Bacteria		12500	500		CFU/ml	HACH SLYM-BART
Solids, Total Dissolved		370	10	5.0	mg/l	SM 2540C-2011
Specific Conductivity		564	1.0		umhos/cm	SM 2510B-2011
Sulfate		11.4	0.50	0.20	mg/l	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria		5000	200		CFU/ml	HACH SRB-BART
pH		7.34			su	SM4500HB+ -2011/9040C

D55644-1F SPG RU 11-7

Barium		112	10	1.4	ug/l	EPA 200.7
Calcium		101000	400	66	ug/l	EPA 200.7
Iron		61.2	10	3.2	ug/l	EPA 200.7
Magnesium		18900	200	29	ug/l	EPA 200.7
Manganese		733	5.0	0.29	ug/l	EPA 200.7
Potassium		1850	1000	230	ug/l	EPA 200.7
Selenium		0.91	0.80	0.42	ug/l	EPA 200.8
Sodium		12500	400	36	ug/l	EPA 200.7
Strontium		466	5.0	0.12	ug/l	EPA 200.7

D55644-2 TRIP BLANK

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: SPG RU 11-7 Lab Sample ID: D55644-1 Matrix: AQ - Surface Water Method: SW846 8260B Project: WWLCOGJ: RU 11-7 BWQ	Date Sampled: 03/05/14 Date Received: 03/06/14 Percent Solids: n/a
---	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V25286.D	1	03/06/14	JL	n/a	n/a	V7V1397
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics + GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.25	ug/l	
1330-20-7	Xylene (total)	ND	3.0	2.0	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	101%		62-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	92%		69-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: SPG RU 11-7		
Lab Sample ID: D55644-1		Date Sampled: 03/05/14
Matrix: AQ - Surface Water		Date Received: 03/06/14
Method: RSK175 MOD		Percent Solids: n/a
Project: WWLCOGJ: RU 11-7 BWQ		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FB10636.D	1	03/11/14	JJ	n/a	n/a	GFB480
Run #2							

Run #	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	39.0 ml	4.0 ml	500 ul	19.0 Deg. C
Run #2				

Methane, Ethane and Propane

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	0.0463	0.00080	0.00040	mg/l	
74-84-0	Ethane	ND	0.0016	0.00080	mg/l	
74-98-6	Propane	ND	0.0022	0.0011	mg/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SPG RU 11-7 Lab Sample ID: D55644-1 Matrix: AQ - Surface Water Method: SW846-8015B SW846 3510C Project: WWLCOGJ: RU 11-7 BWQ	Date Sampled: 03/05/14 Date Received: 03/06/14 Percent Solids: n/a
---	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI10681.D	1	03/08/14	JS	03/07/14	OP9527	GFI696
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.19	0.17	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	72%		10-130%		

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: SPG RU 11-7	Date Sampled: 03/05/14
Lab Sample ID: D55644-1	Date Received: 03/06/14
Matrix: AQ - Surface Water	Percent Solids: n/a
Project: WWLCOGJ: RU 11-7 BWQ	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	300	5.0	2.0	mg/l	1	03/11/14	BF	SM 2320B-2011
Alkalinity, Carbonate	2.0 U	5.0	2.0	mg/l	1	03/11/14	BF	SM 2320B-2011
Alkalinity, Total as CaCO3	300	5.0	2.0	mg/l	1	03/11/14	BF	SM 2320B-2011
Bromide	0.071	0.050	0.025	mg/l	1	03/06/14 13:51	SK	EPA 300.0/SW846 9056
Chloride	8.3	0.50	0.20	mg/l	1	03/06/14 13:51	SK	EPA 300.0/SW846 9056
Fluoride	0.21	0.10	0.050	mg/l	1	03/06/14 13:51	SK	EPA 300.0/SW846 9056
Iron Reducing Bacteria	74500	25		CFU/ml	1	03/06/14	MM	HACH IRB-BART
Nitrogen, Nitrate	0.11	0.010	0.0060	mg/l	1	03/06/14 13:51	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.0030 U	0.0040	0.0030	mg/l	1	03/06/14 13:51	SK	EPA 300.0/SW846 9056
Phosphorus, Total	0.13	0.010	0.0080	mg/l	1	03/07/14	JD	HACH8190/SM4500P-B/E
Slime Forming Bacteria	12500	500		CFU/ml	1	03/06/14	MM	HACH SLYM-BART
Solids, Total Dissolved	370	10	5.0	mg/l	1	03/11/14	RW	SM 2540C-2011
Specific Conductivity	564	1.0		umhos/cm	1	03/07/14	AK	SM 2510B-2011
Sulfate	11.4	0.50	0.20	mg/l	1	03/06/14 13:51	SK	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	5000	200		CFU/ml	1	03/06/14	MM	HACH SRB-BART
pH	7.34			su	1	03/07/14 13:00	AK	SM4500HB+ -2011/9040C

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: SPG RU 11-7	Date Sampled: 03/05/14
Lab Sample ID: D55644-1F	Date Received: 03/06/14
Matrix: AQ - Surface H2O Filtered	Percent Solids: n/a
Project: WWLCOGJ: RU 11-7 BWQ	

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	112	10	1.4	ug/l	1	03/10/14	03/10/14 KV	EPA 200.7 ¹	EPA 200.7 ⁵
Boron	6.6 U	50	6.6	ug/l	1	03/10/14	03/11/14 KV	EPA 200.7 ²	EPA 200.7 ⁵
Calcium	101000	400	66	ug/l	1	03/10/14	03/11/14 KV	EPA 200.7 ²	EPA 200.7 ⁵
Iron	61.2	10	3.2	ug/l	1	03/10/14	03/11/14 KV	EPA 200.7 ²	EPA 200.7 ⁵
Magnesium	18900	200	29	ug/l	1	03/10/14	03/11/14 KV	EPA 200.7 ²	EPA 200.7 ⁵
Manganese	733	5.0	0.29	ug/l	1	03/10/14	03/11/14 KV	EPA 200.7 ²	EPA 200.7 ⁵
Potassium	1850	1000	230	ug/l	1	03/10/14	03/10/14 KV	EPA 200.7 ¹	EPA 200.7 ⁵
Selenium	0.91	0.80	0.42	ug/l	2	03/07/14	03/13/14 NT	EPA 200.8 ³	EPA 200.8 ⁴
Sodium	12500	400	36	ug/l	1	03/10/14	03/10/14 KV	EPA 200.7 ¹	EPA 200.7 ⁵
Strontium	466	5.0	0.12	ug/l	1	03/10/14	03/10/14 KV	EPA 200.7 ¹	EPA 200.7 ⁵

- (1) Instrument QC Batch: MA4532
- (2) Instrument QC Batch: MA4536
- (3) Instrument QC Batch: MA4548
- (4) Prep QC Batch: MP12447
- (5) Prep QC Batch: MP12457

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

4.2
 4

Report of Analysis

Client Sample ID: TRIP BLANK Lab Sample ID: D55644-2 Matrix: AQ - Trip Blank Water Method: SW846 8260B Project: WWLCOGJ: RU 11-7 BWQ	Date Sampled: 03/05/14 Date Received: 03/06/14 Percent Solids: n/a
---	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V25287.D	1	03/06/14	JL	n/a	n/a	V7V1397
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics + GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.25	ug/l	
1330-20-7	Xylene (total)	ND	3.0	2.0	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	99%		62-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	93%		69-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

4036 Youngfield Street, Wheat Ridge, CO 80033
 TEL: 303-425-6021 FAX: 303-425-6854
 www.accutest.com

FED-EX Tracking #		Bottle Order Control #	
Account Quote # 0103-245		Accutest Job # D55644	
Client / Reporting Information		Project Information	
Company Name Western Water and Land, Inc.		Project Name ZU 11-7 BWQ	
Street Address 743 Horizon Ct., Suite 330		Street	
City Grand Junction, CO 81506		City State	
Project Contact Bruce Smith bsmith@westernwaterandland.com		Billing Information (if different from Report to) Company Name WPX Energy	
Phone # (970) 242-0170		Street Address 1058 CR 215	
Sampler(s) Name(s) Shelley Kipp		City Parachute, CO 81635	
Project Manager Bandon Danforth		Attention	
Collection		Number of preserved Bottles	
Field ID / Point of Collection	MECH-ID#	Date	Time
SPG ZU 11-7		3-5-14	1245
TB1, TB2			
temp blank			
Field Parameters: pH(s.u.): 7.12 Temp(°C): 11.22 Sp.Cond(uS/cm): 602 DO(%): 38.6 DO(mg/L): 5.20 ORP(mv): 42.1 TURB(NTU): 0.98 (averaged)			
Turnaround Time (Business days)		Data Deliverable Information	
<input checked="" type="checkbox"/> Std. 15 Business Days	Approved By (Accutest PM): / Date:	<input type="checkbox"/> Commercial "A" (Level 1)	<input type="checkbox"/> State Forms Required
<input type="checkbox"/> Std. 10 Business Days		<input type="checkbox"/> Commercial "B" (Level 2)	<input type="checkbox"/> Send Forms to State
<input type="checkbox"/> 5 Day RUSH		<input type="checkbox"/> COMMBN	<input type="checkbox"/> Report by Fax
<input type="checkbox"/> 3 Day Emergency		<input type="checkbox"/> COMMBN+	<input type="checkbox"/> Report by PDF
<input type="checkbox"/> 2 Day Emergency			<input checked="" type="checkbox"/> EDD Format
<input type="checkbox"/> 1 Day Emergency			
Emergency & Rush T/A data available VIA Lablink		Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results/QC/Narrative (+ = chromatograms)	
Relinquished by Sampler 1 Shelley Kipp 3-5-14 @ 1545		Received By: 1 Blue Service Center	
Relinquished by Sampler 3		Received By: 3	
Relinquished by: 5		Received By: 5	
Date Time:		Date Time:	
Received By: 2 Jacob Braun 3/6/14 1:20		Received By: 4	
Date Time:		Date Time:	
Custody Seal # HD 10		Intact <input checked="" type="checkbox"/> Not Intact <input type="checkbox"/>	
Preserved where applicable 2		On Ice <input type="checkbox"/> Cooler Temp. 3.0	

DW - Drinking Water
 GW - Ground Water
 WW - Water
 SW - Surface Water
 SO - Soil
 SL - Sludge
 SED - Sediment
 OL - Oil
 LIQ - Other Liquid
 AIR - Air
 SOL - Other Solid
 WIP - Wipe
 FB - Field Blank
 EB - Equipment Blank
 RB - Rinse Blank
 TB - Trip Blank

5.1
5

LAB USE ONLY
 01
 78-02
 3/6/14
 (M)

D55644: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D55644

Client: WWL

Immediate Client Services Action Required: No

Date / Time Received: 3/6/2014 11:20:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: RV 11-7 BWQ

Airbill #'s: CO

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smp'l Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	Infrared gun	
3. Cooler media:	Ice (bag)	

<u>Quality Control Preservation</u>	<u>Y or N</u>		<u>N/A</u>
1. Trip Blank present / cooler:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. VOCs headspace free:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y or N</u>		<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

5.1
5

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D55644
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1397-MB	7V25279.D	1	03/06/14	JL	n/a	n/a	V7V1397

The QC reported here applies to the following samples:

Method: SW846 8260B

D55644-1, D55644-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.25	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	2.0	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries	Limits	
17060-07-0	1,2-Dichloroethane-D4	100%	62-130%
2037-26-5	Toluene-D8	102%	70-130%
460-00-4	4-Bromofluorobenzene	92%	69-130%

6.1.1

6

Blank Spike Summary

Job Number: D55644
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1397-BS	7V25280.D	1	03/06/14	JL	n/a	n/a	V7V1397

The QC reported here applies to the following samples:

Method: SW846 8260B

D55644-1, D55644-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	49.4	99	70-130
100-41-4	Ethylbenzene	50	54.5	109	70-130
108-88-3	Toluene	50	53.5	107	70-130
1330-20-7	Xylene (total)	150	165	110	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	98%	62-130%
2037-26-5	Toluene-D8	102%	70-130%
460-00-4	4-Bromofluorobenzene	98%	69-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D55644
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1397-BS	7V25281.D	1	03/06/14	JL	n/a	n/a	V7V1397

The QC reported here applies to the following samples:

Method: SW846 8260B

D55644-1, D55644-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	2200	1690	77	39-144

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	99%	62-130%
2037-26-5	Toluene-D8	103%	70-130%
460-00-4	4-Bromofluorobenzene	95%	69-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D55644
 Account: WILLCOP WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55504-20MS ^a	7V25290.D	1	03/06/14	JL	n/a	n/a	V7V1397
D55504-20 ^a	7V25292.D	1	03/06/14	JL	n/a	n/a	V7V1397

The QC reported here applies to the following samples:

Method: SW846 8260B

D55644-1, D55644-2

CAS No.	Compound	D55504-20 ug/l	Spike Q	MS ug/l	MS %	Limits
71-43-2	Benzene	ND	50	49.9	100	62-130
100-41-4	Ethylbenzene	ND	50	53.0	106	63-130
108-88-3	Toluene	ND	50	52.1	104	60-130
1330-20-7	Xylene (total)	ND	150	161	107	67-130

CAS No.	Surrogate Recoveries	MS	D55504-20	Limits
17060-07-0	1,2-Dichloroethane-D4	98%	96%	62-130%
2037-26-5	Toluene-D8	103%	103%	70-130%
460-00-4	4-Bromofluorobenzene	97%	89%	69-130%

(a) The pH of the sample aliquot for VOA analysis was > 2 at time of analysis.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D55644
 Account: WILLCOP WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55504-20MS ^a	7V25291.D	1	03/06/14	JL	n/a	n/a	V7V1397
D55504-20 ^a	7V25292.D	1	03/06/14	JL	n/a	n/a	V7V1397

The QC reported here applies to the following samples:

Method: SW846 8260B

D55644-1, D55644-2

CAS No.	Compound	D55504-20 ug/l	Spike Q	MS ug/l	MS %	Limits
	TPH-GRO (C6-C10)	ND	2200	1820	83	19-168

CAS No.	Surrogate Recoveries	MS	D55504-20	Limits
17060-07-0	1,2-Dichloroethane-D4	93%	96%	62-130%
2037-26-5	Toluene-D8	105%	103%	70-130%
460-00-4	4-Bromofluorobenzene	96%	89%	69-130%

(a) The pH of the sample aliquot for VOA analysis was > 2 at time of analysis.

* = Outside of Control Limits.

Duplicate Summary

Job Number: D55644
 Account: WILLCOP WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55527-1DUP	7V25283.D	1	03/06/14	JL	n/a	n/a	V7V1397
D55527-1	7V25522.D	1	03/14/14	JL	n/a	n/a	V7V1397

The QC reported here applies to the following samples:

Method: SW846 8260B

D55644-1, D55644-2

CAS No.	Compound	D55527-1 ug/l	DUP Q	D55527-1 ug/l	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	30
100-41-4	Ethylbenzene	ND		ND		nc	30
108-88-3	Toluene	ND		ND		nc	30
1330-20-7	Xylene (total)	ND		ND		nc	30
	TPH-GRO (C6-C10)	ND		ND		nc	30

CAS No.	Surrogate Recoveries	DUP	D55527-1	Limits
17060-07-0	1,2-Dichloroethane-D4	101%	92%	62-130%
2037-26-5	Toluene-D8	104%	99%	70-130%
460-00-4	4-Bromofluorobenzene	90%	87%	69-130%

* = Outside of Control Limits.

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D55644
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB480-MB	FB10629.D	1	03/11/14	JJ	n/a	n/a	GFB480

The QC reported here applies to the following samples:

Method: RSK175 MOD

D55644-1

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.00080	0.00040	mg/l	
74-84-0	Ethane	ND	0.0016	0.00080	mg/l	
74-98-6	Propane	ND	0.0022	0.0011	mg/l	

7.1.1

7

Blank Spike Summary

Job Number: D55644
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB480-BS	FB10630.D	10	03/11/14	JJ	n/a	n/a	GFB480

The QC reported here applies to the following samples:

Method: RSK175 MOD

D55644-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
74-82-8	Methane	0.51	0.642	126	70-130
74-84-0	Ethane	0.956	1.21	127	70-130
74-98-6	Propane	1.4	1.81	129	67-130

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55644
 Account: WILLCOP WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55737-1MS	FB10632.D	10	03/11/14	JJ	n/a	n/a	GFB480
D55737-1MSD	FB10633.D	10	03/11/14	JJ	n/a	n/a	GFB480
D55737-1	FB10631.D	1	03/11/14	JJ	n/a	n/a	GFB480

The QC reported here applies to the following samples:

Method: RSK175 MOD

D55644-1

CAS No.	Compound	D55737-1		Spike mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
		mg/l	Q								
74-82-8	Methane	0.00052	J	0.51	0.549	108	0.51	0.556	109	1	51-155/30
74-84-0	Ethane	ND		0.956	1.03	108	0.956	1.04	109	1	58-130/30
74-98-6	Propane	ND		1.4	1.51	108	1.4	1.54	110	2	46-130/30

* = Outside of Control Limits.

7.3.1
 7

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D55644
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9527-MB	FI10645.D	1	03/07/14	JS	03/07/14	OP9527	GF1696

The QC reported here applies to the following samples:

Method: SW846-8015B

D55644-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.20	0.18	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	38% 10-130%

Blank Spike Summary

Job Number: D55644
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9527-BS	FI10669.D	1	03/08/14	JS	03/07/14	OP9527	GFI696

The QC reported here applies to the following samples:

Method: SW846-8015B

D55644-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	2.06	41	33-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	46%	10-130%

8.2.1

8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55644
 Account: WILLCOP WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9527-MS	FI10671.D	1	03/08/14	JS	03/07/14	OP9527	GFI696
OP9527-MSD	FI10673.D	1	03/08/14	JS	03/07/14	OP9527	GFI696
D55504-16	FI10677.D	1	03/08/14	JS	03/07/14	OP9527	GFI696

The QC reported here applies to the following samples:

Method: SW846-8015B

D55644-1

CAS No.	Compound	D55504-16 mg/l	Spike Q mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	5	1.60	32* a	5	1.86	37	15	33-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D55504-16	Limits
84-15-1	o-Terphenyl	40%	43%	43%	10-130%

(a) Outside control limits due to possible matrix interference.

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12447
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 03/07/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.1	2		
Antimony	0.40	.0022	.011		
Arsenic	0.20	.017	.044		
Barium	2.0	.016	.079		
Beryllium	0.20	.016	.069		
Boron	40	.49	2.1		
Cadmium	0.10	.036	.042		
Calcium	400	5.6	12		
Chromium	2.0	.053	.053		
Cobalt	0.20	.0049	.015		
Copper	2.0	.06	.13		
Iron	10	3.5	4.6		
Lead	0.50	.0079	.008		
Magnesium	100	1.3	1.3		
Manganese	1.0	.12	.13		
Molybdenum	1.0	.049	.029		
Nickel	2.0	.0088	.027		
Phosphorus	60	2.6	4.3		
Potassium	200	2.9	2.9		
Selenium	0.40	.06	.21	0.031	<0.40
Silver	0.10	.0019	.008		
Sodium	500	4.9	4.9		
Strontium	20	.01	.015		
Thallium	0.20	.0024	.005		
Tin	10	.063	1.3		
Titanium	2.0	.059	.092		
Uranium	0.20	.0017	.002		
Vanadium	1.0	.037	.2		
Zinc	10	.21	.96		

Associated samples MP12447: D55644-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

9.1.1
9

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55644
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12447
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 03/07/14

Metal	D55622-1 Original MS		SpikeLot ICPAL2 % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper	anr				
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium	0.31	179	200	89.2	70-130
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP12447: D55644-1F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

9.1.2
 9

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55644
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12447
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 03/07/14

Metal	D55622-1 Original MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper	anr					
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium	0.31	179	200	89.2	0.0	20
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP12447: D55644-1F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

9.1.2
 9

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55644
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12447
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 03/07/14

Metal	BSP Result	Spikelot ICPALL2	QC % Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper	anr			
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium	191	200	95.5	85-115
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP12447: D55644-1F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

9.1.3
 9

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12457
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/10/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	11		
Antimony	30	2.1	21		
Arsenic	25	3.8	9		
Barium	10	.2	1.4	0.10	<10
Beryllium	10	.9	1.7		
Boron	50	.8	6.6	1.6	<50
Cadmium	10	.2	.36		
Calcium	400	2.4	66	12.0	<400
Chromium	10	.3	1.4		
Cobalt	5.0	.5	.51		
Copper	10	.8	1.5		
Iron	10	1.5	3.2	2.8	<10
Lead	50	2.1	4.1		
Lithium	5.0	.4	1.9		
Magnesium	200	6.8	29	7.4	<200
Manganese	5.0	.5	.29	0.10	<5.0
Molybdenum	10	.4	1.1		
Nickel	30	.5	.87		
Phosphorus	100	15	24		
Potassium	1000	99	230	10.4	<1000
Selenium	50	7.1	9.3		
Silicon	50	4.7	5.6		
Silver	30	.3	.4		
Sodium	400	7.3	36	77.9	<400
Strontium	5.0	.01	.12	0.0	<5.0
Thallium	10	1.8	4.9		
Tin	50	12	13		
Titanium	10	.1	.43		
Uranium	50	2.9	3.9		
Vanadium	10	.4	.39		
Zinc	30	.4	1.9		

Associated samples MP12457: D55644-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

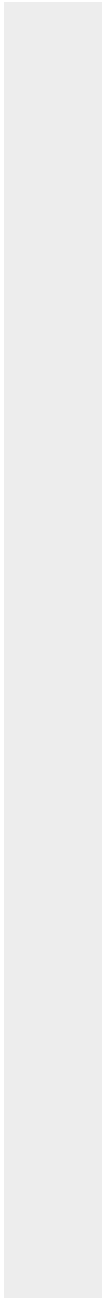
QC Batch ID: MP12457
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/10/14

Metal	RL	IDL	MDL	MB raw	final
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(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55644
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12457
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 03/10/14

Metal	D55638-1 Original MS		SpikeLot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	51.6	2180	2000	106.4	70-130
Beryllium					
Boron	22.9	1190	1000	116.4	70-130
Cadmium					
Calcium	43000	70400	25000	109.6	70-130
Chromium	anr				
Cobalt					
Copper	anr				
Iron	316	5850	5000	110.8	70-130
Lead					
Lithium					
Magnesium	10900	39600	25000	114.8	70-130
Manganese	250	812	500	112.4	70-130
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	3340	30700	25000	109.4	70-130
Selenium					
Silicon					
Silver					
Sodium	34600	61800	25000	108.8	70-130
Strontium	270	819	500	109.8	70-130
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP12457: D55644-1F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

9.2.2
 9

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

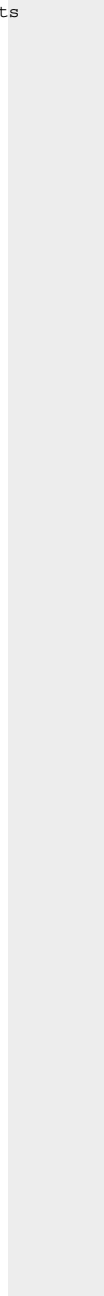
QC Batch ID: MP12457
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/10/14

Metal	D55638-1 Original MS	SpikeLot ICPAL2	% Rec	QC Limits
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(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55644
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12457
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 03/10/14

Metal	D55638-1 Original	MSD	SpikeLot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	51.6	2170	2000	105.9	0.5	20
Beryllium						
Boron	22.9	1150	1000	112.4	3.4	20
Cadmium						
Calcium	43000	68000	25000	100.0	3.5	20
Chromium	anr					
Cobalt						
Copper	anr					
Iron	316	5420	5000	102.2	7.6	20
Lead						
Lithium						
Magnesium	10900	36700	25000	103.2	7.6	20
Manganese	250	786	500	107.2	3.3	20
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	3340	30700	25000	109.4	0.0	20
Selenium						
Silicon						
Silver						
Sodium	34600	61100	25000	106.0	1.1	20
Strontium	270	814	500	108.8	0.6	20
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP12457: D55644-1F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

9.2.2
 9

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

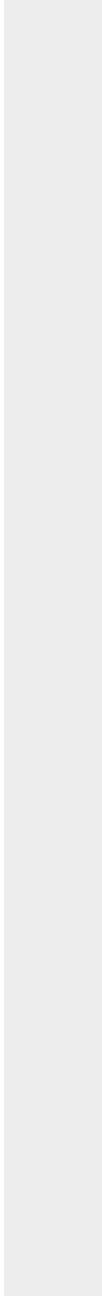
QC Batch ID: MP12457
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/10/14

Metal	D55638-1 Original MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
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(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested



9.2.2
9

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55644
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12457
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 03/10/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	2110	2000	105.5	85-115
Beryllium				
Boron	1140	1000	114.0	85-115
Cadmium				
Calcium	27100	25000	108.4	85-115
Chromium	anr			
Cobalt				
Copper	anr			
Iron	5270	5000	105.4	85-115
Lead				
Lithium				
Magnesium	27000	25000	108.0	85-115
Manganese	560	500	112.0	85-115
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	27600	25000	110.4	85-115
Selenium				
Silicon				
Silver				
Sodium	26600	25000	106.4	85-115
Strontium	541	500	108.2	85-115
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP12457: D55644-1F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

9.2.3
 9

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

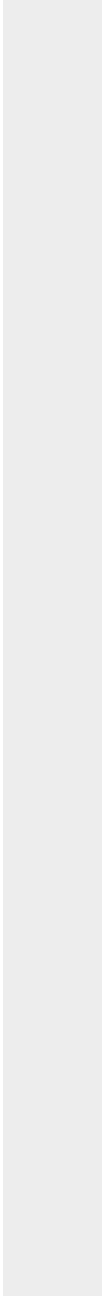
QC Batch ID: MP12457
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/10/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
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(anr) Analyte not requested



General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN23933	5.0	0.0	mg/l	100	98.2	98.2	90-110%
Alkalinity, Carbonate	GN23934	5.0	0.0	mg/l	100	98.2	98.2	80-120%
Alkalinity, Total as CaCO3	GN23932	5.0	0.0	mg/l	100	98.2	98.2	90-110%
Bromide	GP12088/GN23885	0.050	0.0	mg/l	0.5	0.508	101.6	90-110%
Chloride	GP12088/GN23885	0.50	0.0	mg/l	5	4.82	96.4	90-110%
Fluoride	GP12088/GN23885	0.10	0.0	mg/l	1	1.01	101.0	90-110%
Iron Reducing Bacteria	MB332	25	<25	CFU/ml				
Nitrogen, Nitrate	GP12088/GN23885	0.010	0.0	mg/l	0.1	0.0980	98.0	90-110%
Nitrogen, Nitrite	GP12088/GN23885	0.0040	0.0	mg/l	0.05	0.0481	96.2	90-110%
Phosphorus, Total	GP12105/GN23900	0.010	0.0	mg/l	0.38	0.39	103.1	80-120%
Slime Forming Bacteria	MB333	500	<500	CFU/ml				
Solids, Total Dissolved	GN23919	10	0.0	mg/l	400	391	97.8	90-110%
Specific Conductivity	GP12104/GN23898			umhos/cm	99.5	99.9	100.4	90-110%
Sulfate	GP12088/GN23885	0.50	0.0	mg/l	5	4.91	98.2	90-110%
Sulfate Reducing Bacteria	MB334	200	<200	CFU/ml				
pH	GN23894			su	8.00	7.99	99.8	99.3-100.7%

Associated Samples:

- Batch MB332: D55644-1
- Batch MB333: D55644-1
- Batch MB334: D55644-1
- Batch GN23894: D55644-1
- Batch GN23919: D55644-1
- Batch GN23932: D55644-1
- Batch GN23933: D55644-1
- Batch GN23934: D55644-1
- Batch GP12088: D55644-1
- Batch GP12104: D55644-1
- Batch GP12105: D55644-1

(*) Outside of QC limits

10.1
10

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN23932	D55548-3A	mg/l	120	122	1.3	0-20%
Phosphorus, Total	GP12105/GN23900	D55590-41	mg/l	0.024	0.022	8.7	0-20%
Solids, Total Dissolved	GN23919	D55656-1	mg/l	3170	3190	0.6	0-20%
Specific Conductivity	GP12104/GN23898	D55590-28	umhos/cm	388	393	1.3	0-20%

Associated Samples:

Batch GN23919: D55644-1

Batch GN23932: D55644-1

Batch GP12104: D55644-1

Batch GP12105: D55644-1

(*) Outside of QC limits

10.2
10

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN23932	D55548-3A	mg/l	120	100	218	97.5	80-120%
Bromide	GP12088/GN23885	D55622-8	mg/l	0.0	0.5	0.56	112.0	80-120%
Chloride	GP12088/GN23885	D55622-8	mg/l	4.0	5	9.3	106.0	80-120%
Fluoride	GP12088/GN23885	D55622-8	mg/l	0.11	1	1.2	109.0	80-120%
Nitrogen, Nitrate	GP12088/GN23885	D55622-8	mg/l	0.38	0.1	0.48	100.0	80-120%
Nitrogen, Nitrite	GP12088/GN23885	D55622-8	mg/l	0.0	0.05	0.060	120.0	80-120%
Phosphorus, Total	GP12105/GN23900	D55584-1	mg/l	0.0	0.4	0.42	103.9	80-120%
Sulfate	GP12088/GN23885	D55622-8	mg/l	11.2	5	16.5	106.0	80-120%

Associated Samples:

Batch GN23932: D55644-1

Batch GP12088: D55644-1

Batch GP12105: D55644-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

10.3
10

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55644
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN23932	D55548-3A	mg/l	120	100	219	-0.6	20%
Bromide	GP12088/GN23885	D55622-8	mg/l	0.0	0.5	0.54	3.6	20%
Chloride	GP12088/GN23885	D55622-8	mg/l	4.0	5	9.2	1.1	20%
Fluoride	GP12088/GN23885	D55622-8	mg/l	0.11	1	1.2	0.0	20%
Nitrogen, Nitrate	GP12088/GN23885	D55622-8	mg/l	0.38	0.1	0.48	0.0	20%
Nitrogen, Nitrite	GP12088/GN23885	D55622-8	mg/l	0.0	0.05	0.059	1.7	20%
Phosphorus, Total	GP12105/GN23900	D55584-1	mg/l	0.0	0.4	0.410	1.6	20%
Sulfate	GP12088/GN23885	D55622-8	mg/l	11.2	5	16.4	0.6	20%

Associated Samples:

Batch GN23932: D55644-1

Batch GP12088: D55644-1

Batch GP12105: D55644-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits