Mountain States ACCUTEST LABORATORIES

05/19/14

Technical Report for

WPX Energy Rocky Mountain, LLC

WWLCOGJ: RU 11-7 BWQ

Accutest Job Number: D55643

Sampling Date: 03/05/14

Report to:

Western Water and Land, Inc.

jpahler@westernwaterandland.com

ATTN: Jessie Pahler

Total number of pages in report: **50**

NELAP ACCREDITED TNI LABORATORY

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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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D55643

WWLCOGJ: RU 11-7 BWQ

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D55643-1	03/05/14	10:45	NWS	03/06/14	AQ	Surface Water	YELLOW JACKET SPG
D55643-1F	03/05/14	10:45	NWS	03/06/14	AQ	Surface H2O Filtered	YELLOW JACKET SPG
D55643-2	03/05/14	00:00	NWS	03/06/14	AQ	Trip Blank Water	TRIP BLANK

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	WPX Energy Rocky Mountain, LLC	**Job No**	D55643
Site:	WWLCOGJ: RU 11-7 BWQ	**Report Date**	5/12/2014 3:51:14 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 2.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D55643 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 within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D55504-16MS, D55504-16MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- 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 within the recommended method holding time.
- All samples were 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 within the recommended method holding time.
- All samples were 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 within the recommended method holding time.
- All samples were 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 within the recommended method holding time.
- All samples were 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: D55643-1

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: D55643
Account: WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ
Collected: 03/05/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D55643-1	**YELLOW JACKET SPG**					
Methane		0.0436	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		0.074	0.050	0.025	mg/l	EPA 300.0/SW846 9056
Chloride		8.2	0.50	0.20	mg/l	EPA 300.0/SW846 9056
Fluoride		0.23	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		0.12	0.010	0.0080	mg/l	HACH8190/SM4500P-B/E
Slime Forming Bacteria		6500	500		CFU/ml	HACH SLYM-BART
Solids, Total Dissolved		366	10	5.0	mg/l	SM 2540C-2011
Specific Conductivity		559	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		7.27			su	SM4500HB + -2011/9040C
D55643-1F	**YELLOW JACKET SPG**					
Barium		108	10	1.4	ug/l	EPA 200.7
Calcium		91800	400	66	ug/l	EPA 200.7
Iron		50.1	10	3.2	ug/l	EPA 200.7
Magnesium		18200	200	29	ug/l	EPA 200.7
Manganese		668	5.0	0.29	ug/l	EPA 200.7
Potassium		1830	1000	230	ug/l	EPA 200.7
Selenium		0.96	0.80	0.42	ug/l	EPA 200.8
Sodium		12200	400	36	ug/l	EPA 200.7
Strontium		453	5.0	0.12	ug/l	EPA 200.7
D55643-2	**TRIP BLANK**					

No hits reported in this sample.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	YELLOW JACKET SPG		
Lab Sample ID:	D55643-1	**Date Sampled:**	03/05/14
Matrix:	AQ - Surface Water	**Date Received:**	03/06/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	WWLCOGJ: RU 11-7 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V25284.D	1	03/06/14	JL	n/a	n/a	V7V1397
Run #2							

	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	98%		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
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:	YELLOW JACKET SPG		
Lab Sample ID:	D55643-1	**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		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FB10635.D	1	03/11/14	JJ	n/a	n/a	GFB480
Run #2							

	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	0.0436	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:	YELLOW JACKET SPG		
Lab Sample ID:	D55643-1	**Date Sampled:**	03/05/14
Matrix:	AQ - Surface Water	**Date Received:**	03/06/14
Method:	SW846-8015B SW846 3510C	**Percent Solids:**	n/a
Project:	WWLCOGJ: RU 11-7 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI10679.D	1	03/08/14	JS	03/07/14	OP9527	GFI696
Run #2							

	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	68%		10-130%

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:	YELLOW JACKET SPG		
Lab Sample ID:	D55643-1	**Date Sampled:**	03/05/14
Matrix:	AQ - Surface Water	**Date Received:**	03/06/14
		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	0.074	0.050	0.025	mg/l	1	03/06/14 13:39	SK	EPA 300.0/SW846 9056
Chloride	8.2	0.50	0.20	mg/l	1	03/06/14 13:39	SK	EPA 300.0/SW846 9056
Fluoride	0.23	0.10	0.050	mg/l	1	03/06/14 13:39	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 13:39	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.0030 U	0.0040	0.0030	mg/l	1	03/06/14 13:39	SK	EPA 300.0/SW846 9056
Phosphorus, Total	0.12	0.010	0.0080	mg/l	1	03/07/14	JD	HACH8190/SM4500P-B/E
Slime Forming Bacteria	6500	500		CFU/ml	1	03/06/14	MM	HACH SLYM-BART
Solids, Total Dissolved	366	10	5.0	mg/l	1	03/11/14	RW	SM 2540C-2011
Specific Conductivity	559	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 13:39	SK	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	5000	200		CFU/ml	1	03/06/14	MM	HACH SRB-BART
pH	7.27			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: YELLOW JACKET SPG
Lab Sample ID: D55643-1F
Matrix: AQ - Surface H2O Filtered
Project: WWLCOGJ: RU 11-7 BWQ

Date Sampled: 03/05/14
Date Received: 03/06/14
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	108	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	91800	400	66	ug/l	1	03/10/14	03/11/14	KV	EPA 200.7 [2]	EPA 200.7 [5]
Iron	50.1	10	3.2	ug/l	1	03/10/14	03/11/14	KV	EPA 200.7 [2]	EPA 200.7 [5]
Magnesium	18200	200	29	ug/l	1	03/10/14	03/11/14	KV	EPA 200.7 [2]	EPA 200.7 [5]
Manganese	668	5.0	0.29	ug/l	1	03/10/14	03/11/14	KV	EPA 200.7 [2]	EPA 200.7 [5]
Potassium	1830	1000	230	ug/l	1	03/10/14	03/10/14	KV	EPA 200.7 [1]	EPA 200.7 [5]
Selenium	0.96	0.80	0.42	ug/l	2	03/07/14	03/13/14	NT	EPA 200.8 [3]	EPA 200.8 [4]
Sodium	12200	400	36	ug/l	1	03/10/14	03/10/14	KV	EPA 200.7 [1]	EPA 200.7 [5]
Strontium	453	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

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	D55643-2	**Date Sampled:**	03/05/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	03/06/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	WWLCOGJ: RU 11-7 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V25285.D	1	03/06/14	JL	n/a	n/a	V7V1397
Run #2							

	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	105%		70-130%
460-00-4	4-Bromofluorobenzene	89%		69-130%

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

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST LABORATORIES

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

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FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #: JMG_2013-245
Accutest Job #: D55643

Client / Reporting Information

Company Name: Western Water and Land, Inc.
Street Address: 743 Horizon Ct., Suite 330
City: Grand Junction, CO 81506
Project Contact: Bruce Smith bsmith@westernwaterandland.com
Phone #: (970) 242-0170
Sampler(s) Name(s): Nick Sarwetz

Project Information

Project Name: RU 11-7 BWQ
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (If different from Report to)

Company Name: WPX Energy
Street Address: 1058 CR 215
City: Parachute, CO 81635
Attention: Brandon Danforth

Requested Analysis (see TEST CODE sheet)

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	PH, SCON, TDS	XCARBICALK	BRO, CHL, F, NO2, NO30, SO4	TPO4	*Dissolved Metals - Lab Filtered	VRSK175DGMEP #CI	V8260BTXGRO #CI	B8015DRO	BART	**Isotopic Methane	LAB USE ONLY
	Yellow Jacket Spg		3-5-14	1045	NWS	SW	15	6			1	8				1	1	1	1	1	3	3	2	1	1	01
	TB1, TB2																									TB-02
	temp blank																									
	Yellow Jacket Spg		Field Parameters: pH(s.u.): 7.02	Temp(°C): 3.05	Sp.Cond(uS/cm): 622	DO(%): 46.8	DO(mg/L) 6.22	ORP(mv): 70.4	TURB(NTU): 0.85 (averaged)																
			Field Parameters: pH(s.u.):	Temp(°C):	Sp.Cond(uS/cm):	DO(%):	DO(mg/L)	ORP(mv):	TURB(NTU):																

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

Turnaround Time (Business days)

- [X] Std. 15 Business Days
- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day Emergency
- [ ] 2 Day Emergency
- [ ] 1 Day Emergency
- [ ]

Approved By (Accutest PM): / Date:

Emergency & Rush T/A data available VIA Labtink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] COMMBN
- [ ] COMMBN+
- [ ]
- [ ] State Forms Required
- [ ] Send Forms to State
- [ ] Report by Fax
- [ ] Report by PDF
- [X] EDD Format

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial BN = Results/QC/Narrative (+ = chromatograms)

Comments / Special Instructions

*Dissolved Metals (200.7/200.8): Ba, B, Ca, Fe,Mg, Mn, K, SeMS, Na, Sr

**Hold pending RSK175 results

Analyze trip blanks

	Relinquished by Sampler:	Received By:	Relinquished By:	Date Time:	Received By:
1	3-5-14 1545	Service Center	CO		3-6-14
2	Relinquished by Sampler:	Received By:	Relinquished By:	Date Time:	Received By:
3					
4	Relinquished by:	Received By:	Custody Seal # CO	Intact / Not Intact	Preserved where applicable	On Ice	Cooler Temp. 2.5
5							

D55643: Chain of Custody
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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D55643 **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

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	
2. Trip Blank listed on COC:	☑		☐	
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume rec'd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
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F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D55643: Chain of Custody
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Mountain States ACCUTEST LABORATORIES

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: D55643
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

D55643-1, D55643-2

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%

Blank Spike Summary

Job Number: D55643
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

D55643-1, D55643-2

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: D55643
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

D55643-1, D55643-2

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: D55643
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

D55643-1, D55643-2

CAS No.	Compound	D55504-20 ug/l	Q	Spike ug/l	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: D55643
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

D55643-1, D55643-2

CAS No.	Compound	D55504-20 ug/l	Q	Spike ug/l	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: D55643
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

D55643-1, D55643-2

CAS No.	Compound	D55527-1 ug/l	Q	DUP 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.

Mountain States ACCUTEST LABORATORIES

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: D55643
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

D55643-1

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	

Blank Spike Summary

Job Number: D55643
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

D55643-1

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: D55643
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

D55643-1

CAS No.	Compound	D55737-1 mg/l	Q	Spike mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
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.

Mountain States ACCUTEST LABORATORIES

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: D55643
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	GFI696

The QC reported here applies to the following samples: **Method:** SW846-8015B

D55643-1

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: D55643
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

D55643-1

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: D55643
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

D55643-1

CAS No.	Compound	D55504-16 mg/l	Q	Spike 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.

Mountain States ACCUTEST LABORATORIES

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: D55643
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: D55643-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55643
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 ICPALL2	% 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: D55643-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55643
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12447 Methods: EPA 200.8
Matrix Type: AQUEOUS 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: D55643-1F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55643
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	% 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: D55643-1F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55643
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: D55643-1F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55643
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

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55643
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 ICPALL2	% 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: D55643-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55643
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 ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55643
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
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: D55643-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55643
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RU 11-7 BWQ

QC Batch ID: MP12457 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 03/10/14

Metal	D55638-1 Original MSD	Spikelot ICPALL2 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55643
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: D55643-1F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55643
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

(anr) Analyte not requested

Mountain States ACCUTEST LABORATORIES

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: D55643
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: D55643-1
Batch MB333: D55643-1
Batch MB334: D55643-1
Batch GN23894: D55643-1
Batch GN23919: D55643-1
Batch GN23932: D55643-1
Batch GN23933: D55643-1
Batch GN23934: D55643-1
Batch GP12088: D55643-1
Batch GP12104: D55643-1
Batch GP12105: D55643-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55643
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: D55643-1
Batch GN23932: D55643-1
Batch GP12104: D55643-1
Batch GP12105: D55643-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55643
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: D55643-1
Batch GP12088: D55643-1
Batch GP12105: D55643-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55643
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: D55643-1
Batch GP12088: D55643-1
Batch GP12105: D55643-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits