Western Water & Land, Inc.

May 20, 2014

Mr. Brandon Danforth
Environmental Specialist
WPX Energy Rocky Mountain LLC
1058 County Road 215
Parachute, Colorado 81635

RE: GM 32-4 Drill Pad First Subsequent Sample Event Results Report, February 2014 Event

Dear Mr. Danforth,

Western Water & Land, Inc. (WWL) has completed the first subsequent water quality sampling for the WPX Energy Rocky Mountain LLC (WPX) GM 32-4 Drill Pad in accordance with Colorado Oil and Gas Conservation Commission (COGCC) Condition of Approval 22 (COA 22). The GM 32-4 Drill Pad is located in SW¼, NE¼, Section 4, Township 7 South, Range 96 West, 6th PM. The initial baseline sampling event was conducted in June, 2013 (see GM 32-4 Drill Pad Baseline Results Report, June 2013 Event).

This report summarizes the selection of sampling locations, associated field sampling activities, and the quality control and water chemistry results.

SAMPLING LOCATIONS AND FIELD ACTIVITIES

As described in the GM 32-4 Drill Pad Baseline Water Quality Evaluation, April 24, 2014, four potential sampling locations were identified for field sampling of water quality consistent with requirements of Rule 609. According to state records and other sources (internet search engines and telephone white pages), the landowners, water well permit holders, and water right holders were contacted by access request letters and by telephone in order to request access to their water source. Four springs were identified as preferred sampling locations:

- Spring G-7960406-1
- Spring G-7960406-2
- Spring G-7960406-3
- Spring G-7960410-1

WWL sampling personnel conducted broad field reconnaissance to locate the spring sites on February 27th, 2014. The area was characterized by piñon-juniper and Gambel oak plant communities and numerous escarpments from slumps on the north-facing slopes. No spring sites were located, and therefore, no springs were sampled. No substituted preferred sites were identified in the evaluation and therefore no groundwater sources were sampled for this drill pad.

743 Horizon Court Suite 330, Grand Junction, CO 81506
Phone: (970) 242-0170 Fax: (970) 242-0270

COA 22 required that surface water flow within Riley Gulch, if present, be sampled upgradient and downgradient of the GM 32-4 Drill Pad. Flow was present in Riley Gulch and the first subsequent samples were collected from the two sampling locations established during the initial baseline sampling event. See Figure 1 for the sampled locations. Sampled locations were previously field-staked using a 4-foot long, green, metal stake identified with a metal tag marked with the sample ID. The first subsequent sampling event was conducted on February 27th, 2014. Photographs of the sampling sites are shown in Attachment A.

Field observations during the February sampling event showed that the stream geometry of the lower Riley Gulch sampling location (Riley Gulch Dwn 1) was notably different than the June 2013 sampling event. The stream channel and immediate overbank was devoid of vegetation and had seen significant deposition of sediment (see Photo 2, Attachment A). The sampling location marker was missing. An apparent stormwater event had modified the channel. The event may have been associated with unusually high precipitation that occurred in September of 2013. The upper Riley Gulch sampling location (Riley Gulch Up 1) was less impacted.

All sampling procedures followed the COGCC Model Sampling and Analysis Plan (SAP) protocols. Sampling Method 1 for springs and seeps, described in Version 1 of the COGCC Model SAP, was used to collect both of these samples.

Samples were relinquished to the analytical laboratory's (Accutest Mountain States [AMS], Wheat Ridge, Colorado) courier in Rifle, Colorado, who carefully packs them in coolers with ice for preservation and ships them to the analytical laboratory by way of private overnight courier.

QUALITY CONTROL

Quality control measures consisted of a review of field sampling procedures and the analytical laboratory quality control data. Laboratory quality control information was reviewed and checked for consistency in meeting acceptance criteria and the assignment of data qualifiers. In addition, WWL conducted quality control evaluations of cation-anion balance (CAB) and total dissolved solids (TDS) calculated versus measured ratio. WWL assigned additional qualifiers to analytical results as necessary.

Field Procedures

WWL conducted field sampling procedures in accordance with the WPX SAP and COGCC Model SAP. All samples were collected by direct filling methods; dissolved gas sampling was done using Method 1 for springs and seeps. No field procedure deviations occurred that were cause for data qualification.

COC

The chain-of-custody form was reviewed for correct and complete sample IDs, requested analysis, and other pertinent information. The analytes requested on the COC matched the requirements of COA 22. DRO (diesel range organics) and GRO (gasoline range organics) were designated on the COC in place of TPH, a required analysis for COA 22. No other errors or quality control issues were observed, and no corrections were needed.

Sample Receipt

Samples Riley Gulch UP 1 and Riley Gulch DWN 1 were received by AMS in two coolers within the temperature range criteria (4°C ± 2°C). Custody seals were intact. The lab incorrectly reported sample time for Riley Gulch DWN 1 as 10:30 a.m.; the correct sample time is 8:00 a.m. No qualifiers were assigned to results based on sample receipt conditions.

Holding Times
All analyses were conducted within recommended holding times, with the exception of lab pH for Riley Gulch UP 1 and Riley Gulch DWN 1. WWL designated an "H" qualifier to indicate the results are estimated for all lab pH values.

Analytical Methods
The analytical methods used by AMS were checked for consistency with the analytical schedule in the SAP. Analytical methods were found to be consistent with the following modifications: Gasoline Range Organics (TPH volatiles) were analyzed using Method SW8260B. Diesel Range Organics (TPH extractables) were analyzed according to Method SW846-8015B.

Detection Limits
Detection limits provided with the analytical results were compared to the original quoted detection limits from the analytical laboratory. Detection limits were as quoted with no deviations observed except as applied to increased dilution factors.

All samples: dilution factor of 2 for selenium, dilution factor of 5 for fluoride, chloride, nitrite, nitrate, bromide, total phosphorus, and dilution factor of 50 for sulfate. Nitrite, fluoride, and bromide had elevated detection limits due to matrix interference. All other analytes had a dilution factor of 1. AMS reports sample results at the RL as "undetected" or "U" rather than reporting results as less than the reporting or detection limit, e.g. < 0.05µg/L.

Completeness
Data completeness is a measure of requested analysis and received results. The analytical constituents required under COA 22 were compared to those requested and analyzed in the laboratory reports. Qualified data are included as analyzed data. No data were rejected for field or analytical reasons. WWL separately designated DRO (Diesel Range Organics) and GRO (Gasoline Range Organics) for the TPH analysis required in COA 22. All requested analytical data matched the laboratory reported data results; data completeness is considered 100 percent.

Cation-Anion Balance
The cation-anion balance (CAB) calculates the total charge of positively charged ions and the total charge of the negatively charged ions. It is a measure of the quality of the analysis; if the charge is not balanced, an error may exist in the analysis. CAB percent difference calculations were performed for each sample; if the CAB exceeded ± 5%, i.e. less than 95% or greater than 105%, the analytical results data may be qualified as estimated.

In general, WWL will assign a qualifier (estimated result) for a CAB equal to or greater than plus or minus 10%, and may assign a qualifier for CAB percentages between plus or minus 5% and less than 10%. The final CAB calculations for the samples are as follows:

- Riley Gulch UP 1: 0.853%
- Riley Gulch DWN 1: 1.141%

The analytical results for cations and anions for the samples were not qualified on the basis of the CAB. See Attachment C, Data Quality Review Sheets.

TDS
The ratio of laboratory-measured TDS versus calculated TDS were computed and sample ratios less than 0.80 and greater than 1.20 are cause for a review of major ion reporting errors.

In general, WWL will assign a qualifier (an estimated result) when TDS ratios are less than or equal to 0.5 and equal to or greater than 1.5, and may assign a qualifier for TDS ratios greater than 0.5 and less than 0.8 and greater than 1.2 and less than 1.5. The TDS calculations for samples are as follows:

- Riley Gulch UP 1: 1.07
- Riley Gulch DWN 1: 1.08

No sample results were rejected or qualified on the basis of the TDS acceptance criteria.

Field Duplicates
Field duplicates evaluate the precision of analytical results for field samples collected for a specific sampling event. Precision is measured by the calculation of the relative percent difference (RPD) using the analytical results from the original investigative sample and the duplicate sample. An RPD limit of 35% is used for the data qualification criterion. When the original sample has a detected concentration above the reporting limit (RL) and the concentration of the field duplicate is less than the RL, the calculation of a field duplicate RPD is not applied (results may be qualified in this case). For sample results less than 5 times the RL, the acceptance criteria is ± RL.

No field duplicates were collected for this sampling event, therefore no field duplicate RPDs were calculated.

Trip Blanks
Trip blanks are analyte-free matrix (water in this case) samples supplied by the analytical laboratory that are shipped inside the sample shipping containers to and from the field investigation site. Field blanks test for potential contamination during shipping and sampling field procedures. For this project, field blanks are analyzed for volatiles only. There were no detections of volatiles (benzene, toluene, ethylbenzene, and xylenes; BTEX) in the analyzed trip blank samples. No data were qualified based on trip blank analytical results.

Laboratory Quality Control
The analytical laboratory conducts an extensive quality control program and as part of the overall quality control process. The analytical laboratory quality control program includes the use of various laboratory quality control samples including but not limited to: method blanks (MB), laboratory control samples (LCS) and duplicates (LCSD), matrix spikes (MS) and duplicates (MSD), surrogates, initial calibration verification standards (ICVs), and continuing calibration verification standard (CCVs).

WWL verified that the lab performed and reported quality control data correctly. This included checking laboratory control samples data for meeting laboratory QC limits, acceptance criteria, and recovery limits. QC limits associated with the relative percent difference (RPD) between duplicate samples typically range from a limit of 20% for metals and general or wet chemistry to 30% for organic analytes. Typical percent recovery acceptance limits are 80 to 120% for metals and wet chemistry and 70 to 130% for organics; some organic compounds may have much broader recovery limits.

All sampling event data packages showed that no laboratory control samples exceeded the QC limits or acceptance criteria without data qualification, and no recovery limits were exceeded. No qualifiers were assigned to the results.

Accuracy
Accuracy was evaluated as a percent recovery of an analyte in a reference standard or a spiked sample, e.g. matrix spike and matrix spike duplicate. In cases where percent recoveries exceeded the laboratory acceptance criteria, data would be qualified depending on whether the analyte was detected above the method detection limit (MDL) or not, if the recovery of the associated control sample was acceptable, or if the analyte concentration in the sample was disproportionate to the spike level and that the recovery of the associated control sample was acceptable. Note that the analytical laboratory may not have selected a sample from this field investigation for testing matrix quality control samples. In these cases, true matrix affects cannot be assessed and the resulting data should be considered as estimated. This will be noted in the DQR sheets (Attachment C), but the data will not be broadly qualified by WWL.

AMS did not select Riley Gulch UP 1 and Riley Gulch DWN 1 matrix for testing matrix quality control samples. AMS selected a number of other samples for testing MS and MSD based on the analytical method being used. The MS and MSD recoveries met guidance criteria for precision and accuracy for all analytes.

No qualifiers were assigned to the results by the lab. WWL did not assign additional qualifiers to the analytical results.

Precision
Precision is the measurement of how closely replicate sample constituents agree and is not related to the true value (concentration). Precision is measured using RPD calculations for laboratory duplicate samples such as LCSD and MSD samples and any other duplicate samples generated by the laboratory. The RPDs were compared to the laboratory acceptance limit of 20% for metals and general or wet chemistry and 30% for organic analytes. RPDs were not used when the sample concentration was too low (< 10X MDL) for accurate evaluation. No qualifiers were assigned by the laboratory because of RPD values exceeding the laboratory acceptance criteria.

Data Quality Review Sheets are presented in Attachment C.

QC Summary
AMS Laboratories assigned analytical results that were undetected with a "U" qualifier. WWL assigned an "H" qualifier to results that exceeded analytical holding times to indicate the result value is estimated. See Attachment C and Attachment D for individual parameters that were qualified.

ANALYTICAL RESULTS

Laboratory analysis was performed by and Accutest Mountain States Laboratory (AMS), in Wheatridge, Colorado in accordance with the analytical schedule described in COA 22. The analytical results are summarized in Attachment D; the data are qualified as indicated. The full laboratory analytical report is presented in Attachment E.

An examination of the data summary in Attachment D shows distinct chemical differences between the original and subsequent samples at each sample location. TDS, numerous metals and other parameters increase two to over ten times in the subsequent sample compared to the original sample. Calcium, magnesium and sodium almost double in concentration and sulfate almost tripled in concentration. Dissolved oxygen and turbidity increase by almost 4 mg/L and over 10 times at one station. Specific conductance increases by almost a factor of two. Discharge in the downstream sample was slightly less in the subsequent sample compared to the initial sample.

Organic constituents including BTEX compounds, GRO and DRO, and the dissolved gases remain at undetectable concentrations for both sample events.

The section of Riley Gulch sampled appears to be fed by groundwater discharge. Relatively deep groundwater chemistry does not normally fluctuate greatly in chemical composition. It is suspected that the chemical signature noted in the February samples is related to shallow groundwater sources or surface water influences. Impacts of active snowmelt at the time of the February sampling event and/or the introduction of stormwater sediment in the streambed are possible causes. The percolation of snowmelt may result in local pulses of leaching groundwater to the Riley Gulch drainage. This pulse of groundwater may be elevated in inorganic solutes. In addition, newly deposited sediment eroded from the surrounding Wasatch Formation exposed on the flanks of Riley Gulch is also a potential source of the elevated inorganic solutes in the February 2014 sampling event. Visible salt precipitates and minerals (selenite) have been observed on the weathered Wasatch Formation in Riley Gulch.

There were no field observations during the February sampling event that indicated any surface spills from oil and gas operations had occurred near the stream. Future sample results may provide more information as to the natural composition of this source water.

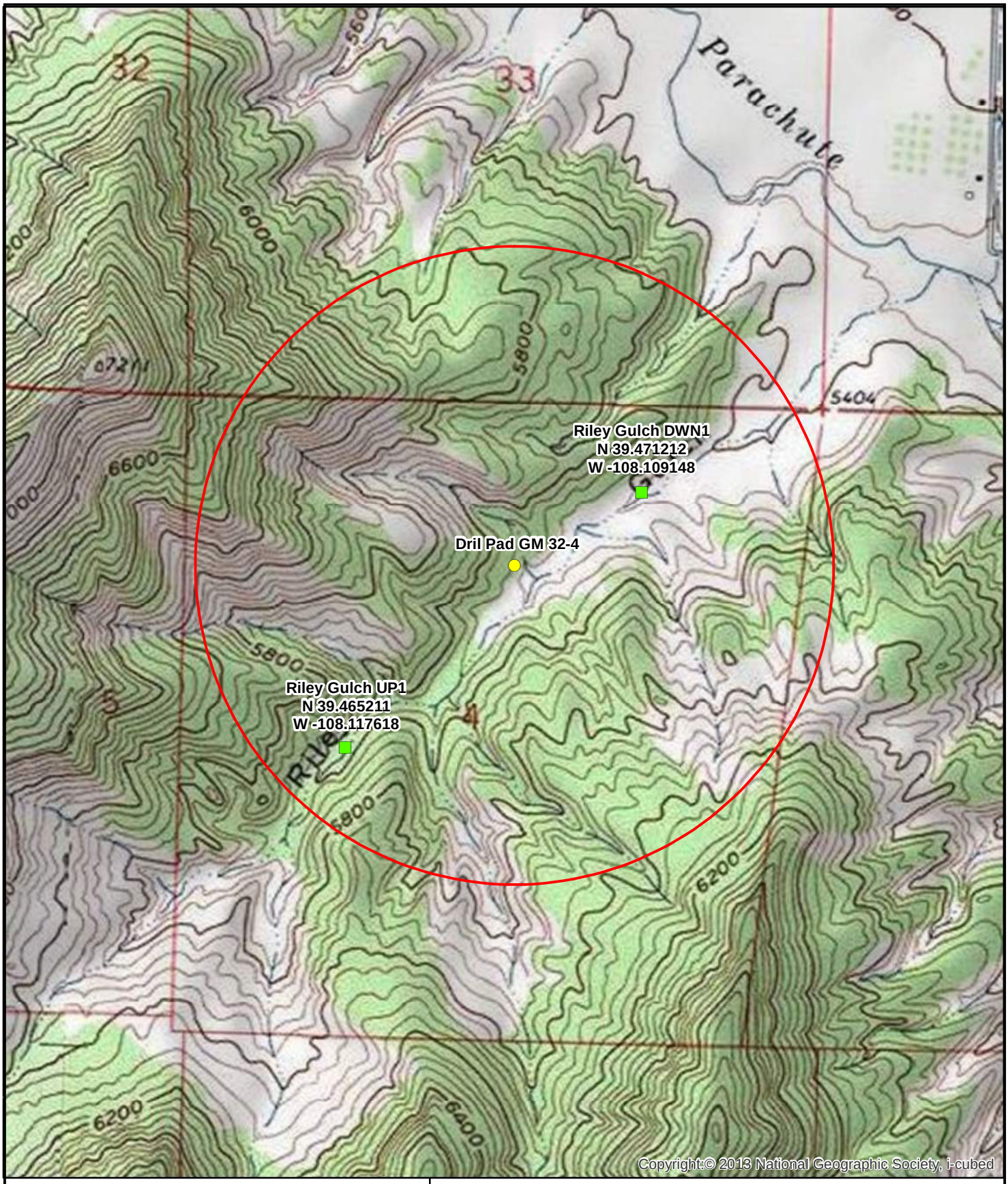
If you have any questions or concerns, please contact me at (970) 242-0170.

Sincerely,

Bruce D. Smith
Principal Hydrogeologist
WESTERN WATER & LAND, INC.

Attachments

Figure 1- Sampling Location Map
Attachment A - Photographs
Attachment B - Field Monitoring Forms
Attachment C - Data Quality Review Sheets
Attachment D - Summary of Analytical Results
Attachment E - Laboratory Analytical Summary Report



Legend

- Sample Location(s)
- Drill Pad GM 32-4
- Decree
- 0.5-Mile Radius Evaluation Area
- Constructed well

N

Feet

1,000 500 0 1,000

1:13,000

Figure 1: GM 32-4 Sample Location Map
COGCC COA 22 First Subsequent Sampling
SW1/4, NE1/4, S4, T7S, R96W, 6 PM

Garfield County, Colorado

WPX Energy Rocky Mountain LLC

Basemap Source: Bing Maps and Esri ArcGIS Online

Western Water & Land, Inc.
Applications in Earth Science

ATTACHMENT A

Photographs

Photo 1. Riley Gulch Downgradient Sampling Location (Riley Gulch DWN 1); View Downstream

Photo 2. Riley Gulch Downgradient Sampling Location (Riley Gulch DWN 1); View Upstream

Photo 3. Riley Gulch Upgradient Sampling Location (Riley Gulch UP 1)

ATTACHMENT B

Field Monitoring Forms

WPX BWQ Surface Water Monitoring Field Form

Project Information			
Project:	GM 32-4 BWQ	Sample Purpose:	COA 22 Subsequent 1
Site Name (Well Pad):	GM 32-4	Site API:	045-06788
Station Name:	Federal NESW 54 7S 96W	Sample Date:	2-27-14
COGCC Facility ID:	752703	Start Time:	1015
Field Sample ID:	Riley Gulch UP 1	End Time:	1059
Landowner Name:	BLM-CO River Valley Office	Sample Time:	1030
Landowner Address:	2300 River Frontage Rd, Silt, CO	Sample Team:	SLK, NWS
Water Right/Well Owner:	None	Observer:	SLK
Water Right/Well Permit:	None	Lead Signature/Date:	3-3-14

Station Information			
Station Description:	Riley Gulch		
Approximate Distance to Well Pad:	2050 Ft		
Station Type:	(Stream) / Spring / Seep / Pond / Lake / NPDES Outfall / Other:		
Sampling Location:	(Bank) / Pipe / Wading / Boat / Bridge / Hose bib / Tank / Other:		
Sampling Location Description:	(Pool) / Riffle / Eddy / Backwater / Open / Channel / Braided / Other:		
Sampling Location Width:	2 Ft	Sampling Location Depth:	2" average
GPS Location:	Zone	x -108.11761	y 39.46521 z 5583 Ft

Weather Conditions			
Sky:	Clear / Scattered / Cloudy / (Overcast)	Estimated Air Temp (deg F):	40
Precipitation:	None / (Light) / Moderate / Heavy	Precip Type:	None / (Rain) / Sleet / Hail / Snow
Wind:	(Calm) / Light / Mod / Strong	Wind Speed/Direction:	None

Field Measurements

Parameter	Units	Reading	Time	Flag Code	Instrument	In-situ or Container	Comments
Water Temp	deg C	3.65	1046		YSI 556	IN-SHU	
pH	s.u.	8.41					
Sp. Conductivity	uS/cm	2408					
Conductivity	uS/cm	1427					
DO Saturation	%	86.7					
DO	mg/L	11.89					
Baro Press	mmHg	612.9					
ORP	RmV	265.5					
Turbidity	NTU	110.1	1058	AV	micro TP		105.6, 111.4, 113.3
Discharge		NM					
H2S	mg/L	NM					

Color:	Clear / White / Yellow / (Brown) / Green / Blue / Other	(Light) / Med / Dark	
Odor:	(None) / Mild / Mod / Strong		
Effervescence:	(None) / Mild / Mod / Strong	Bubbles:	(None) / Low / Mod / High
Sediment:	None / Light / (Mod) / Heavy	VOA Headspace:	(None) / ≤ Pea Size / ≥ Pea Size
Lab Analysis:	Rule 609 / COA 9 / (COA 22) / Other		
Field Filtered:	Yes / (No)	Filter Size: NA	No. Filters used: NA

Flag Codes: NM (not measured), E (estimated), N/A (not applicable), I (insufficient sample), Q (uncertain value), Y (calculated value), AV (averaged value), EC (exceeds calibration range), OT (other flag to be defined later), NS (not stabilized), VAR (variable)

WPX BWQ Surface Water Monitoring Field Form

Landowner Comments on water quality:

None

Additional information:

Field stake from previous sample still there, no tags on it

Previous sample ID: GM 32-4 RGUP 1 on 6-11-13

Did not measure discharge, too shallow

Calibration info on GM 32-4 Riley Gulch DWN 1

Calibration Information			Date: 2-27-14			Location:		
Instrument	Parameter	Units	Time	Calibration Standard Value	Calibration Standard Temp (°C)	Instrument Reading of Standard	Adjusted Reading	Comments
	pH	s.u.						
	pH	s.u.						
	pH	s.u.						
	SpC	uS/cm						
	SpC	uS/cm						
	DO	%						
	DO	%						
	ORP	RmV						
	Turbidity	NTU						

WPX BWQ Surface Water Monitoring Field Form

Project Information			
Project:	GM 32-4 BWQ	Sample Purpose:	COA 22 Subsequent 1
Site Name (Well Pad):	GM 32-4	Site API:	045-06786
Station Name:	Federal NWNE S4 T5 96W	Sample Date:	2-27-14
COGCC Facility ID:	752702	Start Time:	0705
Field Sample ID:	Riley Gulch DWN 1	End Time:	0900
Landowner Name:	BLM-CO River Valley OFFICE	Sample Time:	800
Landowner Address:	2300 River Frontage Rd, Silt, CO	Sample Team:	NWS, SLK
Water Right/Well Owner:	None	Observer:	NWS
Water Right/Well Permit:	None	Lead Signature/Date:	3-3-14

Station Information			
Station Description:	Riley Gulch near MV 7-4 pad, upstream of access road		
Approximate Distance to Well Pad:	1,200 Ft		
Station Type:	Stream / Spring / Seep / Pond / Lake / NPDES Outfall / Other:		
Sampling Location:	Bank / Pipe / Wading / Boat / Bridge / Hose bib / Tank / Other:		
Sampling Location Description:	Pool / Riffle / Eddy / Backwater / Open / Channel / Braided / Other:		
Sampling Location Width:	2 Ft	Sampling Location Depth:	2 in
GPS Location:	Zone	x -108.10915	y 39.47121 z 5472 Ft

Weather Conditions			
Sky:	Clear / Scattered / Cloudy / Overcast	Estimated Air Temp (deg F):	40
Precipitation:	None / Light / Moderate / Heavy	Precip Type:	None / Rain / Sleet / Hail / Snow
Wind:	Calm / Light / Mod / Strong	Wind Speed/Direction:	none

Field Measurements

Parameter	Units	Reading	Time	Flag Code	Instrument	In-situ or Container	Comments
Water Temp	deg C	0.10	0835		YSI 556	in-situ	
pH	s.u.	7.98					
Sp. Conductivity	uS/cm	2359					
Conductivity	uS/cm	1237					
DO Saturation	%	92.5					
DO	mg/L	13.33					
Baro Press	mmHg	617.5					
ORP	RmV	2299					
Turbidity	NTU	181.03		AV	MICROTP		176.3, 184.9, 181.9
Discharge	gpm	34.30	900	AV	5 gal bucket		
H2S	mg/L	NM					

Color:	Clear / White / Yellow / Brown / Green / Blue / Other	Light / Med / Dark	
Odor:	None / Mild / Mod / Strong		
Effervescence:	None / Mild / Mod / Strong	Bubbles:	None / Low / Mod / High
Sediment:	None / Light / Mod / Heavy	VOA Headspace:	None / ≤ Pea Size / ≥ Pea Size
Lab Analysis:	Rule 609 / COA 9 / COA 22 / Other		
Field Filtered:	Yes / No	Filter Size: NA	No. Filters used: NA

Flag Codes: NM (not measured), J (estimated), N/A (not applicable), I (insufficient sample), Q (uncertain value), Y (calculated value), AV (averaged value), EC (exceeds calibration range), OT (other flag to be defined later), NS (not stabilized)

WPX BWQ Surface Water Monitoring Field Form

Landowner Comments on water quality:

None

Additional information:

No field stake, restaked.

Discharge: 2.5 gal / 4.37 sec - 1 gal / 1.748 sec ~ 34.32 gpm
2.25 gal / 3.97 sec - 1 gal / 1.764 sec ~ 34.01 gpm AV = 34.30 gpm
2.0 gal / 3.47 sec 1 gal / 1.735 sec ~ 34.58 gpm

Previous sample ID: GM 32-4 RGDWN1 on 6-11-13

Obvious flooding + scouring since last sampled. — why the field stake is gone. Fair amount of turbidity in sample

Calibration Information			Date: 2-27-14			Location: Office		
Instrument	Parameter	Units	Time	Calibration Standard Value	Calibration Standard Temp (°C)	Instrument Reading of Standard	Adjusted Reading	Comments
YSI 556	pH	s.u.	534	7.00	22.18	7.05	7.00	
	pH	s.u.	538	4.01	22.19	4.00	4.01	
	pH	s.u.	543	10.01	22.28	9.99	10.01	
	SpC	uS/cm	530	8974	22.21	8920	8974	
	SpC	uS/cm						
	DO	%	552	635.9 mmHg	22.08	83.3	83.7	
	DO	%						
	ORP	RmV						
Micro TPI	Turbidity	NTU	551					

ATTACHMENT C

Data Quality Review Sheets

DATA QUALITY REVIEW SHEET

Facility ID:	752703	Project:	WPX BWQ: GM 32-4
Station Name:	Federal NESW S4 7S 96W	Lab Work Order:	D55476
Sample Date:	2/27/2014	QA/QC Review Date:	4/21/2014
Field Sample ID:	Riley Gulch UP 1	Reviewer:	S. Kipp

Field Sampling Data Review	**Yes**	**No**	**N/A**
1. Well properly purged?	☐	☐	☒
2. Flow rate reduced prior to sampling?	☐	☐	☒
3. Water quality parameters stable prior to sampling?	☒	☐	☐
4. Field instruments calibrated properly?	☒	☐	☐
5. Sampling methods performed according to SAP procedures?	☒	☐	☐
6. Procedures consistent with obtaining a representative sample?	☒	☐	☐
Lab Data Report Review			
7. Proper sample custody maintained until laboratory receipt?	☒	☐	☐
8. Receipt form is without discrepancies? *If no, list in comments.*	☒	☐	☐
9. All samples analyzed for the requested analyses?	☒	☐	☐
10. Proper laboratory methods used?	☒	☐	☐
11. All sample holding times met (other than lab pH)?	☒	☐	☐
12. Lab QA samples (e.g., matrix spikes and matrix spike duplicates) collected and analyzed according to lab method and results within method acceptance limits?	☒	☐	☐
13. Was the field investigation sample matrix used by the lab for matrix QC for all analyses?	☐	☒	☐
14. Laboratory qualifiers for data (other than non-detect)? *List in comments*.	☐	☒	☐
15. Additional qualifiers assigned (other than pH)?	☐	☒	☐
16. Are corrective actions required? *If yes, list actions and dates to be completed by:*	☐	☒	☐

Corrective Action	*Date to be completed*
None	

Calculated Parameters	**Calculated Value**	**Lab Value**	**Ratio/Percent Difference**	**Acceptable Limit**	**Meets QC Criteria?**
Cation/Anion Balance, % (CAB)	0.853	N/A	N/A	±5%	☒
Total Dissolved Solids, mg/L (TDS)	1871.3	1750	1.07	0.8 – 1.2	☒
Specific Conductance, µS/cm (SpC)	2612	2120	1.23	0.8 – 1.2	☐

Comments: pH analyzed out of analysis holding time, WWL qualified with "H"; result considered estimated. Specific Conductivity ratio slightly outside of QC criteria, but data not qualified.

DATA QUALITY REVIEW SHEET

Facility ID:	752702	Project:	WPX BWQ: GM 32-4
Station Name:	Federal NWNE S4 7S 96W	Lab Work Order:	D55475
Sample Date:	2/27/2014	QA/QC Review Date:	4/21/2014
Field Sample ID:	Riley Gulch DWN 1	Reviewer:	S. Kipp

Field Sampling Data Review	**Yes**	**No**	**N/A**
1. Well properly purged?	☐	☐	☒
2. Flow rate reduced prior to sampling?	☐	☐	☒
3. Water quality parameters stable prior to sampling?	☒	☐	☐
4. Field instruments calibrated properly?	☒	☐	☐
5. Sampling methods performed according to SAP procedures?	☒	☐	☐
6. Procedures consistent with obtaining a representative sample?	☒	☐	☐
Lab Data Report Review			
7. Proper sample custody maintained until laboratory receipt?	☒	☐	☐
8. Receipt form is without discrepancies? *If no, list in comments.*	☐	☒	☐
9. All samples analyzed for the requested analyses?	☒	☐	☐
10. Proper laboratory methods used?	☒	☐	☐
11. All sample holding times met (other than lab pH)?	☒	☐	☐
12. Lab QA samples (e.g., matrix spikes and matrix spike duplicates) collected and analyzed according to lab method and results within method acceptance limits?	☒	☐	☐
13. Was the field investigation sample matrix used by the lab for matrix QC for all analyses?	☐	☒	☐
14. Laboratory qualifiers for data (other than non-detect)? *List in comments*.	☐	☒	☐
15. Additional qualifiers assigned (other than pH)?	☐	☒	☐
16. Are corrective actions required? *If yes, list actions and dates to be completed by:*	☐	☒	☐

Corrective Action	*Date to be completed*
None	

Calculated Parameters	**Calculated Value**	**Lab Value**	**Ratio/Percent Difference**	**Acceptable Limit**	**Meets QC Criteria?**
Cation/Anion Balance, % (CAB)	1.141	N/A	N/A	±5%	☒
Total Dissolved Solids, mg/L (TDS)	1845.6	1710	1.08	0.8 – 1.2	☒
Specific Conductance, µS/cm (SpC)	2552	2130	1.20	0.8 – 1.2	☒

Comments: pH analyzed out of analysis holding time, WWL qualified with "H"; result considered estimated. Laboratory summary report lists sample time as 10:30 a.m.; actual sample time is 8:00 a.m.

ATTACHMENT D

Summary of Analytical Results

GM 32-4 BWQ Analytical Results Summary															
Station Name				**Federal NESW S4 7S 96W**						**Federal NESW S4 7S 96W**					
Facility ID				**752703**						**752703**					
Sample Date				**6/11/2013**						**2/27/2014 10:30**					
Field Sample ID				**GM 32-4 RG UP 1**						**Riley Gulch UP 1**					
Analytical Lab				**ALS Laboratories (ALS)**						**Accutest (AMS)**					
Lab Sample ID				**1306160-1**						**D55476-1**					
	Reporting Units	**ALS Analytic Method**	**AMS Analytic Method**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**
Inorganics															
Alkalinity AS CaCO3, Total	mg/l	SM2320B	SM 2320B-2011	340			20		1	396			5		1
Alkalinity, Bicarbonate as CaCO3	mg/l	SM2320B	SM 2320B-2011	340			20		1	396			5		1
Alkalinity, Carbonate as CaCO3	mg/l	SM2320B	SM 2320B-2011	20	U		20		1	5	U		5		1
Bromide	mg/l	EPA300.0	EPA 300.0/SW846 9056	0.2	U		0.2	0.06	1	0.25	U		0.25		5
Chloride	mg/l	EPA300.0	EPA 300.0/SW846 9056	21			2	0.6	10	40.1			2.5		5
Fluoride	mg/l	EPA300.0	EPA 300.0/SW846 9056	0.59			0.1	0.03	1	0.5	U		0.5		5
Nitrate as N	mg/l	EPA300.0	EPA 300.0/SW846 9056	0.28			0.2	0.06	1	0.097			0.05		5
Nitrite as N	mg/l	EPA300.0	EPA 300.0/SW846 9056	0.1	U		0.1	0.03	1	0.02	U		0.02		5
pH	s.u.	SM4500-H	SM4500HB+-2011/9040C	8.39			0.1		1	8.38		H			1
Specific Conductivity	umhos/cm	SM2510B	SM 2510B-2011	1310			1		1	2120			1		1
Sulfate	mg/l	EPA300.0	EPA 300.0/SW846 9056	350			10	3	10	916			25		50
Total Dissolved Solids	mg/l	SM2540C	SM 2540C-2011	900			20		1	1750			10		1
Total Phosphorous	mg/l	EPA365.2	HACH8190/SM4500P-B/E	0.05	U		0.05	0.015	1	0.07			0.05		5
Dissolved Metals															
Barium	ug/l	EPA200.8	EPA 200.7	26			1	0.3	10	45.8			10		1
Boron	ug/l	EPA200.8	EPA 200.7	160			50	15	10	179			50		1
Calcium	ug/l	EPA200.8	EPA 200.7	55000			1000	65	10	127000			400		1
Iron (Ferric)	ug/l	EPA200.8	EPA 200.7	100	U		100	30	10	19.2			10		1
Magnesium	ug/l	EPA200.8	EPA 200.7	68000			100	30	10	113000			200		1
Manganese	ug/l	EPA200.8	EPA 200.7	2.6	U		2	0.6	10	69.7			5		1
Potassium	ug/l	EPA200.8	EPA 200.7	2800			1000	300	10	4750			1000		1
Selenium	ug/l	EPA200.8	EPA 200.8	2.5			1	0.5	10	6.3			0.8		2
Sodium	ug/l	EPA200.8	EPA 200.7	140000			1000	300	10	272000			400		1
Strontium	ug/l	EPA200.8	EPA 200.7	1300			1	0.3	10	2170			5		1
Organics															
Diesel Range Organics	mg/l	SW8015M	SW846-8015B	0.5	U		0.5	0.15	1	0.19	U		0.19	0.17	1
Gasoline Range Organics	ug/l	SW8260_25	SW846 8260B	100	U		100		1	200	U		200		1
Dissolved gases [1]															
Ethane	ug/l	RSK175	RSK175 MOD	2	U		2	2	1	1.6	U		1.6	0.8	1
Methane	ug/l	RSK175	RSK175 MOD	1	U		1	1	1	0.8	U		0.8	0.4	1
Propane	ug/l	RSK175	RSK175 MOD	1	U		1	1	1	2.2	U		2.2	1.1	1

GM 32-4 BWQ Analytical Results Summary															
Station Name				**Federal NESW S4 7S 96W**						**Federal NESW S4 7S 96W**					
Facility ID				**752703**						**752703**					
Sample Date				**6/11/2013**						**2/27/2014 10:30**					
Field Sample ID				**GM 32-4 RG UP 1**						**Riley Gulch UP 1**					
Analytical Lab				**ALS Laboratories (ALS)**						**Accutest (AMS)**					
Lab Sample ID				**1306160-1**						**D55476-1**					
	Reporting Units	**ALS Analytic Method**	**AMS Analytic Method**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**
VOCs															
Benzene	ug/l	SW8260_25	SW846 8260B	1	U		1	0.3	1	1	U		1	0.25	1
Ethylbenzene	ug/l	SW8260_25	SW846 8260B	1	U		1	0.3	1	2	U		2	0.25	1
M+P-Xylene	ug/l	SW8260_25	NM	1	U		1	0.3	1	NM					
o-Xylene	ug/l	SW8260_25	NM	1	U		1	0.3	1	NM					
Xylenes (Total)	ug/l	NM	SW846 8260B	1	U		1		1	3	U		3	2	1
Toluene	ug/l	SW8260_25	SW846 8260B	1	U		1	0.3	1	2	U		2	1	1
Bacteria [2,3]															
Iron Related Bacteria	nu	BART	HACH IRB-BART	1					1	1					1
Slime Forming Bacteria	nu	BART	HACH SLYM-BART	1					1	1					1
Sulfate Reducing Bacteria	nu	BART	HACH SRB-BART	1					1	1					1
Field Parameters															
Bubbles	nu	Field	Field	None					1	None					1
Color	nu	Field	Field	Brown					1	L. Brown					1
Conductivity, Field	uS/cm	Field	Field	1061					1	1427					1
Discharge, measured	gpm	Field	Field	37.7					1	NM					1
Dissolved Oxygen, Field	mg/l	Field	Field	8.63					1	11.39					1
Dissolved Oxygen, Field,%	%	Field	Field	85.9					1	86.9					1
Effervescence	nu	Field	Field	None					1	None					1
Odor	nu	Field	Field	None					1	None					1
ORP, field	mv	Field	Field	NM					1	265.5					1
pH, Field	s.u.	Field	Field	8.49					1	8.41					1
Sediment	nu	Field	Field	NM					1	Moderate					1
Specific Conductivity, Field	uS/cm	Field	Field	1312					1	2408					1
Temperature, Water	Deg C	Field	Field	14.9					1	3.65					1
Turbidity, field	NTUs	Field	Field	19.72					1	110.1					1
VOA Headspace	nu	Field	Field	None					1	None					1

Notes:

[1] AMS units coverted from mg/L to ug/L

[2] A result of 1 indicates the presence of bacteria

[3] AMS units for bacteria converted from cfu/ml to no units (detect or non-detect)

U = not detected at the reporting limit

NM = not measured

H = hold time exceeded; estimated value

AV = averaged value

GM 32-4 BWQ Analytical Results Summary															
Station Name				**Federal NWNE S4 7S 96W**						**Federal NWNE S4 7S 96W**					
Facility ID				**752702**						**752702**					
Sample Date				**6/11/2013**						**2/27/2014 8:00**					
Field Sample ID				**GM 32-4 RG DWN 1**						**RILEY GULCH DWN 1**					
Analytical Lab				**ALS Laboratories (ALS)**						**Accutest (AMS)**					
Lab Sample ID				**1306160-2**						**D55475-1**					
	Reporting Units	**ALS Analytic Method**	**AMS Analytic Method**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**
Inorganics															
Alkalinity AS CaCO3, Total	mg/l	SM2320B	SM 2320B-2011	340			20		1	395			5		1
Alkalinity, Bicarbonate as CaCO3	mg/l	SM2320B	SM 2320B-2011	300			20		1	395			5		1
Alkalinity, Carbonate as CaCO3	mg/l	SM2320B	SM 2320B-2011	36			20		1	5	U		5		1
Bromide	mg/l	EPA300.0	EPA 300.0/SW846 9056	0.2	U		0.2	0.06	1	0.25	U		0.25		5
Chloride	mg/l	EPA300.0	EPA 300.0/SW846 9056	20			2	0.6	10	39.6			2.5		5
Fluoride	mg/l	EPA300.0	EPA 300.0/SW846 9056	0.56			0.1	0.03	1	0.5	U		0.5		5
Nitrate as N	mg/l	EPA300.0	EPA 300.0/SW846 9056	0.24			0.2	0.06	1	0.097			0.05		5
Nitrite as N	mg/l	EPA300.0	EPA 300.0/SW846 9056	0.1	U		0.1	0.03	1	0.02	U		0.02		5
pH	s.u.	SM4500-H	SM4500HB+-2011/9040C	8.49			0.1		1	8.41		H			1
Specific Conductivity	umhos/cm	SM2510B	SM 2510B-2011	1360			1		1	2130			1		1
Sulfate	mg/l	EPA300.0	EPA 300.0/SW846 9056	340			10	3	10	901			25		50
Total Dissolved Solids	mg/l	SM2540C	SM 2540C-2011	880			20		1	1710			10		1
Total Phosphorous	mg/l	EPA365.2	HACH8190/SM4500P-B/E	0.05	U		0.05	0.015	1	0.2			0.05		5
Dissolved Metals															
Barium	ug/l	EPA200.8	EPA 200.7	30			1	0.3	10	39.3			10		1
Boron	ug/l	EPA200.8	EPA 200.7	170			50	15	10	183			50		1
Calcium	ug/l	EPA200.8	EPA 200.7	51000			1000	65	10	123000			400		1
Iron (Ferric)	ug/l	EPA200.8	EPA 200.7	100	U		100	30	10	33.4			10		1
Magnesium	ug/l	EPA200.8	EPA 200.7	72000			100	30	10	111000			200		1
Manganese	ug/l	EPA200.8	EPA 200.7	2	U		2	0.6	10	45.1			5		1
Potassium	ug/l	EPA200.8	EPA 200.7	2900			1000	300	10	4680			1000		1
Selenium	ug/l	EPA200.8	EPA 200.8	1.8			1	0.5	10	7.1			0.8		2
Sodium	ug/l	EPA200.8	EPA 200.7	140000			1000	300	10	269000			400		1
Strontium	ug/l	EPA200.8	EPA 200.7	1300			1	0.3	10	2140			5		1
Organics															
Diesel Range Organics	mg/l	SW8015M	SW846-8015B	0.5	U		0.5	0.15	1	0.19	U		0.19	0.17	1
Gasoline Range Organics	ug/l	SW8260_25	SW846 8260B	100	U		100		1	200	U		200		1
Dissolved gases [1]															
Ethane	ug/l	RSK175	RSK175 MOD	2	U		2	2	1	1.6	U		1.6	0.8	1
Methane	ug/l	RSK175	RSK175 MOD	1	U		1	1	1	0.8	U		0.8	0.4	1
Propane	ug/l	RSK175	RSK175 MOD	1	U		1	1	1	2.2	U		2.2	1.1	1

GM 32-4 BWQ Analytical Results Summary															
Station Name				**Federal NWNE S4 7S 96W**						**Federal NWNE S4 7S 96W**					
Facility ID				**752702**						**752702**					
Sample Date				**6/11/2013**						**2/27/2014 8:00**					
Field Sample ID				**GM 32-4 RG DWN 1**						**RILEY GULCH DWN 1**					
Analytical Lab				**ALS Laboratories (ALS)**						**Accutest (AMS)**					
Lab Sample ID				**1306160-2**						**D55475-1**					
	Reporting Units	**ALS Analytic Method**	**AMS Analytic Method**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**
VOCs															
Benzene	ug/l	SW8260_25	SW846 8260B	1	U		1	0.3	1	1	U		1	0.25	1
Ethylbenzene	ug/l	SW8260_25	SW846 8260B	1	U		1	0.3	1	2	U		2	0.25	1
M+P-Xylene	ug/l	SW8260_25	NM	1	U		1	0.3	1	NM					
o-Xylene	ug/l	SW8260_25	NM	1	U		1	0.3	1	NM					
Xylenes (Total)	ug/l	NM	SW846 8260B	1	U		1		1	3	U		3	2	1
Toluene	ug/l	SW8260_25	SW846 8260B	1	U		1	0.3	1	2	U		2	1	1
Bacteria [2,3]															
Iron Related Bacteria	nu	BART	HACH IRB-BART	1					1	1					1
Slime Forming Bacteria	nu	BART	HACH SLYM-BART	1					1	1					1
Sulfate Reducing Bacteria	nu	BART	HACH SRB-BART	1					1	1					1
Field Parameters															
Bubbles	nu	Field	Field	None					1	None					1
Color	nu	Field	Field	Brown					1	L. Brown					1
Conductivity, Field	uS/cm	Field	Field	1084					1	1237					1
Discharge, measured	gpm	Field	Field	37.8					1	34.3					1
Dissolved Oxygen, Field	mg/l	Field	Field	8.51					1	13.33					1
Dissolved Oxygen, Field,%	%	Field	Field	87.3					1	92.5					1
Effervescence	nu	Field	Field	None					1	None					1
Odor	nu	Field	Field	None					1	None					1
ORP, field	mv	Field	Field	153					1	229.9					1
pH, Field	s.u.	Field	Field	8.51					1	7.98					1
Sediment	nu	Field	Field	NM					1	Moderate					1
Specific Conductivity, Field	uS/cm	Field	Field	1297					1	2359					1
Temperature, Water	Deg C	Field	Field	16.3					1	0.1					1
Turbidity, field	NTUs	Field	Field	12.23					1	181.03					1
VOA Headspace	nu	Field	Field	None					1	None					1

Notes:

[1] AMS units coverted from mg/L to ug/L

[2] A result of 1 indicates the presence of bacteria

[3] AMS units for bacteria converted from cfu/ml to no units (detect or non-detect)

U = not detected at the reporting limit

NM = not measured

H = hold time exceeded; estimated value

AV = averaged value

GM 32-4 BWQ Analytical Results Summary: Trip Blanks																					
Station Name				**Trip Blank**						**Trip Blank**						**Trip Blank**					
Facility ID				**752703**						**752703**						**752702**					
Sample Date				**6/11/2013**						**2/27/2014 0:00**						**2/27/2014 0:00**					
Field Sample ID				**Trip Blank**						**TRIP.BLANK**						**TRIP.BLANK**					
Analytical Lab				**ALS Laboratories (ALS)**						**Accutest (AMS)**						**Accutest (AMS)**					
Lab Sample ID				**1306160-3**						**D55476-2**						**D55475-2**					
	Reporting Units	**ALS Analytic Method**	**AMS Analytic Method**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**	**Result**	**Lab Qual**	**WWL Qual**	**RL**	**MDL**	**DF**
Organics																					
Gasoline Range Organics	ug/l	SW8260_25	SW846 8260B	100	U		100		1	200	U		200		1	200	U		200		1
VOAs																					
Benzene	ug/l	SW8260_25	SW846 8260B	1	U		1	0.3	1	1	U		1	0.25	1	1	U		1	0.25	1
Ethylbenzene	ug/l	SW8260_25	SW846 8260B	1	U		1	0.3	1	2	U		2	0.25	1	2	U		2	0.25	1
M+P-Xylene	ug/l	SW8260_25	NM	1	U		1	0.3	1	NM						NM					
o-Xylene	ug/l	SW8260_25	NM	1	U		1	0.3	1	NM						NM					
Xylenes (Total)	ug/l	NM	SW846 8260B	NM						3	U		3	2	1	3	U		3	2	1
Toluene	ug/l	SW8260_25	SW846 8260B	1	U		1	0.3	1	2	U		2	1	1	2	U		2	1	1

Notes:

U = not detected at the reporting limit

NM = not measured

ATTACHMENT E

Laboratory Analytical Summary Report

Mountain States ACCUTEST LABORATORIES

Reissue #1
03/20/14

Technical Report for

WPX Energy Rocky Mountain, LLC

WWLCOGJ: GM 32-4 BWQ

Accutest Job Number: D55475

Sampling Date: 02/27/14

Report to:

Western Water and Land, Inc.
743 Horizon Court Suite 330
Grand Junction, CO 80506
bsmith@westernwaterandland.com; jpahler@westernwaterandland.com

ATTN: Bruce Smith

Total number of pages in report: **47**

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)

Accutest Laboratories
4036 Youngfield Street
Wheat Ridge, Co 80033
Phone: 303-425-6021
Fax: 303-425-6854

March 20, 2014

Bruce Smith
Western Water and Land Inc.
743 Horizon Court Suite 330
Grand Junction, CO 80506

Subject: Report Reissue for Accutest Job: D55475

Dear Mr. Smith:

Per the request from your office, Accutest Laboratories has corrected the sample ID per the Chain of Custody. The report has been reissued with this correction.

Any questions or concerns should be directed to the undersigned at 303-425-6021.

Sincerely,

Scott Heideman
Laboratory Director

Sections: 1 2 3 4 5 6 7 8 9 10

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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D55475

WWLCOGJ: GM 32-4 BWQ

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D55475-1	02/27/14	10:30	SLK	02/28/14	AQ	Surface Water	RILEY GULCH DWN1
D55475-1F	02/27/14	10:30	SLK	02/28/14	AQ	Surface H2O Filtered	RILEY GULCH DWN1
D55475-2	02/27/14	00:00	SLK	02/28/14	AQ	Trip Blank Water	TRIP BLANK

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	WPX Energy Rocky Mountain, LLC	**Job No**	D55475
Site:	WWLCOGJ: GM 32-4 BWQ	**Report Date**	3/20/2014 12:40:34 PM

On 02/28/2014, 1 sample(s), 1 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.9 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D55475 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:** V3V1708

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55364-8MS, D55409-10DUP were used as the QC samples indicated.
- D55409-10DUP: 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:** GFB477

- All samples were analyzed within the recommended method holding time.
- Sample(s) D55486-1MS, D55486-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D55475-1: The pH of the sample was >2 at time of analysis.

Extractables by GC By Method SW846-8015B

Matrix AQ **Batch ID:** OP9493

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55207-36MS, D55207-36MSD were used as the QC samples indicated.

Metals By Method EPA 200.7

Matrix AQ **Batch ID:** MP12410

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55486-1FMS, D55486-1FMSD were used as the QC samples for the metals analysis.

Metals By Method EPA 200.8

Matrix AQ **Batch ID:** MP12423

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55500-1MS, D55500-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix AQ **Batch ID:** GP12055

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55453-1MS, D55453-1MSD were used as the QC samples for the Bromide, Chloride, Fluoride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Bromide analysis.
- D55475-1 for Fluoride, Bromide: Elevated detection limit due to matrix interference.
- D55475-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Wet Chemistry By Method HACH IRB-BART

Matrix AQ **Batch ID:** MB329

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55419-1BDUP were used as the QC samples for the Iron Reducing Bacteria analysis.

Wet Chemistry By Method HACH SLYM-BART

Matrix AQ **Batch ID:** MB330

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55419-1BDUP were used as the QC samples for the Slime Forming Bacteria analysis.

Wet Chemistry By Method HACH SRB-BART

Matrix AQ **Batch ID:** MB331

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55419-1BDUP were used as the QC samples for the Sulfate Reducing Bacteria analysis.

Wet Chemistry By Method HACH8190/SM4500P-B/E

Matrix AQ **Batch ID:** GP12064

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55336-2DUP, D55336-2MS, D55336-2MSD were used as the QC samples for the Phosphorus, Total analysis.

Wet Chemistry By Method SM 2320B-2011

Matrix AQ **Batch ID:** GN23826

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55484-1DUP, D55485-1MS, D55485-1MSD were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

Matrix AQ **Batch ID:** GN23838

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

Matrix AQ **Batch ID:** GN23839

- 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:	GP12072

- Sample(s) D55479-1DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM 2540C-2011

Matrix	AQ	Batch ID:	GN23843

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55400-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

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: D55475
Account: WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ
Collected: 02/27/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D55475-1	**RILEY GULCH DWN1**					
Alkalinity, Bicarbonate as CaCO3		395	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		395	5.0		mg/l	SM 2320B-2011
Chloride		39.6	2.5		mg/l	EPA 300.0/SW846 9056
Iron Reducing Bacteria		74500	25		CFU/ml	HACH IRB-BART
Nitrogen, Nitrate		0.097	0.050		mg/l	EPA 300.0/SW846 9056
Phosphorus, Total		0.20	0.050		mg/l	HACH8190/SM4500P-B/E
Slime Forming Bacteria		66500	500		CFU/ml	HACH SLYM-BART
Solids, Total Dissolved		1710	10		mg/l	SM 2540C-2011
Specific Conductivity		2130	1.0		umhos/cm	SM 2510B-2011
Sulfate		901	25		mg/l	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria		359000	200		CFU/ml	HACH SRB-BART
pH		8.41			su	SM4500HB+-2011/9040C
D55475-1F	**RILEY GULCH DWN1**					
Barium		39.3	10		ug/l	EPA 200.7
Boron		183	50		ug/l	EPA 200.7
Calcium		123000	400		ug/l	EPA 200.7
Iron		33.4	10		ug/l	EPA 200.7
Magnesium		111000	200		ug/l	EPA 200.7
Manganese		45.1	5.0		ug/l	EPA 200.7
Potassium		4680	1000		ug/l	EPA 200.7
Selenium		7.1	0.80		ug/l	EPA 200.8
Sodium		269000	400		ug/l	EPA 200.7
Strontium		2140	5.0		ug/l	EPA 200.7
D55475-2	**TRIP BLANK**					

No hits reported in this sample.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	RILEY GULCH DWN1		
Lab Sample ID:	D55475-1	**Date Sampled:**	02/27/14
Matrix:	AQ - Surface Water	**Date Received:**	02/28/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	WWLCOGJ: GM 32-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V29166.D	1	02/28/14	BR	n/a	n/a	V3V1708
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	101%		62-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	93%		69-130%

ND = Not detected MDL = Method Detection Limit
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:	RILEY GULCH DWN1		
Lab Sample ID:	D55475-1	**Date Sampled:**	02/27/14
Matrix:	AQ - Surface Water	**Date Received:**	02/28/14
Method:	RSK175 MOD	**Percent Solids:**	n/a
Project:	WWLCOGJ: GM 32-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FB10587.D	1	03/03/14	JJ	n/a	n/a	GFB477
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	39.0 ml	4.0 ml	500 ul	20.0 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: RILEY GULCH DWN1
Lab Sample ID: D55475-1
Matrix: AQ - Surface Water
Method: SW846-8015B SW846 3510C
Project: WWLCOGJ: GM 32-4 BWQ

Date Sampled: 02/27/14
Date Received: 02/28/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI10504.D	1	03/05/14	JS	03/03/14	OP9493	GFI689
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	64%		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: RILEY GULCH DWN1
Lab Sample ID: D55475-1
Matrix: AQ - Surface Water
Project: WWLCOGJ: GM 32-4 BWQ

Date Sampled: 02/27/14
Date Received: 02/28/14
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	395	5.0	mg/l	1	03/03/14	JD	SM 2320B-2011
Alkalinity, Carbonate	<5.0	5.0	mg/l	1	03/04/14	JD	SM 2320B-2011
Alkalinity, Total as CaCO3	395	5.0	mg/l	1	03/03/14	JD	SM 2320B-2011
Bromide [a]	<0.25	0.25	mg/l	5	02/28/14 14:09	SK	EPA 300.0/SW846 9056
Chloride	39.6	2.5	mg/l	5	02/28/14 14:09	SK	EPA 300.0/SW846 9056
Fluoride [a]	<0.50	0.50	mg/l	5	02/28/14 14:09	SK	EPA 300.0/SW846 9056
Iron Reducing Bacteria	74500	25	CFU/ml	1	03/03/14 11:30	AK	HACH IRB-BART
Nitrogen, Nitrate	0.097	0.050	mg/l	5	02/28/14 14:09	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	<0.020	0.020	mg/l	5	02/28/14 14:09	SK	EPA 300.0/SW846 9056
Phosphorus, Total	0.20	0.050	mg/l	5	03/03/14	BF	HACH8190/SM4500P-B/E
Slime Forming Bacteria	66500	500	CFU/ml	1	03/03/14 11:30	AK	HACH SLYM-BART
Solids, Total Dissolved	1710	10	mg/l	1	03/04/14	AK	SM 2540C-2011
Specific Conductivity	2130	1.0	umhos/cm	1	03/04/14	JD	SM 2510B-2011
Sulfate	901	25	mg/l	50	02/28/14 18:24	SK	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	359000	200	CFU/ml	1	03/03/14 11:30	BF	HACH SRB-BART
pH	8.41		su	1	02/28/14 15:30	RW	SM4500HB+-2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: RILEY GULCH DWN1
Lab Sample ID: D55475-1F
Matrix: AQ - Surface H2O Filtered
Project: WWLCOGJ: GM 32-4 BWQ

Date Sampled: 02/27/14
Date Received: 02/28/14
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	39.3	10	ug/l	1	03/03/14	03/03/14	KV	EPA 200.7 [1]	EPA 200.7 [5]
Boron	183	50	ug/l	1	03/03/14	03/03/14	KV	EPA 200.7 [1]	EPA 200.7 [5]
Calcium	123000	400	ug/l	1	03/03/14	03/03/14	KV	EPA 200.7 [1]	EPA 200.7 [5]
Iron	33.4	10	ug/l	1	03/07/14	03/07/14	KV	EPA 200.7 [4]	EPA 200.7 [5]
Magnesium	111000	200	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [2]	EPA 200.7 [5]
Manganese	45.1	5.0	ug/l	1	03/03/14	03/03/14	KV	EPA 200.7 [1]	EPA 200.7 [5]
Potassium	4680	1000	ug/l	1	03/03/14	03/03/14	KV	EPA 200.7 [1]	EPA 200.7 [5]
Selenium	7.1	0.80	ug/l	2	03/04/14	03/04/14	JB	EPA 200.8 [3]	EPA 200.8 [6]
Sodium	269000	400	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [2]	EPA 200.7 [5]
Strontium	2140	5.0	ug/l	1	03/03/14	03/03/14	KV	EPA 200.7 [1]	EPA 200.7 [5]

(1) Instrument QC Batch: MA4511
(2) Instrument QC Batch: MA4515
(3) Instrument QC Batch: MA4518
(4) Instrument QC Batch: MA4529
(5) Prep QC Batch: MP12410
(6) Prep QC Batch: MP12423

RL = Reporting Limit

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	D55475-2	**Date Sampled:**	02/27/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	02/28/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	WWLCOGJ: GM 32-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V29167.D	1	02/28/14	BR	n/a	n/a	V3V1708
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	102%		62-130%
2037-26-5	Toluene-D8	102%		70-130%
460-00-4	4-Bromofluorobenzene	90%		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 #: SM 5-2013-245 | Accutest Job #: D55475

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

Project Information

Project Name: GM 32-4 PWD
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: Branden 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 ND HLL	V8260BTX	B8015DRO	BART	**Isotopic Methane	V8240 GLD	LAB USE ONLY
	Riley Gulch DWN 1		2-27-14	0800	SLK	SW	18	6	0	0	1	11	0	0	0	1	1	1	1	1	3	3	2	1	1	3	01
	TB1, TB2																										02 TB
	Temperature blank																										

Riley Gulch DWN 1 — Field Parameters: pH(s.u.): 7.98 Temp(°C): 010 Sp.Cond(uS/cm): 2359 DO(%): 92.5 DO(mg/L): 13.33 ORP(mv): 229.9 TURB(NTU): 181.03 (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 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:	Received By:	Relinquished By:	Date Time:	Received By:
1 Shelby Kipp 2-27-14 1200	1 Rifle Service Center	2		2 Jacob Porter 1257 3/28/14
3	3	4		4
5	5	Custody Seal # HD/16 Intact / Not intact	Preserved where applicable	On Ice Cooler Temp. 2.9

D55475: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D55475 **Client:** WESTERN WATER ANDLAND INC **Immediate Client Services Action Required:** No

Date / Time Received: 2/28/2014 12:57:00 PM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: GM 32-4 BWQ **Airbill #'s:** HD/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
V:(303) 425-6021
4036 Youngfield Street
F: (303) 425-6854
Wheat Ridge, CO
www/accutest.com

D55475: 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: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1708-MB	3V29149.D	1	02/28/14	BR	n/a	n/a	V3V1708

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

D55475-1, D55475-2

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	99%	62-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	92%	69-130%

Blank Spike Summary

Job Number: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1708-BS	3V29150.D	1	02/28/14	BR	n/a	n/a	V3V1708

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

D55475-1, D55475-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	47.9	96	70-130
100-41-4	Ethylbenzene	50	50.8	102	70-130
108-88-3	Toluene	50	49.7	99	70-130
1330-20-7	Xylene (total)	150	155	103	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	100%	62-130%
2037-26-5	Toluene-D8	102%	70-130%
460-00-4	4-Bromofluorobenzene	94%	69-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1708-BS	3V29151.D	1	02/28/14	BR	n/a	n/a	V3V1708

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

D55475-1, D55475-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	2200	1760	80	39-144

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	94%	62-130%
2037-26-5	Toluene-D8	102%	70-130%
460-00-4	4-Bromofluorobenzene	93%	69-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55364-8MS	3V29164.D	50	02/28/14	BR	n/a	n/a	V3V1708
D55364-8	3V29163.D	50	02/28/14	BR	n/a	n/a	V3V1708

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

D55475-1, D55475-2

CAS No.	Compound	D55364-8 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
71-43-2	Benzene	ND		2500	2260	90	62-130
100-41-4	Ethylbenzene	ND		2500	2420	97	63-130
108-88-3	Toluene	ND		2500	2350	94	60-130
1330-20-7	Xylene (total)	ND		7500	7350	98	67-130

CAS No.	Surrogate Recoveries	MS	D55364-8	Limits
17060-07-0	1,2-Dichloroethane-D4	100%	103%	62-130%
2037-26-5	Toluene-D8	102%	102%	70-130%
460-00-4	4-Bromofluorobenzene	93%	91%	69-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55364-8MS	3V29165.D	50	02/28/14	BR	n/a	n/a	V3V1708
D55364-8	3V29163.D	50	02/28/14	BR	n/a	n/a	V3V1708

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

D55475-1, D55475-2

CAS No.	Compound	D55364-8 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
	TPH-GRO (C6-C10)	30000		110000	113000	75	19-168

CAS No.	Surrogate Recoveries	MS	D55364-8	Limits
17060-07-0	1,2-Dichloroethane-D4	96%	103%	62-130%
2037-26-5	Toluene-D8	104%	102%	70-130%
460-00-4	4-Bromofluorobenzene	94%	91%	69-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55409-10DUP [a]	3V29160.D	1	02/28/14	BR	n/a	n/a	V3V1708
D55409-10 [a]	3V29159.D	1	02/28/14	BR	n/a	n/a	V3V1708

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

D55475-1, D55475-2

CAS No.	Compound	D55409-10 ug/l	Q	DUP ug/l	Q	RPD	Limits
71-43-2	Benzene	12.2		11.5		6	30
100-41-4	Ethylbenzene	102		101		1	30
108-88-3	Toluene	ND		ND		nc	30
1330-20-7	Xylene (total)	12.0		10.9		10	30
	TPH-GRO (C6-C10)	3010		2810		7	30

CAS No.	Surrogate Recoveries	DUP	D55409-10	Limits
17060-07-0	1,2-Dichloroethane-D4	96%	99%	62-130%
2037-26-5	Toluene-D8	105%	105%	70-130%
460-00-4	4-Bromofluorobenzene	95%	94%	69-130%

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

* = 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: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB477-MB	FB10582.D	1	03/03/14	JJ	n/a	n/a	GFB477

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

D55475-1

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: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB477-BS	FB10583.D	10	03/03/14	JJ	n/a	n/a	GFB477

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

D55475-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
74-82-8	Methane	0.51	0.582	114	70-130
74-84-0	Ethane	0.956	1.12	117	70-130
74-98-6	Propane	1.4	1.68	120	67-130

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55486-1MS	FB10585.D	10	03/03/14	JJ	n/a	n/a	GFB477
D55486-1MSD	FB10586.D	10	03/03/14	JJ	n/a	n/a	GFB477
D55486-1	FB10584.D	1	03/03/14	JJ	n/a	n/a	GFB477

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

D55475-1

CAS No.	Compound	D55486-1 mg/l	Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
74-82-8	Methane	0.0115		0.51	0.541	104	0.556	107	3	51-155/30
74-84-0	Ethane	ND		0.956	1.01	106	1.04	109	3	58-130/30
74-98-6	Propane	ND		1.4	1.49	106	1.54	110	3	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: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9493-MB	FI10476.D	1	03/04/14	JS	03/03/14	OP9493	GFI689

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

D55475-1

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	46%	10-130%

Blank Spike Summary

Job Number: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9493-BSP	FI10478.D	1	03/04/14	JS	03/03/14	OP9493	GFI689

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

D55475-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	2.25	45	33-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	50%	10-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55475
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9493-MS	FI10480.D	1	03/04/14	JS	03/03/14	OP9493	GFI689
OP9493-MSD	FI10482.D	1	03/04/14	JS	03/03/14	OP9493	GFI689
D55207-36	FI10484.D	1	03/04/14	JS	03/03/14	OP9493	GFI689

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

D55475-1

CAS No.	Compound	D55207-36 mg/l	Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		5	1.78	36	1.75	35	2	33-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D55207-36	Limits
84-15-1	o-Terphenyl	45%	42%	40%	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: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12410
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

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	2.4	<10
Beryllium	10	.9	1.7		
Boron	50	.8	6.6	0.80	<50
Cadmium	10	.2	.36		
Calcium	400	2.4	66	20.0	<400
Chromium	10	.3	1.4		
Cobalt	5.0	.5	.51		
Copper	10	.8	1.5		
Lead	50	2.1	4.1		
Lithium	5.0	.4	1.9		
Magnesium	200	6.8	29	5.8	<200
Manganese	5.0	.5	.29	0.40	<5.0
Molybdenum	10	.4	1.1		
Nickel	30	.5	.87		
Phosphorus	100	15	24		
Potassium	1000	99	230	156	<1000
Selenium	50	7.1	9.3		
Silicon	50	4.7	5.6		
Silver	30	.3	.4		
Sodium	400	7.3	36	150	<400
Strontium	5.0	.01	.12	0.50	<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 MP12410: D55475-1F

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: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12410
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

Metal	D55486-1F Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	26.5	2140	2000	105.6	70-130
Beryllium					
Boron	272	1400	1000	112.8	70-130
Cadmium					
Calcium	64200	90400	25000	96.4	70-130
Chromium	anr				
Cobalt					
Copper					
Lead					
Lithium					
Magnesium	18300	43100	25000	99.2	70-130
Manganese	139	664	500	104.4	70-130
Molybdenum					
Nickel					
Phosphorus					
Potassium	3720	30000	25000	105.2	70-130
Selenium					
Silicon					
Silver					
Sodium	112000	136000	25000	96.0	70-130
Strontium	777	1310	500	106.6	70-130
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP12410: D55475-1F

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: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12410
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

Metal	D55486-1F Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	26.5	2140	2000	105.6	0.0	20
Beryllium						
Boron	272	1390	1000	111.8	0.7	20
Cadmium						
Calcium	64200	90600	25000	97.2	0.2	20
Chromium	anr					
Cobalt						
Copper						
Lead						
Lithium						
Magnesium	18300	43100	25000	99.2	0.0	20
Manganese	139	661	500	103.8	0.5	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	3720	29900	25000	104.8	0.3	20
Selenium						
Silicon						
Silver						
Sodium	112000	135000	25000	92.0	0.7	20
Strontium	777	1310	500	106.6	0.0	20
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP12410: D55475-1F

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: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12410
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	2030	2000	101.5	85-115
Beryllium				
Boron	1060	1000	106.0	85-115
Cadmium				
Calcium	24800	25000	99.2	85-115
Chromium	anr			
Cobalt				
Copper				
Lead				
Lithium				
Magnesium	24700	25000	98.8	85-115
Manganese	511	500	102.2	85-115
Molybdenum				
Nickel				
Phosphorus				
Potassium	25700	25000	102.8	85-115
Selenium				
Silicon				
Silver				
Sodium	24400	25000	97.6	85-115
Strontium	523	500	104.6	85-115
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP12410: D55475-1F

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: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12423
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 03/04/14

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	0.054	<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 MP12423: D55475-1F

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: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12423
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 03/04/14

Metal	D55500-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper	anr				
Iron	anr				
Lead					
Magnesium					
Manganese	anr				
Molybdenum	anr				
Nickel					
Phosphorus					
Potassium					
Selenium	5.3	216	200	105.4	70-130
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP12423: D55475-1F

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: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12423 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 03/04/14

Metal	D55500-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper	anr					
Iron	anr					
Lead						
Magnesium						
Manganese	anr					
Molybdenum	anr					
Nickel						
Phosphorus						
Potassium						
Selenium	5.3	221	200	107.9	2.3	20
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP12423: D55475-1F

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: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12423
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 03/04/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper	anr			
Iron	anr			
Lead				
Magnesium				
Manganese	anr			
Molybdenum	anr			
Nickel				
Phosphorus				
Potassium				
Selenium	194	200	97.0	85-115
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP12423: D55475-1F

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: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN23838	5.0	2.2	mg/l	100	96.5	96.5	90-110%
Alkalinity, Carbonate	GN23839	5.0	0.0	mg/l	100	96.5	96.5	80-120%
Alkalinity, Total as CaCO3	GN23826	5.0	2.2	mg/l	100	96.5	96.5	90-110%
Bromide	GP12055/GN23802	0.050	0.0	mg/l	0.5	0.531	106.2	90-110%
Chloride	GP12055/GN23802	0.50	0.0	mg/l	5	5.15	103.0	90-110%
Fluoride	GP12055/GN23802	0.10	0.0	mg/l	1	1.07	107.0	90-110%
Iron Reducing Bacteria	MB329	25	<25	CFU/ml				
Nitrogen, Nitrate	GP12055/GN23802	0.010	0.0	mg/l	0.1	0.102	102.0	90-110%
Nitrogen, Nitrite	GP12055/GN23802	0.0040	0.0	mg/l	0.05	0.0509	101.8	90-110%
Phosphorus, Total	GP12064/GN23831	0.010	0.0	mg/l	0.38	0.38	99.1	80-120%
Slime Forming Bacteria	MB330	500	<500	CFU/ml				
Solids, Total Dissolved	GN23843	10	0.0	mg/l	400	401	100.3	90-110%
Specific Conductivity	GP12072/GN23852			umhos/cm	98.6	98.6	99.1	90-110%
Sulfate	GP12055/GN23802	0.50	0.0	mg/l	5	5.23	104.6	90-110%
Sulfate Reducing Bacteria	MB331	200	<200	CFU/ml				
pH	GN23816			su	8.00	7.98	99.8	99.3-100.7%

Associated Samples:
Batch MB329: D55475-1
Batch MB330: D55475-1
Batch MB331: D55475-1
Batch GN23816: D55475-1
Batch GN23826: D55475-1
Batch GN23838: D55475-1
Batch GN23839: D55475-1
Batch GN23843: D55475-1
Batch GP12055: D55475-1
Batch GP12064: D55475-1
Batch GP12072: D55475-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN23826	D55484-1	mg/l	215	226	5.0	0-20%
Iron Reducing Bacteria	MB329	D55419-1B	CFU/ml	9000	9000	0.0	0-%
Phosphorus, Total	GP12064/GN23831	D55336-2	mg/l	0.019	0.021	10.0	0-20%
Slime Forming Bacteria	MB330	D55419-1B	CFU/ml	66500	66500	0.0	0-%
Solids, Total Dissolved	GN23843	D55400-1	mg/l	508	540	6.1	0-20%
Specific Conductivity	GP12072/GN23852	D55479-1	umhos/cm	2060	2080	1.0	0-20%
Sulfate Reducing Bacteria	MB331	D55419-1B	CFU/ml	359000	359000	0.0	0-%

Associated Samples:
Batch MB329: D55475-1
Batch MB330: D55475-1
Batch MB331: D55475-1
Batch GN23826: D55475-1
Batch GN23843: D55475-1
Batch GP12064: D55475-1
Batch GP12072: D55475-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN23826	D55485-1	mg/l	243	100	362	119.0	80-120%
Bromide	GP12055/GN23802	D55453-1	mg/l	0.0	1	1.0	100.0	80-120%
Chloride	GP12055/GN23802	D55453-1	mg/l	15.2	10	25.5	103.0	80-120%
Fluoride	GP12055/GN23802	D55453-1	mg/l	0.85	2	2.8	97.5	80-120%
Nitrogen, Nitrate	GP12055/GN23802	D55453-1	mg/l	0.094	0.2	0.30	103.0	80-120%
Nitrogen, Nitrite	GP12055/GN23802	D55453-1	mg/l	0.0	0.1	0.084	84.0	80-120%
Phosphorus, Total	GP12064/GN23831	D55336-2	mg/l	0.019	0.40	0.41	97.8	80-120%
Sulfate	GP12055/GN23802	D55453-1	mg/l	30.3	10	40.3	100.0	80-120%

Associated Samples:
Batch GN23826: D55475-1
Batch GP12055: D55475-1
Batch GP12064: D55475-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55475
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN23826	D55485-1	mg/l	243	100	336	7.3	20%
Bromide	GP12055/GN23802	D55453-1	mg/l	0.0	1	1.0	0.0	20%
Chloride	GP12055/GN23802	D55453-1	mg/l	15.2	10	25.4	0.4	20%
Fluoride	GP12055/GN23802	D55453-1	mg/l	0.85	2	2.8	0.0	20%
Nitrogen, Nitrate	GP12055/GN23802	D55453-1	mg/l	0.094	0.2	0.29	3.4	20%
Nitrogen, Nitrite	GP12055/GN23802	D55453-1	mg/l	0.0	0.1	0.085	1.2	20%
Phosphorus, Total	GP12064/GN23831	D55336-2	mg/l	0.019	0.40	0.420	-2.4	20%
Sulfate	GP12055/GN23802	D55453-1	mg/l	30.3	10	40.2	0.2	20%

Associated Samples:
Batch GN23826: D55475-1
Batch GP12055: D55475-1
Batch GP12064: D55475-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

Mountain States ACCUTEST LABORATORIES

03/12/14

Technical Report for

WPX Energy Rocky Mountain, LLC

WWLCOGJ: GM 32-4 BWQ

Accutest Job Number: D55476

Sampling Date: 02/27/14

Report to:

Western Water and Land, Inc.
743 Horizon Court Suite 330
Grand Junction, CO 80506
bsmith@westernwaterandland.com; jpahler@westernwaterandland.com

ATTN: Bruce Smith

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)

Sections: 1 2 3 4 5 6 7 8 9 10

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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D55476

WWLCOGJ: GM 32-4 BWQ

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D55476-1	02/27/14	10:30	NWS	02/28/14	AQ	Surface Water	RILEY GULCH UP1
D55476-1F	02/27/14	10:30	NWS	02/28/14	AQ	Surface H2O Filtered	RILEY GULCH UP1
D55476-2	02/27/14	00:00	NWS	02/28/14	AQ	Trip Blank Water	TRIP BLANK

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	WPX Energy Rocky Mountain, LLC	**Job No**	D55476
Site:	WWLCOGJ: GM 32-4 BWQ	**Report Date**	3/12/2014 9:23:32 AM

On 02/28/2014, 1 sample(s), 1 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.9 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D55476 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:** V3V1708

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55364-8MS, D55409-10DUP were used as the QC samples indicated.
- D55409-10DUP: 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:** GFB477

- All samples were analyzed within the recommended method holding time.
- Sample(s) D55486-1MS, D55486-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D55476-1: The pH of the sample was >2 at time of analysis.

Extractables by GC By Method SW846-8015B

Matrix AQ **Batch ID:** OP9493

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) D55207-36MS, D55207-36MSD 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:** MP12411

- 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) D55477-1MS, D55477-1MSD were used as the QC samples for the metals analysis.

Metals By Method EPA 200.8

Matrix	AQ	Batch ID:	MP12423

- 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) D55500-1MS, D55500-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix	AQ	Batch ID:	GP12055

- 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) D55453-1MS, D55453-1MSD were used as the QC samples for the Bromide, Chloride, Fluoride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Bromide analysis.
- D55476-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.
- D55476-1 for Fluoride: Elevated detection limit due to matrix interference.
- D55476-1 for Bromide: Elevated detection limit due to matrix interference.

Wet Chemistry By Method HACH IRB-BART

Matrix	AQ	Batch ID:	MB329

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55419-1BDUP were used as the QC samples for the Iron Reducing Bacteria analysis.

Wet Chemistry By Method HACH SLYM-BART

Matrix	AQ	Batch ID:	MB330

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55419-1BDUP were used as the QC samples for the Slime Forming Bacteria analysis.

Wet Chemistry By Method HACH SRB-BART

Matrix	AQ	Batch ID:	MB331

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55419-1BDUP were used as the QC samples for the Sulfate Reducing Bacteria analysis.

Wet Chemistry By Method HACH8190/SM4500P-B/E

Matrix	AQ	Batch ID:	GP12064

- 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) D55336-2DUP, D55336-2MS, D55336-2MSD were used as the QC samples for the Phosphorus, Total analysis.

Wet Chemistry By Method SM 2320B-2011

Matrix	AQ	Batch ID:	GN23826

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55484-1DUP, D55485-1MS, D55485-1MSD were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

Matrix	AQ	Batch ID:	GN23838

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

Matrix	AQ	Batch ID:	GN23839

- 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:	GP12072

- Sample(s) D55479-1DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM 2540C-2011

Matrix	AQ	Batch ID:	GN23843

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55400-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

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: D55476
Account: WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ
Collected: 02/27/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D55476-1	**RILEY GULCH UP1**					
Alkalinity, Bicarbonate as CaCO3		396	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		396	5.0		mg/l	SM 2320B-2011
Chloride		40.1	2.5		mg/l	EPA 300.0/SW846 9056
Iron Reducing Bacteria		74500	25		CFU/ml	HACH IRB-BART
Nitrogen, Nitrate		0.097	0.050		mg/l	EPA 300.0/SW846 9056
Phosphorus, Total		0.070	0.050		mg/l	HACH8190/SM4500P-B/E
Slime Forming Bacteria		66500	500		CFU/ml	HACH SLYM-BART
Solids, Total Dissolved		1750	10		mg/l	SM 2540C-2011
Specific Conductivity		2120	1.0		umhos/cm	SM 2510B-2011
Sulfate		916	25		mg/l	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria		359000	200		CFU/ml	HACH SRB-BART
pH		8.38			su	SM4500HB+-2011/9040C
D55476-1F	**RILEY GULCH UP1**					
Barium		45.8	10		ug/l	EPA 200.7
Boron		179	50		ug/l	EPA 200.7
Calcium		127000	400		ug/l	EPA 200.7
Iron		19.2	10		ug/l	EPA 200.7
Magnesium		113000	200		ug/l	EPA 200.7
Manganese		69.7	5.0		ug/l	EPA 200.7
Potassium		4750	1000		ug/l	EPA 200.7
Selenium		6.3	0.80		ug/l	EPA 200.8
Sodium		272000	400		ug/l	EPA 200.7
Strontium		2170	5.0		ug/l	EPA 200.7
D55476-2	**TRIP BLANK**					

No hits reported in this sample.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	RILEY GULCH UP1		
Lab Sample ID:	D55476-1	**Date Sampled:**	02/27/14
Matrix:	AQ - Surface Water	**Date Received:**	02/28/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	WWLCOGJ: GM 32-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V29168.D	1	02/28/14	BR	n/a	n/a	V3V1708
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	102%		62-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	90%		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:	RILEY GULCH UP1		
Lab Sample ID:	D55476-1	**Date Sampled:**	02/27/14
Matrix:	AQ - Surface Water	**Date Received:**	02/28/14
Method:	RSK175 MOD	**Percent Solids:**	n/a
Project:	WWLCOGJ: GM 32-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FB10588.D	1	03/03/14	JJ	n/a	n/a	GFB477
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	39.0 ml	4.0 ml	500 ul	20.0 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: RILEY GULCH UP1
Lab Sample ID: D55476-1
Matrix: AQ - Surface Water
Method: SW846-8015B SW846 3510C
Project: WWLCOGJ: GM 32-4 BWQ

Date Sampled: 02/27/14
Date Received: 02/28/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI10506.D	1	03/05/14	JS	03/03/14	OP9493	GFI689
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	71%		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: RILEY GULCH UP1
Lab Sample ID: D55476-1
Matrix: AQ - Surface Water
Project: WWLCOGJ: GM 32-4 BWQ

Date Sampled: 02/27/14
Date Received: 02/28/14
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	396	5.0	mg/l	1	03/03/14	JD	SM 2320B-2011
Alkalinity, Carbonate	<5.0	5.0	mg/l	1	03/04/14	JD	SM 2320B-2011
Alkalinity, Total as CaCO3	396	5.0	mg/l	1	03/03/14	JD	SM 2320B-2011
Bromide [a]	<0.25	0.25	mg/l	5	02/28/14 14:21	SK	EPA 300.0/SW846 9056
Chloride	40.1	2.5	mg/l	5	02/28/14 14:21	SK	EPA 300.0/SW846 9056
Fluoride [a]	<0.50	0.50	mg/l	5	02/28/14 14:21	SK	EPA 300.0/SW846 9056
Iron Reducing Bacteria	74500	25	CFU/ml	1	03/03/14 11:30	AK	HACH IRB-BART
Nitrogen, Nitrate	0.097	0.050	mg/l	5	02/28/14 14:21	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	<0.020	0.020	mg/l	5	02/28/14 14:21	SK	EPA 300.0/SW846 9056
Phosphorus, Total	0.070	0.050	mg/l	5	03/03/14	BF	HACH8190/SM4500P-B/E
Slime Forming Bacteria	66500	500	CFU/ml	1	03/03/14 11:30	AK	HACH SLYM-BART
Solids, Total Dissolved	1750	10	mg/l	1	03/04/14	AK	SM 2540C-2011
Specific Conductivity	2120	1.0	umhos/cm	1	03/04/14	JD	SM 2510B-2011
Sulfate	916	25	mg/l	50	02/28/14 18:36	SK	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	359000	200	CFU/ml	1	03/03/14 11:30	BF	HACH SRB-BART
pH	8.38		su	1	02/28/14 15:30	RW	SM4500HB+-2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: RILEY GULCH UP1
Lab Sample ID: D55476-1F
Matrix: AQ - Surface H2O Filtered
Project: WWLCOGJ: GM 32-4 BWQ

Date Sampled: 02/27/14
Date Received: 02/28/14
Percent Solids: n/a

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	45.8	10	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [1]	EPA 200.7 [4]
Boron	179	50	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [1]	EPA 200.7 [4]
Calcium	127000	400	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [1]	EPA 200.7 [4]
Iron	19.2	10	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [1]	EPA 200.7 [4]
Magnesium	113000	200	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [2]	EPA 200.7 [4]
Manganese	69.7	5.0	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [1]	EPA 200.7 [4]
Potassium	4750	1000	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [1]	EPA 200.7 [4]
Selenium	6.3	0.80	ug/l	2	03/04/14	03/04/14	JB	EPA 200.8 [3]	EPA 200.8 [5]
Sodium	272000	400	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [2]	EPA 200.7 [4]
Strontium	2170	5.0	ug/l	1	03/03/14	03/04/14	KV	EPA 200.7 [1]	EPA 200.7 [4]

(1) Instrument QC Batch: MA4511
(2) Instrument QC Batch: MA4515
(3) Instrument QC Batch: MA4518
(4) Prep QC Batch: MP12411
(5) Prep QC Batch: MP12423

RL = Reporting Limit

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	D55476-2	**Date Sampled:**	02/27/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	02/28/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	WWLCOGJ: GM 32-4 BWQ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V29169.D	1	02/28/14	BR	n/a	n/a	V3V1708
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	101%		62-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	88%		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

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE 1 OF 1

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 #: D55476

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 Solawetz

Project Information

Project Name: GM 32-4
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)

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	Time	Sampled by	Matrix	# of 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 ND Hill	V8260BTX	B8015DRO	BART	**Isotopic Methane	V8260 GRO	LAB USE ONLY
	Riley Gulch UP1		2-27-14	1030	NWS	SW	18	6	0	0	1	11	0	0	0	1	1	1	1	6	3	3	2	1	1	3	01
	TB1, TB2																										02 TB
	temperature blank																										2/28/14
																											DD
	Riley Gulch UP1		Field Parameters: pH(s.u.): 8.41	Temp(°C): 3.65	Sp.Cond(uS/cm): 2408	DO(%): 86.9	DO(mg/L): 11.39	ORP(mv): 266.5	TURB(NTU): 110.1 (averaged)																	2/28/14
			Field Parameters: pH(s.u.):	Temp(°C):	Sp.Cond(uS/cm):	DO(%):	DO(mg/L):	ORP(mv):	TURB(NTU):																	

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	2-27-14 1200	Received By: 1 Service Center	Relinquished By: 2	Date Time:	Received By: 2 Jacob Park	2/28/14 1257
Relinquished by Sampler: 3		Received By: 3	Relinquished By: 4	Date Time:	Received By: 4	
Relinquished by: 5		Received By: 5	Custody Seal # +ID/CC	Intact / Not Intact	Preserved where applicable	On Ice	Cooler Temp. 2.9

D55476: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D55476 **Client:** WESTERN WATER AND LAND INC **Immediate Client Services Action Required:** No

Date / Time Received: 2/28/2014 12:57:00 PM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: GM 32-4 **Airbill #'s:** HD/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
V:(303) 425-6021
4036 Youngfield Street
F: (303) 425-6854
Wheat Ridge, CO
www/accutest.com

5.1

5

D55476: 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: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1708-MB	3V29149.D	1	02/28/14	BR	n/a	n/a	V3V1708

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

D55476-1, D55476-2

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	99%	62-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	92%	69-130%

Blank Spike Summary

Job Number: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1708-BS	3V29150.D	1	02/28/14	BR	n/a	n/a	V3V1708

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

D55476-1, D55476-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	47.9	96	70-130
100-41-4	Ethylbenzene	50	50.8	102	70-130
108-88-3	Toluene	50	49.7	99	70-130
1330-20-7	Xylene (total)	150	155	103	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	100%	62-130%
2037-26-5	Toluene-D8	102%	70-130%
460-00-4	4-Bromofluorobenzene	94%	69-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1708-BS	3V29151.D	1	02/28/14	BR	n/a	n/a	V3V1708

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

D55476-1, D55476-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	2200	1760	80	39-144

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	94%	62-130%
2037-26-5	Toluene-D8	102%	70-130%
460-00-4	4-Bromofluorobenzene	93%	69-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55364-8MS	3V29164.D	50	02/28/14	BR	n/a	n/a	V3V1708
D55364-8	3V29163.D	50	02/28/14	BR	n/a	n/a	V3V1708

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

D55476-1, D55476-2

CAS No.	Compound	D55364-8 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
71-43-2	Benzene	ND		2500	2260	90	62-130
100-41-4	Ethylbenzene	ND		2500	2420	97	63-130
108-88-3	Toluene	ND		2500	2350	94	60-130
1330-20-7	Xylene (total)	ND		7500	7350	98	67-130

CAS No.	Surrogate Recoveries	MS	D55364-8	Limits
17060-07-0	1,2-Dichloroethane-D4	100%	103%	62-130%
2037-26-5	Toluene-D8	102%	102%	70-130%
460-00-4	4-Bromofluorobenzene	93%	91%	69-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55364-8MS	3V29165.D	50	02/28/14	BR	n/a	n/a	V3V1708
D55364-8	3V29163.D	50	02/28/14	BR	n/a	n/a	V3V1708

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

D55476-1, D55476-2

CAS No.	Compound	D55364-8 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
	TPH-GRO (C6-C10)	30000		110000	113000	75	19-168

CAS No.	Surrogate Recoveries	MS	D55364-8	Limits
17060-07-0	1,2-Dichloroethane-D4	96%	103%	62-130%
2037-26-5	Toluene-D8	104%	102%	70-130%
460-00-4	4-Bromofluorobenzene	94%	91%	69-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55409-10DUP [a]	3V29160.D	1	02/28/14	BR	n/a	n/a	V3V1708
D55409-10 [a]	3V29159.D	1	02/28/14	BR	n/a	n/a	V3V1708

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

D55476-1, D55476-2

CAS No.	Compound	D55409-10 ug/l	Q	DUP ug/l	Q	RPD	Limits
71-43-2	Benzene	12.2		11.5		6	30
100-41-4	Ethylbenzene	102		101		1	30
108-88-3	Toluene	ND		ND		nc	30
1330-20-7	Xylene (total)	12.0		10.9		10	30
	TPH-GRO (C6-C10)	3010		2810		7	30

CAS No.	Surrogate Recoveries	DUP	D55409-10	Limits
17060-07-0	1,2-Dichloroethane-D4	96%	99%	62-130%
2037-26-5	Toluene-D8	105%	105%	70-130%
460-00-4	4-Bromofluorobenzene	95%	94%	69-130%

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

* = 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: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB477-MB	FB10582.D	1	03/03/14	JJ	n/a	n/a	GFB477

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

D55476-1

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: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB477-BS	FB10583.D	10	03/03/14	JJ	n/a	n/a	GFB477

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

D55476-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
74-82-8	Methane	0.51	0.582	114	70-130
74-84-0	Ethane	0.956	1.12	117	70-130
74-98-6	Propane	1.4	1.68	120	67-130

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55486-1MS	FB10585.D	10	03/03/14	JJ	n/a	n/a	GFB477
D55486-1MSD	FB10586.D	10	03/03/14	JJ	n/a	n/a	GFB477
D55486-1	FB10584.D	1	03/03/14	JJ	n/a	n/a	GFB477

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

D55476-1

CAS No.	Compound	D55486-1 mg/l	Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
74-82-8	Methane	0.0115		0.51	0.541	104	0.556	107	3	51-155/30
74-84-0	Ethane	ND		0.956	1.01	106	1.04	109	3	58-130/30
74-98-6	Propane	ND		1.4	1.49	106	1.54	110	3	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: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9493-MB	FI10476.D	1	03/04/14	JS	03/03/14	OP9493	GFI689

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

D55476-1

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	46%	10-130%

Blank Spike Summary

Job Number: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9493-BSP	FI10478.D	1	03/04/14	JS	03/03/14	OP9493	GFI689

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

D55476-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	2.25	45	33-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	50%	10-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55476
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9493-MS	FI10480.D	1	03/04/14	JS	03/03/14	OP9493	GFI689
OP9493-MSD	FI10482.D	1	03/04/14	JS	03/03/14	OP9493	GFI689
D55207-36	FI10484.D	1	03/04/14	JS	03/03/14	OP9493	GFI689

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

D55476-1

CAS No.	Compound	D55207-36 mg/l	Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		5	1.78	36	1.75	35	2	33-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D55207-36	Limits
84-15-1	o-Terphenyl	45%	42%	40%	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: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12411
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

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	0.40	<10
Beryllium	10	.9	1.7		
Boron	50	.8	6.6	-0.30	<50
Cadmium	10	.2	.36		
Calcium	400	2.4	66	38.4	<400
Chromium	10	.3	1.4		
Cobalt	5.0	.5	.51		
Copper	10	.8	1.5		
Iron	10	1.5	3.2	0.50	<10
Lead	50	2.1	4.1		
Lithium	5.0	.4	1.9		
Magnesium	200	6.8	29	26.7	<200
Manganese	5.0	.5	.29	0.50	<5.0
Molybdenum	10	.4	1.1		
Nickel	30	.5	.87		
Phosphorus	100	15	24		
Potassium	1000	99	230	31.8	<1000
Selenium	50	7.1	9.3		
Silicon	50	4.7	5.6		
Silver	30	.3	.4		
Sodium	400	7.3	36	172	<400
Strontium	5.0	.01	.12	0.40	<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 MP12411: D55476-1F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12411
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12411
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

Metal	D55477-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic					
Barium	35.3	2130	2000	104.7	70-130
Beryllium					
Boron	3.4	1090	1000	108.9	70-130
Cadmium					
Calcium	13600	38900	25000	101.2	70-130
Chromium					
Cobalt					
Copper					
Iron	499	5600	5000	102.0	70-130
Lead					
Lithium					
Magnesium	4730	30500	25000	103.1	70-130
Manganese	10.9	533	500	104.4	70-130
Molybdenum					
Nickel					
Phosphorus					
Potassium	1340	27400	25000	104.3	70-130
Selenium					
Silicon					
Silver					
Sodium	8850	33800	25000	99.8	70-130
Strontium	79.9	621	500	108.2	70-130
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP12411: D55476-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12411
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

Metal	D55477-1 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: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12411 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 03/03/14

Metal	D55477-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic						
Barium	35.3	2130	2000	104.7	0.0	20
Beryllium						
Boron	3.4	1080	1000	107.9	0.9	20
Cadmium						
Calcium	13600	38700	25000	100.4	0.5	20
Chromium						
Cobalt						
Copper						
Iron	499	5560	5000	101.2	0.7	20
Lead						
Lithium						
Magnesium	4730	30400	25000	102.7	0.3	20
Manganese	10.9	530	500	103.8	0.6	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	1340	27400	25000	104.3	0.0	20
Selenium						
Silicon						
Silver						
Sodium	8850	33700	25000	99.4	0.3	20
Strontium	79.9	620	500	108.0	0.2	20
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP12411: D55476-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12411 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 03/03/14

Metal	D55477-1 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: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12411
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic				
Barium	2070	2000	103.5	85-115
Beryllium				
Boron	1080	1000	108.0	85-115
Cadmium				
Calcium	26000	25000	104.0	85-115
Chromium				
Cobalt				
Copper				
Iron	5110	5000	102.2	85-115
Lead				
Lithium				
Magnesium	25800	25000	103.2	85-115
Manganese	527	500	105.4	85-115
Molybdenum				
Nickel				
Phosphorus				
Potassium	26200	25000	104.8	85-115
Selenium				
Silicon				
Silver				
Sodium	25300	25000	101.2	85-115
Strontium	535	500	107.0	85-115
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP12411: D55476-1F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12411
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 03/03/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12423
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 03/04/14

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	0.054	<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 MP12423: D55476-1F

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: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12423
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 03/04/14

Metal	D55500-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper	anr				
Iron	anr				
Lead					
Magnesium					
Manganese	anr				
Molybdenum	anr				
Nickel					
Phosphorus					
Potassium					
Selenium	5.3	216	200	105.4	70-130
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP12423: D55476-1F

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: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12423 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 03/04/14

Metal	D55500-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper	anr					
Iron	anr					
Lead						
Magnesium						
Manganese	anr					
Molybdenum	anr					
Nickel						
Phosphorus						
Potassium						
Selenium	5.3	221	200	107.9	2.3	20
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP12423: D55476-1F

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: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

QC Batch ID: MP12423
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 03/04/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper	anr			
Iron	anr			
Lead				
Magnesium				
Manganese	anr			
Molybdenum	anr			
Nickel				
Phosphorus				
Potassium				
Selenium	194	200	97.0	85-115
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP12423: D55476-1F

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: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN23838	5.0	2.2	mg/l	100	96.5	96.5	90-110%
Alkalinity, Carbonate	GN23839	5.0	0.0	mg/l	100	96.5	96.5	80-120%
Alkalinity, Total as CaCO3	GN23826	5.0	2.2	mg/l	100	96.5	96.5	90-110%
Bromide	GP12055/GN23802	0.050	0.0	mg/l	0.5	0.531	106.2	90-110%
Chloride	GP12055/GN23802	0.50	0.0	mg/l	5	5.15	103.0	90-110%
Fluoride	GP12055/GN23802	0.10	0.0	mg/l	1	1.07	107.0	90-110%
Iron Reducing Bacteria	MB329	25	<25	CFU/ml				
Nitrogen, Nitrate	GP12055/GN23802	0.010	0.0	mg/l	0.1	0.102	102.0	90-110%
Nitrogen, Nitrite	GP12055/GN23802	0.0040	0.0	mg/l	0.05	0.0509	101.8	90-110%
Phosphorus, Total	GP12064/GN23831	0.010	0.0	mg/l	0.38	0.38	99.1	80-120%
Slime Forming Bacteria	MB330	500	<500	CFU/ml				
Solids, Total Dissolved	GN23843	10	0.0	mg/l	400	401	100.3	90-110%
Specific Conductivity	GP12072/GN23852			umhos/cm	98.6	98.6	99.1	90-110%
Sulfate	GP12055/GN23802	0.50	0.0	mg/l	5	5.23	104.6	90-110%
Sulfate Reducing Bacteria	MB331	200	<200	CFU/ml				
pH	GN23816			su	8.00	7.98	99.8	99.3-100.7%

Associated Samples:
Batch MB329: D55476-1
Batch MB330: D55476-1
Batch MB331: D55476-1
Batch GN23816: D55476-1
Batch GN23826: D55476-1
Batch GN23838: D55476-1
Batch GN23839: D55476-1
Batch GN23843: D55476-1
Batch GP12055: D55476-1
Batch GP12064: D55476-1
Batch GP12072: D55476-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN23826	D55484-1	mg/l	215	226	5.0	0-20%
Iron Reducing Bacteria	MB329	D55419-1B	CFU/ml	9000	9000	0.0	0-%
Phosphorus, Total	GP12064/GN23831	D55336-2	mg/l	0.019	0.021	10.0	0-20%
Slime Forming Bacteria	MB330	D55419-1B	CFU/ml	66500	66500	0.0	0-%
Solids, Total Dissolved	GN23843	D55400-1	mg/l	508	540	6.1	0-20%
Specific Conductivity	GP12072/GN23852	D55479-1	umhos/cm	2060	2080	1.0	0-20%
Sulfate Reducing Bacteria	MB331	D55419-1B	CFU/ml	359000	359000	0.0	0-%

Associated Samples:
Batch MB329: D55476-1
Batch MB330: D55476-1
Batch MB331: D55476-1
Batch GN23826: D55476-1
Batch GN23843: D55476-1
Batch GP12064: D55476-1
Batch GP12072: D55476-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN23826	D55485-1	mg/l	243	100	362	119.0	80-120%
Bromide	GP12055/GN23802	D55453-1	mg/l	0.0	1	1.0	100.0	80-120%
Chloride	GP12055/GN23802	D55453-1	mg/l	15.2	10	25.5	103.0	80-120%
Fluoride	GP12055/GN23802	D55453-1	mg/l	0.85	2	2.8	97.5	80-120%
Nitrogen, Nitrate	GP12055/GN23802	D55453-1	mg/l	0.094	0.2	0.30	103.0	80-120%
Nitrogen, Nitrite	GP12055/GN23802	D55453-1	mg/l	0.0	0.1	0.084	84.0	80-120%
Phosphorus, Total	GP12064/GN23831	D55336-2	mg/l	0.019	0.40	0.41	97.8	80-120%
Sulfate	GP12055/GN23802	D55453-1	mg/l	30.3	10	40.3	100.0	80-120%

Associated Samples:
Batch GN23826: D55476-1
Batch GP12055: D55476-1
Batch GP12064: D55476-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55476
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: WWLCOGJ: GM 32-4 BWQ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN23826	D55485-1	mg/l	243	100	336	7.3	20%
Bromide	GP12055/GN23802	D55453-1	mg/l	0.0	1	1.0	0.0	20%
Chloride	GP12055/GN23802	D55453-1	mg/l	15.2	10	25.4	0.4	20%
Fluoride	GP12055/GN23802	D55453-1	mg/l	0.85	2	2.8	0.0	20%
Nitrogen, Nitrate	GP12055/GN23802	D55453-1	mg/l	0.094	0.2	0.29	3.4	20%
Nitrogen, Nitrite	GP12055/GN23802	D55453-1	mg/l	0.0	0.1	0.085	1.2	20%
Phosphorus, Total	GP12064/GN23831	D55336-2	mg/l	0.019	0.40	0.420	-2.4	20%
Sulfate	GP12055/GN23802	D55453-1	mg/l	30.3	10	40.2	0.2	20%

Associated Samples:
Batch GN23826: D55476-1
Batch GP12055: D55476-1
Batch GP12064: D55476-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits