Mountain States ACCUTEST LABORATORIES

11/21/14

Technical Report for

WPX Energy Rocky Mountain, LLC

WWLCOGJ: RMV 108-4 BWQ

Accutest Job Number: D63169

Sampling Date: 10/07/14

Report to:

Western Water and Land, Inc.

SGoodwin@westernwaterandland.com

ATTN: Shelby Kipp

Total number of pages in report: **62**

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: D63169

WWLCOGJ: RMV 108-4 BWQ

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D63169-1	10/07/14	09:40	SLK	10/08/14	AQ	Ground Water	RMV 108-4-GARDEN SPG
D63169-1F	10/07/14	09:40	SLK	10/08/14	AQ	Groundwater Filtered	RMV 108-4-GARDEN SPG
D63169-2	10/07/14	10:35	NWS	10/08/14	AQ	Ground Water	RMV 108-4-GARDNER SPG
D63169-2F	10/07/14	10:35	NWS	10/08/14	AQ	Groundwater Filtered	RMV 108-4-GARDNER SPG
D63169-3	10/07/14	00:00	SLK	10/08/14	AQ	Trip Blank Water	TRIP BLANK

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	WPX Energy Rocky Mountain, LLC	**Job No**	D63169
Site:	WWLCOGJ: RMV 108-4 BWQ	**Report Date**	10/31/2014 1:02:49 P

On 10/08/2014, 2 sample(s), 1 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 1.9 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D63169 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:** V7V1586

- All samples were analyzed within the recommended method holding time.
- Sample(s) D60545-9DUP, D63012-1MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D63012-1MS: The pH of the sample aliquot for VOA analysis was >2 at time of analysis.
- D60545-9DUP: The pH of the sample aliquot for VOA analysis was >2 at time of analysis.
- V7V1586-MB for Ethylbenzene: Compound ND in associated samples.

Matrix: AQ **Batch ID:** V7V1590

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D63169-2DUP, D63274-3MS were used as the QC samples indicated.
- D63274-3MS: 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:** GFB574

- All samples were analyzed within the recommended method holding time.
- Sample(s) D63150-1MS, D63150-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D63150-1MS and D63150-1MSD: The pH of the sample was >2 at time of analysis.
- D63169-1,-2: The pH of the sample was >2 at time of analysis.

Extractables by GC By Method SW846-8015B

Matrix: AQ **Batch ID:** OP10785

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D60544-16MS, D60544-16MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method EPA 200.7

Matrix: AQ **Batch ID:** MP14233

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D63068-1MS, D63068-1MSD were used as the QC samples for the metals analysis.
- MP14233-MB1 for Iron: All sample results < RL or > 10x MB concentration.

Metals By Method EPA 200.8

Matrix: AQ **Batch ID:** MP14240

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D63128-1MS, D63128-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix: AQ **Batch ID:** GP13717

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D63169-1MS, D63169-1MSD 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:** GN27080

- 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:** MB439

- 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:** MB440

- 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:** GP13743

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D63155-23DUP, D63155-23MS, D63155-23MSD were used as the QC samples for the Phosphorus, Total analysis.

Wet Chemistry By Method SM 2320B-2011

Matrix: AQ **Batch ID:** GN26898

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D63168-1DUP were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

Matrix: AQ **Batch ID:** GN26901

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

Matrix: AQ **Batch ID:** GN26902

- 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:** GP13733

- Sample(s) D63221-1DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM 2540C-2011

Matrix: AQ **Batch ID:** GN26842

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D63077-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM4500HB+-2011/9040C

Matrix: AQ **Batch ID:** GN26876

- The following samples were run outside of holding time for method SM4500HB+-2011/9040C: D63169-1, D63169-2

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: D63169
Account: WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ
Collected: 10/07/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D63169-1	**RMV 108-4-GARDEN SPG**					
Alkalinity, Bicarbonate as CaCO3		274	5.0	2.0	mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		274	5.0	2.0	mg/l	SM 2320B-2011
Bromide		0.098	0.050	0.025	mg/l	EPA 300.0/SW846 9056
Chloride		12.3	0.50	0.40	mg/l	EPA 300.0/SW846 9056
Fluoride		0.20	0.10	0.050	mg/l	EPA 300.0/SW846 9056
Iron Reducing Bacteria		9000	25		CFU/ml	HACH IRB-BART
Nitrogen, Nitrate		1.3	0.050	0.030	mg/l	EPA 300.0/SW846 9056
Phosphorus, Total		0.073	0.010	0.0080	mg/l	HACH8190/SM4500P-B/E
Slime Forming Bacteria		350000	500		CFU/ml	HACH SLYM-BART
Solids, Total Dissolved		442	10	5.0	mg/l	SM 2540C-2011
Specific Conductivity		667	1.0		umhos/cm	SM 2510B-2011
Sulfate		71.3	2.5	1.0	mg/l	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria		5000	200		CFU/ml	HACH SRB-BART
pH		7.65			su	SM4500HB+ -2011/9040C
D63169-1F	**RMV 108-4-GARDEN SPG**					
Barium		93.6	4.0	0.16	ug/l	EPA 200.8
Boron		49.1 J	50	6.6	ug/l	EPA 200.7
Calcium		68800	400	66	ug/l	EPA 200.7
Iron		7.0 J	10	3.2	ug/l	EPA 200.7
Magnesium		31800	200	29	ug/l	EPA 200.7
Potassium		3430	1000	230	ug/l	EPA 200.7
Selenium		2.9	0.80	0.42	ug/l	EPA 200.8
Sodium		44200	400	36	ug/l	EPA 200.7
Strontium		637	5.0	0.12	ug/l	EPA 200.7
D63169-2	**RMV 108-4-GARDNER SPG**					
Alkalinity, Bicarbonate as CaCO3		308	5.0	2.0	mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		308	5.0	2.0	mg/l	SM 2320B-2011
Bromide		0.11	0.050	0.025	mg/l	EPA 300.0/SW846 9056
Chloride		11.9	0.50	0.40	mg/l	EPA 300.0/SW846 9056
Fluoride		0.25	0.10	0.050	mg/l	EPA 300.0/SW846 9056
Iron Reducing Bacteria		9000	25		CFU/ml	HACH IRB-BART
Nitrogen, Nitrate		0.51	0.050	0.030	mg/l	EPA 300.0/SW846 9056
Phosphorus, Total		0.11	0.010	0.0080	mg/l	HACH8190/SM4500P-B/E
Slime Forming Bacteria		350000	500		CFU/ml	HACH SLYM-BART
Solids, Total Dissolved		446	10	5.0	mg/l	SM 2540C-2011
Specific Conductivity		680	1.0		umhos/cm	SM 2510B-2011
Sulfate		61.0	2.5	1.0	mg/l	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria		1200	200		CFU/ml	HACH SRB-BART
pH		7.56			su	SM4500HB+ -2011/9040C

Summary of Hits

Job Number: D63169
Account: WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ
Collected: 10/07/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D63169-2F	**RMV 108-4-GARDNER SPG**					
Barium		80.0	4.0	0.16	ug/l	EPA 200.8
Boron		47.0 J	50	6.6	ug/l	EPA 200.7
Calcium		71800	400	66	ug/l	EPA 200.7
Iron		7.2 J	10	3.2	ug/l	EPA 200.7
Magnesium		33700	200	29	ug/l	EPA 200.7
Potassium		3320	1000	230	ug/l	EPA 200.7
Selenium		1.9	0.80	0.42	ug/l	EPA 200.8
Sodium		42700	400	36	ug/l	EPA 200.7
Strontium		676	5.0	0.12	ug/l	EPA 200.7
D63169-3	**TRIP BLANK**					
No hits reported in this sample.						

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	RMV 108-4-GARDEN SPG		
Lab Sample ID:	D63169-1	**Date Sampled:**	10/07/14
Matrix:	AQ - Ground Water	**Date Received:**	10/08/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	WWLCOGJ: RMV 108-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V29119.D	1	10/11/14	EV	n/a	n/a	V7V1586
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	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	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	102%		70-130%
460-00-4	4-Bromofluorobenzene	97%		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:	RMV 108-4-GARDEN SPG		
Lab Sample ID:	D63169-1	**Date Sampled:**	10/07/14
Matrix:	AQ - Ground Water	**Date Received:**	10/08/14
Method:	RSK175 MOD	**Percent Solids:**	n/a
Project:	WWLCOGJ: RMV 108-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FB12312.D	1	10/09/14	JJ	n/a	n/a	GFB574
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	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	

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

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:	RMV 108-4-GARDEN SPG		
Lab Sample ID:	D63169-1	**Date Sampled:**	10/07/14
Matrix:	AQ - Ground Water	**Date Received:**	10/08/14
Method:	SW846-8015B SW846 3510C	**Percent Solids:**	n/a
Project:	WWLCOGJ: RMV 108-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD36030.D	1	10/10/14	JS	10/09/14	OP10785	GFD1648
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	86%		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: RMV 108-4-GARDEN SPG
Lab Sample ID: D63169-1
Matrix: AQ - Ground Water
Project: WWLCOGJ: RMV 108-4 BWQ

Date Sampled: 10/07/14
Date Received: 10/08/14
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	274	5.0	2.0	mg/l	1	10/13/14	JD	SM 2320B-2011
Alkalinity, Carbonate	2.0 U	5.0	2.0	mg/l	1	10/13/14	JD	SM 2320B-2011
Alkalinity, Total as CaCO3	274	5.0	2.0	mg/l	1	10/13/14	JD	SM 2320B-2011
Bromide	0.098	0.050	0.025	mg/l	1	10/08/14 14:24	SK	EPA 300.0/SW846 9056
Chloride	12.3	0.50	0.40	mg/l	1	10/08/14 14:24	SK	EPA 300.0/SW846 9056
Fluoride	0.20	0.10	0.050	mg/l	1	10/08/14 14:24	SK	EPA 300.0/SW846 9056
Iron Reducing Bacteria	9000	25		CFU/ml	1	10/14/14	MM	HACH IRB-BART
Nitrogen, Nitrate	1.3	0.050	0.030	mg/l	5	10/08/14 18:29	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.0030 U	0.0040	0.0030	mg/l	1	10/08/14 14:24	SK	EPA 300.0/SW846 9056
Phosphorus, Total	0.073	0.010	0.0080	mg/l	1	10/11/14 09:00	JB	HACH8190/SM4500P-B/E
Slime Forming Bacteria	350000	500		CFU/ml	1	10/14/14	MM	HACH SLYM-BART
Solids, Total Dissolved	442	10	5.0	mg/l	1	10/09/14	JD	SM 2540C-2011
Specific Conductivity	667	1.0		umhos/cm	1	10/10/14	JD	SM 2510B-2011
Sulfate	71.3	2.5	1.0	mg/l	5	10/08/14 18:29	SK	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	5000	200		CFU/ml	1	10/14/14	MM	HACH SRB-BART
pH	7.65			su	1	10/10/14 13:15	TB	SM4500HB+ -2011/9040C

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: RMV 108-4-GARDEN SPG
Lab Sample ID: D63169-1F
Matrix: AQ - Groundwater Filtered
Project: WWLCOGJ: RMV 108-4 BWQ

Date Sampled: 10/07/14
Date Received: 10/08/14
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	93.6	4.0	0.16	ug/l	2	10/09/14	10/17/14	JB	EPA 200.8 [2]	EPA 200.8 [4]
Boron	49.1 J	50	6.6	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Calcium	68800	400	66	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Iron	7.0 J	10	3.2	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Magnesium	31800	200	29	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Manganese	0.29 U	5.0	0.29	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Potassium	3430	1000	230	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Selenium	2.9	0.80	0.42	ug/l	2	10/09/14	10/17/14	JB	EPA 200.8 [2]	EPA 200.8 [4]
Sodium	44200	400	36	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Strontium	637	5.0	0.12	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]

(1) Instrument QC Batch: MA5359
(2) Instrument QC Batch: MA5387
(3) Prep QC Batch: MP14233
(4) Prep QC Batch: MP14240

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	RMV 108-4-GARDNER SPG		
Lab Sample ID:	D63169-2	**Date Sampled:**	10/07/14
Matrix:	AQ - Ground Water	**Date Received:**	10/08/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	WWLCOGJ: RMV 108-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V29158.D	1	10/14/14	EV	n/a	n/a	V7V1590
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	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	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	100%		62-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	99%		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:	RMV 108-4-GARDNER SPG		
Lab Sample ID:	D63169-2	**Date Sampled:**	10/07/14
Matrix:	AQ - Ground Water	**Date Received:**	10/08/14
Method:	RSK175 MOD	**Percent Solids:**	n/a
Project:	WWLCOGJ: RMV 108-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FB12313.D	1	10/09/14	JJ	n/a	n/a	GFB574
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	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	

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

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:	RMV 108-4-GARDNER SPG		
Lab Sample ID:	D63169-2	**Date Sampled:**	10/07/14
Matrix:	AQ - Ground Water	**Date Received:**	10/08/14
Method:	SW846-8015B SW846 3510C	**Percent Solids:**	n/a
Project:	WWLCOGJ: RMV 108-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD36032.D	1	10/10/14	JS	10/09/14	OP10785	GFD1648
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	74%		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: RMV 108-4-GARDNER SPG
Lab Sample ID: D63169-2
Matrix: AQ - Ground Water
Project: WWLCOGJ: RMV 108-4 BWQ

Date Sampled: 10/07/14
Date Received: 10/08/14
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	308	5.0	2.0	mg/l	1	10/13/14	JD	SM 2320B-2011
Alkalinity, Carbonate	2.0 U	5.0	2.0	mg/l	1	10/13/14	JD	SM 2320B-2011
Alkalinity, Total as CaCO3	308	5.0	2.0	mg/l	1	10/13/14	JD	SM 2320B-2011
Bromide	0.11	0.050	0.025	mg/l	1	10/08/14 15:03	SK	EPA 300.0/SW846 9056
Chloride	11.9	0.50	0.40	mg/l	1	10/08/14 15:03	SK	EPA 300.0/SW846 9056
Fluoride	0.25	0.10	0.050	mg/l	1	10/08/14 15:03	SK	EPA 300.0/SW846 9056
Iron Reducing Bacteria	9000	25		CFU/ml	1	10/14/14	MM	HACH IRB-BART
Nitrogen, Nitrate	0.51	0.050	0.030	mg/l	5	10/08/14 19:35	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.0030 U	0.0040	0.0030	mg/l	1	10/08/14 15:03	SK	EPA 300.0/SW846 9056
Phosphorus, Total	0.11	0.010	0.0080	mg/l	1	10/11/14 09:00	JB	HACH8190/SM4500P-B/E
Slime Forming Bacteria	350000	500		CFU/ml	1	10/14/14	MM	HACH SLYM-BART
Solids, Total Dissolved	446	10	5.0	mg/l	1	10/09/14	JD	SM 2540C-2011
Specific Conductivity	680	1.0		umhos/cm	1	10/10/14	JD	SM 2510B-2011
Sulfate	61.0	2.5	1.0	mg/l	5	10/08/14 19:35	SK	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	1200	200		CFU/ml	1	10/14/14	MM	HACH SRB-BART
pH	7.56			su	1	10/10/14 13:15	TB	SM4500HB+ -2011/9040C

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: RMV 108-4-GARDNER SPG
Lab Sample ID: D63169-2F
Matrix: AQ - Groundwater Filtered
Project: WWLCOGJ: RMV 108-4 BWQ

Date Sampled: 10/07/14
Date Received: 10/08/14
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	80.0	4.0	0.16	ug/l	2	10/09/14	10/17/14	JB	EPA 200.8 [2]	EPA 200.8 [4]
Boron	47.0 J	50	6.6	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Calcium	71800	400	66	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Iron	7.2 J	10	3.2	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Magnesium	33700	200	29	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Manganese	0.29 U	5.0	0.29	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Potassium	3320	1000	230	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Selenium	1.9	0.80	0.42	ug/l	2	10/09/14	10/17/14	JB	EPA 200.8 [2]	EPA 200.8 [4]
Sodium	42700	400	36	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]
Strontium	676	5.0	0.12	ug/l	1	10/09/14	10/10/14	KV	EPA 200.7 [1]	EPA 200.7 [3]

(1) Instrument QC Batch: MA5359
(2) Instrument QC Batch: MA5387
(3) Prep QC Batch: MP14233
(4) Prep QC Batch: MP14240

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	D63169-3	**Date Sampled:**	10/07/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	10/08/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	WWLCOGJ: RMV 108-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V29160.D	1	10/14/14	EV	n/a	n/a	V7V1590
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	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	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	102%		62-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	98%		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

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: JMS-2013-245 | Accutest Job #: D63169

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): Shelby Kipp, Nick Solabetz

Project Information

Project Name: Rmv 108-4 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 25
City: Parachute, CO
Attention: Michael Gardner

Requested Analysis (see TEST CODE sheet)

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	EnCore	PH, SCON, TDS	XCARBICALK	BRO, CHL, F, NO2, NO3O, SO4	TPO4	*Dissolved Metals - Lab Filtered	VRSK175DGMEP	V8260BTXGRO	B8015DRO	BART	**Isotopic Methane	LAB USE ONLY
	Rmv 108-4-Garden Spg		10-7-14	0940 to 1035	SLK	GW	15	3			1	11				1	1	1	1	1	3	3	2	1	1	01
	Rmv 108-4-Gardner Spg		10-7-14	1035	NLS	GW	15	3			1	11				1	1	1	1	1	3	3	2	1	1	02
	TB1, TB2																					X				03

	Field Parameters: pH(s.u.):	Temp(°C):	Sp.Cond(uS/cm):	DO(%):	DO(mg/L)	ORP(mv):	TURB(NTU):
Rmv 108-4-Garden Spg	7.04	12.41	741	70.3	7.54	257.9	0.52 (average)
Rmv 108-4-Gardner Spg	7.13	13.56	756	55.7	5.79	198.0	1.35 (average)

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 Lablink

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

Relinquished by Sampler: 1 S. Kipp 10-7-14 @ 1330	Received By: 1 Rifle Service Center	Relinquished By: 2	Date Time:	Received By: 2	10/8/14 11:30
Relinquished by Sampler: 3	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4	
Relinquished by: 5	Received By: 5	Custody Seal # HD/CO [ ] Intact [ ] Not Intact	Preserved where applicable [ ]	On Ice [ ]	Cooler Temp. 1.9 1.0

D63169: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D63169 **Client:** WWL **Project:** RMV

Date / Time Received: 10/8/2014 11:30:00 AM **Delivery Method:** **Airbill #'s:** CO

Cooler Temps (Initial/Adjusted): 0

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:	;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

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:	☑		☐	☐

Comments

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 recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D63169: Chain of Custody
Page 2 of 2

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: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1586-MB	7V29104.D	1	10/10/14	EV	n/a	n/a	V7V1586

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene [a]	0.40	1.0	0.31	ug/l	J
108-88-3	Toluene	ND	1.0	0.80	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries		Limits
17060-07-0	1,2-Dichloroethane-D4	99%	62-130%
2037-26-5	Toluene-D8	103%	70-130%
460-00-4	4-Bromofluorobenzene	98%	69-130%

(a) Compound ND in associated samples.

Method Blank Summary

Job Number: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1590-MB	7V29152.D	1	10/13/14	EV	n/a	n/a	V7V1590

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-2, D63169-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
108-88-3	Toluene	ND	1.0	0.80	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	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	101%	70-130%
460-00-4	4-Bromofluorobenzene	99%	69-130%

Blank Spike Summary

Job Number: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1586-BS	7V29105.D	1	10/10/14	EV	n/a	n/a	V7V1586

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	48.7	97	70-130
100-41-4	Ethylbenzene	50	50.4	101	70-130
108-88-3	Toluene	50	51.8	104	70-130
1330-20-7	Xylene (total)	150	150	100	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	100%	62-130%
2037-26-5	Toluene-D8	103%	70-130%
460-00-4	4-Bromofluorobenzene	100%	69-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1586-BS	7V29106.D	1	10/11/14	EV	n/a	n/a	V7V1586

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	2200	2120	96	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	98%	69-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1590-BS	7V29153.D	1	10/13/14	EV	n/a	n/a	V7V1590

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-2, D63169-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	52.9	106	70-130
100-41-4	Ethylbenzene	50	53.2	106	70-130
108-88-3	Toluene	50	54.3	109	70-130
1330-20-7	Xylene (total)	150	158	105	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	99%	62-130%
2037-26-5	Toluene-D8	100%	70-130%
460-00-4	4-Bromofluorobenzene	100%	69-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1590-BS	7V29154.D	1	10/13/14	EV	n/a	n/a	V7V1590

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-2, D63169-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	2200	2280	104	39-144

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

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D63012-1MS [a]	7V29109.D	20	10/11/14	EV	n/a	n/a	V7V1586
D63012-1 [a]	7V29107.D	1	10/11/14	EV	n/a	n/a	V7V1586
D63012-1 [a]	7V29108.D	20	10/11/14	EV	n/a	n/a	V7V1586

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-1

CAS No.	Compound	D63012-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
71-43-2	Benzene	ND		1000	916	92	62-130
100-41-4	Ethylbenzene	ND		1000	939	94	63-130
108-88-3	Toluene	ND		1000	971	97	60-130
1330-20-7	Xylene (total)	ND		3000	2810	94	67-130

CAS No.	Surrogate Recoveries	MS	D63012-1	D63012-1	Limits
17060-07-0	1,2-Dichloroethane-D4	101%	101%	100%	62-130%
2037-26-5	Toluene-D8	102%	102%	102%	70-130%
460-00-4	4-Bromofluorobenzene	99%	98%	97%	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: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D63012-1MS [a]	7V29110.D	20	10/11/14	EV	n/a	n/a	V7V1586
D63012-1 [a]	7V29107.D	1	10/11/14	EV	n/a	n/a	V7V1586
D63012-1 [a]	7V29108.D	20	10/11/14	EV	n/a	n/a	V7V1586

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-1

CAS No.	Compound	D63012-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
	TPH-GRO (C6-C10)	1240		44000	43100	95	19-168

CAS No.	Surrogate Recoveries	MS	D63012-1	D63012-1	Limits
17060-07-0	1,2-Dichloroethane-D4	98%	101%	100%	62-130%
2037-26-5	Toluene-D8	102%	102%	102%	70-130%
460-00-4	4-Bromofluorobenzene	98%	98%	97%	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: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D63274-3MS [a]	7V29156.D	20	10/14/14	EV	n/a	n/a	V7V1590
D63274-3 [a]	7V29155.D	20	10/14/14	EV	n/a	n/a	V7V1590

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-2, D63169-3

CAS No.	Compound	D63274-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
71-43-2	Benzene	1390		1000	2400	101	62-130
100-41-4	Ethylbenzene	23.3		1000	1040	102	63-130
108-88-3	Toluene	88.0		1000	1110	102	60-130
1330-20-7	Xylene (total)	371		3000	3400	101	67-130

CAS No.	Surrogate Recoveries	MS	D63274-3	Limits
17060-07-0	1,2-Dichloroethane-D4	101%	104%	62-130%
2037-26-5	Toluene-D8	99%	100%	70-130%
460-00-4	4-Bromofluorobenzene	100%	99%	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: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D63274-3MS [a]	7V29157.D	20	10/14/14	EV	n/a	n/a	V7V1590
D63274-3 [a]	7V29155.D	20	10/14/14	EV	n/a	n/a	V7V1590

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-2, D63169-3

CAS No.	Compound	D63274-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
	TPH-GRO (C6-C10)	4240		44000	48000	99	19-168

CAS No.	Surrogate Recoveries	MS	D63274-3	Limits
17060-07-0	1,2-Dichloroethane-D4	99%	104%	62-130%
2037-26-5	Toluene-D8	101%	100%	70-130%
460-00-4	4-Bromofluorobenzene	99%	99%	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: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D60545-9DUP [a]	7V29112.D	10	10/11/14	EV	n/a	n/a	V7V1586
D60545-9 [a]	7V29111A.D	10	10/11/14	EV	n/a	n/a	V7V1586

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-1

CAS No.	Compound	D60545-9 ug/l	Q	DUP ug/l	Q	RPD	Limits
71-43-2	Benzene	281		278		1	30
100-41-4	Ethylbenzene	441		431		2	30
108-88-3	Toluene	98.7		94.3		5	30
1330-20-7	Xylene (total)	936		918		2	30
	TPH-GRO (C6-C10)	14800		14500		2	30

CAS No.	Surrogate Recoveries	DUP	D60545-9	Limits
17060-07-0	1,2-Dichloroethane-D4	99%	97%	62-130%
2037-26-5	Toluene-D8	102%	101%	70-130%
460-00-4	4-Bromofluorobenzene	99%	98%	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: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D63169-2DUP	7V29159.D	1	10/14/14	EV	n/a	n/a	V7V1590
D63169-2	7V29158.D	1	10/14/14	EV	n/a	n/a	V7V1590

The QC reported here applies to the following samples: **Method:** SW846 8260B

D63169-2, D63169-3

CAS No.	Compound	D63169-2 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	D63169-2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%	100%	62-130%
2037-26-5	Toluene-D8	99%	100%	70-130%
460-00-4	4-Bromofluorobenzene	98%	99%	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: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB574-MB	FB12298.D	1	10/09/14	JJ	n/a	n/a	GFB574

The QC reported here applies to the following samples: **Method:** RSK175 MOD

D63169-1, D63169-2

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: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB574-BS	FB12299.D	10	10/09/14	JJ	n/a	n/a	GFB574

The QC reported here applies to the following samples: **Method:** RSK175 MOD

D63169-1, D63169-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
74-82-8	Methane	0.512	0.610	119	70-130
74-84-0	Ethane	0.923	1.12	121	70-130
74-98-6	Propane	1.38	1.66	120	67-130

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D63150-1MS [a]	FB12301.D	10	10/09/14	JJ	n/a	n/a	GFB574
D63150-1MSD [a]	FB12302.D	10	10/09/14	JJ	n/a	n/a	GFB574
D63150-1 [a]	FB12300.D	1	10/09/14	JJ	n/a	n/a	GFB574

The QC reported here applies to the following samples: **Method:** RSK175 MOD

D63169-1, D63169-2

CAS No.	Compound	D63150-1 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	ND		0.512	0.586	114	0.512	0.582	114	1	51-155/30
74-84-0	Ethane	ND		0.923	1.07	116	0.923	1.07	116	0	58-130/30
74-98-6	Propane	ND		1.38	1.61	117	1.38	1.61	117	0	46-130/30

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

* = 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: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10785-MB	FD36008.D	1	10/10/14	JS	10/09/14	OP10785	GFD1648

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

D63169-1, D63169-2

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	79%	10-130%

Blank Spike Summary

Job Number: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10785-BS	FD36010.D	1	10/10/14	JS	10/09/14	OP10785	GFD1648

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

D63169-1, D63169-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	2.17	43	33-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	79%	10-130%

8.2.1

8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D63169
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10785-MS	FD36012.D	1	10/10/14	JS	10/09/14	OP10785	GFD1648
OP10785-MSD	FD36014.D	1	10/10/14	JS	10/09/14	OP10785	GFD1648
D60544-16	FD36016.D	1	10/10/14	JS	10/09/14	OP10785	GFD1648

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

D63169-1, D63169-2

CAS No.	Compound	D60544-16 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	2.30	46	5	2.25	45	2	33-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D60544-16	Limits
84-15-1	o-Terphenyl	79%	77%	81%	10-130%

* = 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: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14233
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/09/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	8.6	11		
Antimony	30	3.2	21		
Arsenic	25	5.2	9		
Barium	10	1.4	1.4		
Beryllium	10	.8	1.7		
Boron	50	6.7	6.6	1.7	<50
Cadmium	10	.4	.36		
Calcium	400	2.2	66	3.6	<400
Chromium	10	.4	1.4		
Cobalt	5.0	.4	.51		
Copper	10	1.2	1.5		
Iron	10	2.2	3.2	10.5	* (a)
Lead	50	3.6	4.1		
Lithium	5.0	1.9	1.9		
Magnesium	200	14	29	14.0	<200
Manganese	5.0	.01	.29	-1.0	<5.0
Molybdenum	10	.8	1.1		
Nickel	30	.9	.87		
Phosphorus	100	15	24		
Potassium	1000	130	230	16.9	<1000
Selenium	50	8.8	9.3		
Silicon	50	5.2	5.6		
Silver	30	.4	.4		
Sodium	400	4.9	36	95.4	<400
Strontium	5.0	.01	.12	0.0	<5.0
Thallium	10	2.9	4.9		
Tin	50	13	13		
Titanium	10	.15	.43		
Uranium	50	3.7	3.9		
Vanadium	10	.4	.39		
Zinc	30	.6	1.9		

Associated samples MP14233: D63169-1F, D63169-2F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14233
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/09/14

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested
(a) All sample results < RL or > 10x MB concentration.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14233
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/09/14

Metal	D63068-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Boron	122	1220	1000	109.8	70-130
Cadmium	anr				
Calcium	23200	49400	25000	104.8	70-130
Chromium					
Cobalt					
Copper	anr				
Iron	46600	50900	5000	86.0	70-130
Lead	anr				
Lithium					
Magnesium	3360	28900	25000	102.2	70-130
Manganese	803	1290	500	97.4	70-130
Molybdenum					
Nickel					
Phosphorus	anr				
Potassium	1370	27100	25000	102.9	70-130
Selenium					
Silicon					
Silver	anr				
Sodium	77100	101000	25000	95.6	70-130
Strontium	265	765	500	100.0	70-130
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP14233: D63169-1F, D63169-2F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14233
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/09/14

Metal	D63068-1 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: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14233 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/09/14

Metal	D63068-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron	122	1220	1000	109.8	0.0	20
Cadmium	anr					
Calcium	23200	49300	25000	104.4	0.2	20
Chromium						
Cobalt						
Copper	anr					
Iron	46600	50600	5000	80.0	0.6	20
Lead	anr					
Lithium						
Magnesium	3360	29300	25000	103.8	1.4	20
Manganese	803	1280	500	95.4	0.8	20
Molybdenum						
Nickel						
Phosphorus	anr					
Potassium	1370	27500	25000	104.5	1.5	20
Selenium						
Silicon						
Silver	anr					
Sodium	77100	101000	25000	95.6	0.0	20
Strontium	265	764	500	99.8	0.1	20
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP14233: D63169-1F, D63169-2F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14233 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/09/14

Metal	D63068-1 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: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14233
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/09/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron	1080	1000	108.0	85-115
Cadmium	anr			
Calcium	26600	25000	106.4	85-115
Chromium				
Cobalt				
Copper	anr			
Iron	5060	5000	101.2	85-115
Lead	anr			
Lithium				
Magnesium	26000	25000	104.0	85-115
Manganese	496	500	99.2	85-115
Molybdenum				
Nickel				
Phosphorus	anr			
Potassium	26000	25000	104.0	85-115
Selenium				
Silicon				
Silver	anr			
Sodium	25700	25000	102.8	85-115
Strontium	507	500	101.4	85-115
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP14233: D63169-1F, D63169-2F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14233
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/09/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14240
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/09/14

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	0.048	<2.0
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	0.11	<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 MP14240: D63169-1F, D63169-2F

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: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14240
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/09/14

Metal	D63128-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	35.8	437	400	100.3	70-130
Beryllium					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	0.87	220	200	109.6	70-130
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP14240: D63169-1F, D63169-2F

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: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14240 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/09/14

Metal	D63128-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	35.8	433	400	99.3	0.9	20
Beryllium						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	0.87	215	200	107.1	2.3	20
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP14240: D63169-1F, D63169-2F

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: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

QC Batch ID: MP14240
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 10/09/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	399	400	99.8	85-115
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	216	200	108.0	85-115
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP14240: D63169-1F, D63169-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of 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: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN26901	5.0	0.0	mg/l	100	92.0	92.2	90-110%
Alkalinity, Carbonate	GN26902	5.0	0.0	mg/l	100	92.2	92.2	80-120%
Alkalinity, Total as CaCO3	GN26898	5.0	0.0	mg/l	100	92.2	92.2	90-110%
Bromide	GP13717/GN26836	0.050	0.0	mg/l	0.5	0.522	104.4	90-110%
Chloride	GP13717/GN26836	0.50	0.0	mg/l	5	4.95	99.0	90-110%
Fluoride	GP13717/GN26836	0.10	0.0	mg/l	1	1.03	103.0	90-110%
Iron Reducing Bacteria	GN27080	25	<25	CFU/ml				
Nitrogen, Nitrate	GP13717/GN26836	0.010	0.0	mg/l	0.1	0.105	105.0	90-110%
Nitrogen, Nitrite	GP13717/GN26836	0.0040	0.0	mg/l	0.05	0.0512	102.4	90-110%
Phosphorus, Total	GP13743/GN26887	0.010	0.0	mg/l	0.38	0.41	107.0	80-120%
Slime Forming Bacteria	MB439	500	<500	CFU/ml				
Solids, Total Dissolved	GN26842	10	0.0	mg/l	400	396	99.0	90-110%
Specific Conductivity	GP13733/GN26868			umhos/cm	99.4	95.8	96.4	90-110%
Specific Conductivity	GP13733/GN26868			umhos/cm	99.4	98.5	99.1	90-110%
Sulfate	GP13717/GN26836	0.50	0.0	mg/l	5	5.03	100.6	90-110%
Sulfate Reducing Bacteria	MB440	200	<200	CFU/ml				
pH	GN26876			su	8.00	7.99	99.9	99.1-100.9%

Associated Samples:
Batch MB439: D63169-1, D63169-2
Batch MB440: D63169-1, D63169-2
Batch GN26842: D63169-1, D63169-2
Batch GN26876: D63169-1, D63169-2
Batch GN26898: D63169-1, D63169-2
Batch GN26901: D63169-1, D63169-2
Batch GN26902: D63169-1, D63169-2
Batch GN27080: D63169-1, D63169-2
Batch GP13717: D63169-1, D63169-2
Batch GP13733: D63169-1, D63169-2
Batch GP13743: D63169-1, D63169-2
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN26898	D63168-1	mg/l	361	319	12.3	0-20%
Phosphorus, Total	GP13743/GN26887	D63155-23	mg/l	0.015	0.017	12.5	0-20%
Solids, Total Dissolved	GN26842	D63077-1	mg/l	152	150	1.3	0-20%
Specific Conductivity	GP13733/GN26868	D63221-1	umhos/cm	251	253	0.8	0-20%

Associated Samples:
Batch GN26842: D63169-1, D63169-2
Batch GN26898: D63169-1, D63169-2
Batch GP13733: D63169-1, D63169-2
Batch GP13743: D63169-1, D63169-2
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP13717/GN26836	D63169-1	mg/l	0.098	0.5	0.60	100.4	80-120%
Chloride	GP13717/GN26836	D63169-1	mg/l	12.3	5	17.2	98.0	80-120%
Fluoride	GP13717/GN26836	D63169-1	mg/l	0.20	1	1.2	100.0	80-120%
Nitrogen, Nitrate	GP13717/GN26836	D63169-1	mg/l	1.3	0.5	1.8	100.0	80-120%
Nitrogen, Nitrite	GP13717/GN26836	D63169-1	mg/l	0.0030 U	0.05	0.045	90.0	80-120%
Phosphorus, Total	GP13743/GN26887	D63155-23	mg/l	0.015	0.40	0.40	96.3	80-120%
Sulfate	GP13717/GN26836	D63169-1	mg/l	71.3	25	96.7	101.6	80-120%

Associated Samples:
Batch GP13717: D63169-1, D63169-2
Batch GP13743: D63169-1, D63169-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D63169
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: RMV 108-4 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP13717/GN26836	D63169-1	mg/l	0.098	0.5	0.60	0.0	20%
Chloride	GP13717/GN26836	D63169-1	mg/l	12.3	5	17.3	0.6	20%
Fluoride	GP13717/GN26836	D63169-1	mg/l	0.20	1	1.2	0.0	20%
Nitrogen, Nitrate	GP13717/GN26836	D63169-1	mg/l	1.3	0.5	1.8	0.0	20%
Nitrogen, Nitrite	GP13717/GN26836	D63169-1	mg/l	0.0030 U	0.05	0.043	4.5	20%
Phosphorus, Total	GP13743/GN26887	D63155-23	mg/l	0.015	0.40	0.39	2.5	20%
Sulfate	GP13717/GN26836	D63169-1	mg/l	71.3	25	96.3	0.4	20%

Associated Samples:
Batch GP13717: D63169-1, D63169-2
Batch GP13743: D63169-1, D63169-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits