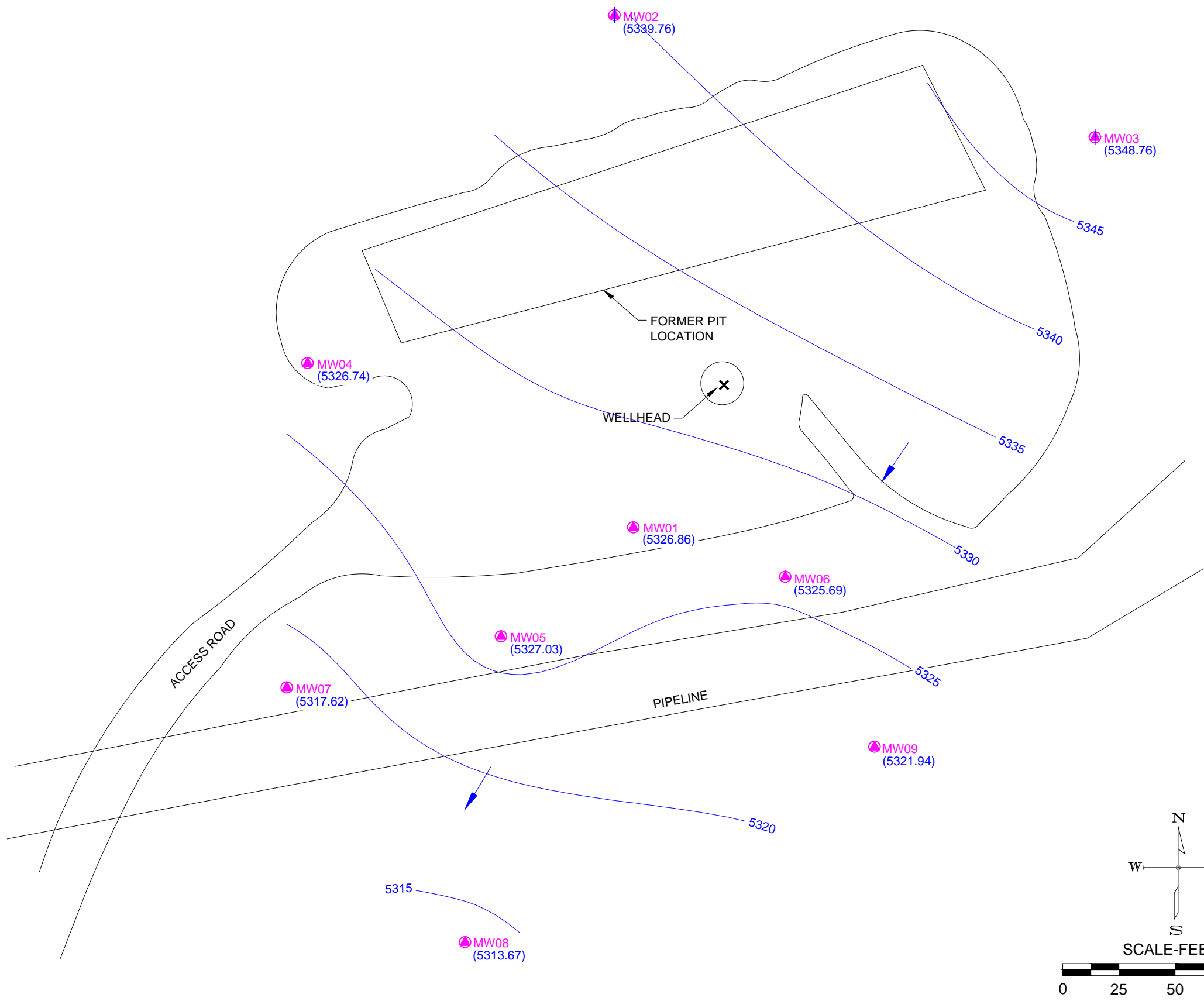


F:\Projects\012-1539\CNRM\Exhibits\2014\2014_01\Fig_2_121539_01_2014_PS.dwg Layout: P SURF



LEGEND:

- MW01 MONITORING WELL/BOREHOLE
- 5325.0 GROUNDWATER ELEVATION CONTOUR (FT-MSL)
- (5325.55) GROUNDWATER ELEVATION (FT-MSL)
- GROUNDWATER FLOW DIRECTION
- NS NOT SAMPLED

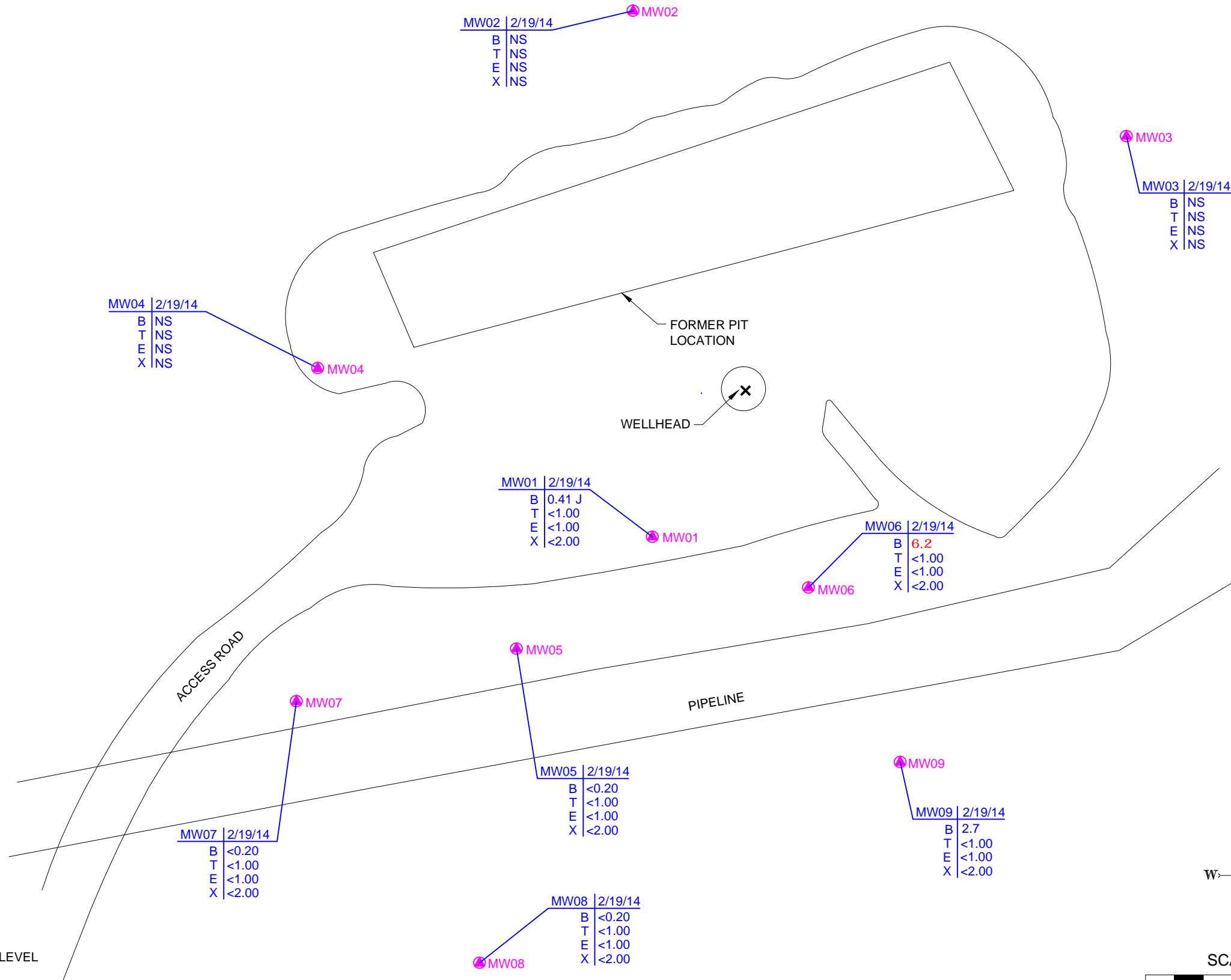
PROJECT NO:	012-1539
DRAWN BY:	BRN
DATE:	4.1.2014

POTENTIOMETRIC SURFACE MAP - FEBRUARY 2014
 WPX RMV 216-21
 WPX ENERGY ROCKY MOUNTAIN, LLC
 GARFIELD COUNTY, COLORADO

OLSSON ASSOCIATES
 760 Horizon Drive, Ste. 102
 Grand Junction, CO 81506
 TEL 970.263.7800
 FAX 970.263.7456

FIGURE	2
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F:\Projects\012-1539\CNRM\Exhibits\2014\2014_01\Fig_3_121539_01_2014_GWA.dwg Layout: GWA

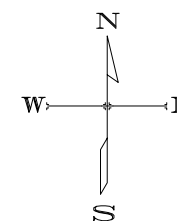


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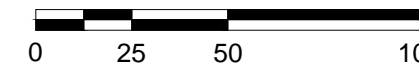
MW01 ● MONITORING WELL/BOREHOLE

CHEMICAL DATA

- B = BENZENE (ug/l)
- T = TOLUENE (ug/l)
- E = ETHYLBENZENE (ug/l)
- X = XYLENES (ug/l)
- BOLD** = EXCEEDS COGCC GROUNDWATER CLEANUP LEVEL
- NS = NOT SAMPLED



SCALE- FEET



PROJECT NO:	012-1539
DRAWN BY:	BRN
DATE:	4.1.2014

GROUNDWATER ANALYTICAL RESULTS - FEBRUARY 2014
 WPX RMV 216-21
 WPX ENERGY ROCKY MOUNTAIN, LLC
 GARFIELD COUNTY, COLORADO



760 Horizon Drive, Ste. 102
 Grand Junction, CO 81506
 TEL 970.263.7800
 FAX 970.263.7456

FIGURE	3
--------	---

Table 1
RMV 216-21 Groundwater Monitoring
Water Quality Data Summary

SAMPLE SUMMARY									
Location Description	RMV 216-21 GW Monitoring								
Sample Type	Groundwater								
LABORATORY DATA SUMMARY									
Sample ID	CDPHE Regulation 41 Standards	COGCC Table 910-1 Standards	UNITS	RMV 216-21 MW1	RMV 216-21 MW1	RMV 216-21 MW1	RMV 216-21 MW1	RMV 216-21 MW1	RMV 216-21 MW2
Depth to Water (feet)				84.45	84.54	84.56	84.45	84.64	79.2
Sample Date				3/7/2013	6/25/2013	8/20/2013	11/21/2013	2/19/2014	3/7/2013
Analytical Parameters									
BTEX									
Benzene	5	5	ug/l	<0.20	<0.20	0.70 J	<1.0	0.41 J	<0.20
Toluene	560 to 1000	560 to 1000	ug/l	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0
Ethylbenzene	700	700	ug/l	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0
Xylene (total)	1400 to 10000	1400 to 10000	ug/l	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Metals									
Calcium	NA	NA	mg/l	212	214	226	225	215	209
Iron	0.3	NA	mg/l	<0.07	<0.07	<0.07	<0.070	<0.070	<0.07
Magnesium	NA	NA	mg/l	213	201	201	196	206	171
Manganese	0.05	NA	mg/l	0.369	0.378	0.429	0.438	0.513	0.0488
Potassium	23	NA	mg/l	6.34	5.24	5.65	10.2	5.24	6.43
Selenium	0.05	NA	mg/l	<0.05	<0.05	<0.05	<0.050	<0.050	<0.05
Sodium	390	NA	mg/l	446	391	3.93	412	394	343
General Chemistry									
Alkalinity, Bicarbonate as CaCO3	NA	NA	mg/l	726	577	559	569	613	638
Alkalinity, Carbonate	NA	NA	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	NA	NA	mg/l	729	577	559	569	613	638
Chloride	250	1.25 x bkgd	mg/l	225	213	199	193	202	17
Nitrogen, Nitrate	10	NA	mg/l	31.1	32	28.5	27.6	30.4	25.9
Nitrogen Nitrite	1.0	NA	mg/l	0.15	0.16	0.12	0.14	0.14	<0.020 ^b
Solids, Total Dissolved	10,000	NA	mg/l	3210	3230	3160	3110	3120	2780
Sulfate	250	1.25 x bkgd	mg/l	1390	1460	1310	1310	1350	1350
pH	NA	NA	su	7.04	7.2	7.29	7.29	7.06	7.13
Field Readings									
Temperature	NA	NA	deg. C	14.34	14.20	14.20	13.70	14.30	14.20
Specific Conductivity	NA	NA	mS/cm	3.91	3.852	3.787	3.817	3.777	2.94
Dissolved Oxygen	NA	NA	mg/l	1.05	1.26	0.75	0.45	0.18	0.81
pH	NA	NA	su	7.60	7.29	7.51	7.12	10.11	7.04
Solids, Total Dissolved	NA	NA	mg/l	2.5	2.5	2.4	2.48	2.41	1.9
Turbidity	NA	NA	NTU	5999	NT	NT	NT	NT	5999

ug/l -micrograms per liter
mg/l -milligrams per liter
J - indicates an estimated value
umhos/cm - micromhos per centimeter
mS/cm - millisiemens per centimeter
su - standard units
NA - not applicable
NTU - nephelometric turbidity units
NT - not tested

a - Dilution required due to matrix interference
b - Elevated detection limit due to matrix interference
c - Elevated detection limit due to dilution required for possible matrix interference

Table 1
RMV 216-21 Groundwater Monitoring
Water Quality Data Summary

SAMPLE SUMMARY								
Location Description								
Sample Type								
LABORATORY DATA SUMMARY								
Sample ID	RMV 216-21 MW2	RMV 216-21 MW2	RMV 216-21 MW2	RMV 216-21 MW2	RMV 216-21 MW3	RMV 216-21 MW3	RMV 216-21 MW3	RMV 216-21 MW3
Depth to Water (feet)	NS	NT	79.2	79.43	68.14	NS	NT	68.16
Sample Date	6/25/2013	8/20/2013	11/21/2013	2/19/2014	3/7/2013	6/25/2013	8/20/2013	11/21/2013
Analytical Parameters								
BTEX								
Benzene	NS	NT	NT	NT	<0.20	NS	NT	NT
Toluene	NS	NT	NT	NT	<1.0	NS	NT	NT
Ethylbenzene	NS	NT	NT	NT	<1.0	NS	NT	NT
Xylene (total)	NS	NT	NT	NT	<2.0	NS	NT	NT
Metals								
Calcium	NS	NT	NT	NT	222	NS	NT	NT
Iron	NS	NT	NT	NT	<0.07	NS	NT	NT
Magnesium	NS	NT	NT	NT	184	NS	NT	NT
Manganese	NS	NT	NT	NT	0.137	NS	NT	NT
Potassium	NS	NT	NT	NT	6.62	NS	NT	NT
Selenium	NS	NT	NT	NT	<0.05	NS	NT	NT
Sodium	NS	NT	NT	NT	358	NS	NT	NT
General Chemistry								
Alkalinity, Bicarbonate as CaCO3	NS	NT	NT	NT	567	NS	NT	NT
Alkalinity, Carbonate	NS	NT	NT	NT	<5.0	NS	NT	NT
Alkalinity, Total as CaCO3	NS	NT	NT	NT	567	NS	NT	NT
Chloride	NS	NT	NT	NT	29.2	NS	NT	NT
Nitrogen, Nitrate	NS	NT	NT	NT	44.9	NS	NT	NT
Nitrogen Nitrite	NS	NT	NT	NT	0.04	NS	NT	NT
Solids, Total Dissolved	NS	NT	NT	NT	2890	NS	NT	NT
Sulfate	NS	NT	NT	NT	1400	NS	NT	NT
pH	NS	NT	NT	NT	7.16	NS	NT	NT
Field Readings								
Temperature	NS	NT	NT	NT	14.53	NS	NT	NT
Specific Conductivity	NS	NT	NT	NT	3.36	NS	NT	NT
Dissolved Oxygen	NS	NT	NT	NT	1.48	NS	NT	NT
pH	NS	NT	NT	NT	7.67	NS	NT	NT
Solids, Total Dissolved	NS	NT	NT	NT	2.2	NS	NT	NT
Turbidity	NS	NT	NT	NT	1509	NS	NT	NT

ug/l -micrograms per liter
mg/l -milligrams per liter
J - indicates an estimated value
umhos/cm - micromhos per centimeter
mS/cm - millisiemens per centimeter
su - standard units
NA - not applicable
NTU - nephelometric turbidity units
NT - not tested

Table 1
RMV 216-21 Groundwater Monitoring
Water Quality Data Summary

SAMPLE SUMMARY								
Location Description								
Sample Type								
LABORATORY DATA SUMMARY								
Sample ID	RMV 216-21 MW3	RMV 216-21 MW4	RMV 216-21 MW4	RMV 216-21 MW4	RMV 216-21 MW4	RMV 216-21 MW4	RMV 216-21 MW5	RMV 216-21 MWX
Depth to Water (feet)	68.34	85.69	NS	NT	85.85	86.05	85.81	MW5 Duplicate
Sample Date	2/19/2014	3/7/2013	6/25/2013	8/20/2013	11/21/2013	2/19/2014	3/7/2013	3/7/2013
Analytical Parameters								
BTEX								
Benzene	NT	<0.20	NS	NT	NT	NT	<0.20	<0.20
Toluene	NT	<1.0	NS	NT	NT	NT	<1.0	<1.0
Ethylbenzene	NT	<1.0	NS	NT	NT	NT	<1.0	<1.0
Xylene (total)	NT	<2.0	NS	NT	NT	NT	<2.0	<2.0
Metals								
Calcium	NT	225	NS	NT	NT	NT	221	221
Iron	NT	<0.07	NS	NT	NT	NT	<0.07	<0.07
Magnesium	NT	183	NS	NT	NT	NT	234	234
Manganese	NT	<0.005	NS	NT	NT	NT	0.123	0.124
Potassium	NT	6.59	NS	NT	NT	NT	6.51	6.29
Selenium	NT	<0.05	NS	NT	NT	NT	<0.05	<0.05
Sodium	NT	345	NS	NT	NT	NT	500	490
General Chemistry								
Alkalinity, Bicarbonate as CaCO3	NT	577	NS	NT	NT	NT	565	548
Alkalinity, Carbonate	NT	<5.0	NS	NT	NT	NT	<5.0	<5.0
Alkalinity, Total as CaCO3	NT	577	NS	NT	NT	NT	565	548
Chloride	NT	15.6	NS	NT	NT	NT	325	331
Nitrogen, Nitrate	NT	19.7	NS	NT	NT	NT	33.1	33.4
Nitrogen Nitrite	NT	<0.020 ⁰	NS	NT	NT	NT	0.031	0.043
Solids, Total Dissolved	NT	2980	NS	NT	NT	NT	3470	3470
Sulfate	NT	1480	NS	NT	NT	NT	1480	1480
pH	NT	7.14	NS	NT	NT	NT	7.07	7.12
Field Readings								
Temperature	NT	14.37	NS	NT	NT	NT	26.37	26.37
Specific Conductivity	NT	3.24	NS	NT	NT	NT	4.24	4.24
Dissolved Oxygen	NT	2.21	NS	NT	NT	NT	1.65	1.65
pH	NT	7.00	NS	NT	NT	NT	6.97	6.97
Solids, Total Dissolved	NT	2.1	NS	NT	NT	NT	2.8	2.8
Turbidity	NT	2000	NS	NT	NT	NT	11.3	11.3

ug/l -micrograms per liter
mg/l -milligrams per liter
J - indicates an estimated value
umhos/cm - micromhos per centimeter
mS/cm - millisiemens per centimeter
su - standard units
NA - not applicable
NTU - nephelometric turbidity units
NT - not tested

Table 1
RMV 216-21 Groundwater Monitoring
Water Quality Data Summary

SAMPLE SUMMARY								
Location Description								
Sample Type								
LABORATORY DATA SUMMARY								
Sample ID	RMV 216-21 MW5	RMV 216-21 MW5	RMV 216-21 MW5	RMV 216-21 MW5	RMV 216-21 MW6	RMV 216-21 MW6	RMV 216-21 MW6	RMV 216-21 MW6
Depth to Water (feet)	85.95	86.01	86	81.8	81.79	82.89	82.91	82.83
Sample Date	6/25/2013	8/20/2013	11/21/2013	2/19/2014	3/7/2013	6/25/2013	8/20/2013	11/21/2013
Analytical Parameters								
BTEX								
Benzene	<0.20	<0.20	<1.0	<0.20	17.3	16.7	14.7	9.8
Toluene	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<2.0
Ethylbenzene	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<2.0
Xylene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Metals								
Calcium	222	238	243	221	217	212	231	233
Iron	<0.07	<0.07	0.158	0.0919	<0.07	<0.07	<0.07	<0.070
Magnesium	227	225	219	223	252	234	250	244
Manganese	0.113	0.117	0.112	0.116	0.182	0.171	0.207	0.189
Potassium	5.17	5.66	5.55	5.01	7.07	5.45	6.14	8.24
Selenium	<0.05	<0.05	<0.050	<0.050	<0.05	<0.05	<0.05	<0.050
Sodium	446	4.52	478	438	593	513	5.48	556
General Chemistry								
Alkalinity, Bicarbonate as CaCO3	525	536	524	546	1050	827	599	584
Alkalinity, Carbonate	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	525	536	524	546	1050	827	599	584
Chloride	325	284	272	282	493	466	430	480
Nitrogen, Nitrate	33.7	31.8	30.6	32.4	35	35.3	33.2	31.6
Nitrogen Nitrite	<0.040	<0.020	<0.020	0.048	4.5	4.1	4	4.2
Solids, Total Dissolved	3530	3480	3380	3420	3830	3570	3610	3670
Sulfate	1490	1390	1390	1430	1460	1440	1360	1350
pH	7.47	7.26	7.26	7.06	7.04	7.23	7.27	7.19
Field Readings								
Temperature	14.10	14.40	14.00	14.00	18.93	15.10	14.80	14.00
Specific Conductivity	4.166	4.19	3.882	4.022	4.93	4.687	4.766	5.591
Dissolved Oxygen	0.58	0.32	0.34	0.22	1.3	0.2	1.02	0.57
pH	7.22	7.31	7.16	9.26	6.95	7.13	7.29	7.18
Solids, Total Dissolved	2.7	2.7	2.53	2.61	3.2	3.0	3.1	3.45
Turbidity	NT	NT	NT	NT	859	NT	NT	NT

ug/l -micrograms per liter
mg/l -milligrams per liter
J - indicates an estimated value
umhos/cm - micromhos per centimeter
mS/cm - millisiemens per centimeter
su - standard units
NA - not applicable
NTU - nephelometric turbidity units
NT - not tested

Table 1
RMV 216-21 Groundwater Monitoring
Water Quality Data Summary

SAMPLE SUMMARY								
Location Description								
Sample Type								
LABORATORY DATA SUMMARY								
Sample ID	RMV 216-21 MW6	RMV 216-21 MW7	RMV 216-21 MW7	RMV 216-21 MW7	RMV 216-21 MW7	RMV 216-21 MW7	RMV 216-21 MW8	RMV 216-21 MW8
Depth to Water (feet)	83.05	90.79	90.95	91.0	91.1	91.2	88.23	88.34
Sample Date	2/19/2014	3/7/2013	6/25/2013	8/20/2013	11/21/2013	2/19/2014	3/7/2013	6/25/2013
Analytical Parameters								
BTEX								
Benzene	6.2	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20
Toluene	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Xylene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Metals								
Calcium	258	224	220	233	239	224	202	199
Iron	<0.070	<0.07	<0.07	<0.07	<0.070	<0.070	<0.07	<0.07
Magnesium	299	219	206	209	201	215	248	236
Manganese	0.260	0.0076	0.0069	<0.005	<0.005	<0.005	0.0133	0.0168
Potassium	5.65	6.46	5.39	5.58	6	4.93	6.67	5.5
Selenium	<0.050	<0.05	<0.05	<0.05	<0.050	<0.050	<0.05	<0.05
Sodium	555	464	403	4.1	423	397	494	4.41
General Chemistry								
Alkalinity, Bicarbonate as CaCO3	609	727	615	563	553	620	822	541
Alkalinity, Carbonate	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	609	727	615	563	553	620	822	541
Chloride	767	215	192	201	137	163	319	296
Nitrogen, Nitrate	38	24.6	25.9	23.8	21.8	23.8	33.9	33.4
Nitrogen Nitrite	5.9	0.024	<0.040	<0.020	<0.020	0.041	<0.020 ^b	<0.040
Solids, Total Dissolved	4180	3330	3270	3270	3130	3180	3490	3490
Sulfate	1460	1490	1530	1400	1390	1420	1500	1440
pH	7	7.15	7.29	7.3	7.27	7.11	7.17	7.25
Field Readings								
Temperature	14.00	13.77	14.40	14.50	13.90	13.80	17.48	14.30
Specific Conductivity	5.471	3.94	3.802	3.787	3.679	3.72	4.13	4.146
Dissolved Oxygen	0.42	2.17	2.01	1.7	1.54	0.87	1.6	0.78
pH	9.96	7.60	7.26	7.40	7.15	10.39	7.01	7.25
Solids, Total Dissolved	2.53	2.5	2.5	2.5	2.39	2.43	2.7	2.7
Turbidity	NT	1834	NT	NT	NT	NT	568	NT

ug/l -micrograms per liter
mg/l -milligrams per liter
J - indicates an estimated value
umhos/cm - micromhos per centimeter
mS/cm - millisiemens per centimeter
su - standard units
NA - not applicable
NTU - nephelometric turbidity units
NT - not tested

Table 1
RMV 216-21 Groundwater Monitoring
Water Quality Data Summary

SAMPLE SUMMARY							
Location Description							
Sample Type							
LABORATORY DATA SUMMARY							
Sample ID	RMV 216-21 MW8	RMV 216-21 MW8	RMV 216-21 MW8	RMV 216-21 MW9	RMV 216-21 MW9	RMV 216-21 MW9	RMV 216-21 MW9
Depth to Water (feet)	88.36	88.36	88.55	81.54	81.66	81.72	81.69
Sample Date	8/20/2013	11/21/2013	2/19/2014	3/7/2013	6/25/2013	8/20/2013	11/21/2013
Analytical Parameters							
BTEX							
Benzene	<0.20	<1.0	<0.20	2.9	4.9	6.1	4.3
Toluene	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<2.0
Ethylbenzene	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<2.0
Xylene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Metals							
Calcium	203	218	211	256	236	259	255
Iron	<0.07	<0.070	<0.070	<0.07	<0.07	<0.07	<0.070
Magnesium	222	233	233	266	245	248	242
Manganese	0.0177	0.0205	0.0083	0.0933	0.1340	0.1160	0.1290
Potassium	5.63	7.19	5.13	7.73	6.2	6.56	7.65
Selenium	<0.05	<0.050	<0.050	<0.05	<0.05	<0.05	0.0501
Sodium	4.27	496	435	502	457	4.43	492
General Chemistry							
Alkalinity, Bicarbonate as CaCO3	569	528	551	975	576	610	644
Alkalinity, Carbonate	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	569	528	551	975	576	610	644
Chloride	282	304	283	427	383	337	325
Nitrogen, Nitrate	31.9	31.7	33.3	46.8	45.8	43.1	40.5
Nitrogen Nitrite	<0.020	<0.020	0.07	3.3	2.7	2.7	2.2
Solids, Total Dissolved	3420	3380	3390	3830	3710	3570	3620
Sulfate	1370	1420	1440	1560	1540	1430	1420
pH	7.34	7.32	7.12	7.03	7.28	7.27	7.13
Field Readings							
Temperature	14.40	14.00	13.80	14.31	15.30	14.50	14.00
Specific Conductivity	4.123	3.987	4.016	4.79	4.47	4.491	4.334
Dissolved Oxygen	0.61	0.84	0.7	0.92	0.52	0.41	0.43
pH	7.40	7.25	9.95	7.62	7.17	7.40	7.09
Solids, Total Dissolved	2.7	2.59	2.52	3.1	2.9	2.9	2.81
Turbidity	NT	NT	NT	2000	NT	NT	NT

ug/l -micrograms per liter
mg/l -milligrams per liter
J - indicates an estimated value
umhos/cm - micromhos per centimeter
mS/cm - millisiemens per centimeter
su - standard units
NA - not applicable
NTU - nephelometric turbidity units
NT - not tested

Technical Report for

WPX Energy Rocky Mountain, LLC

CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Accutest Job Number: D55251

Sampling Date: 02/19/14

Report to:

**Olsson Associates
760 Horizon Drive Suite 102
Grand Junction, CO 81505
tdobransky@oaconsulting.com; karolina.blaney@wpxenergy.com
ATTN: Tim Dobransky**

Total number of pages in report: 52



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



Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

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

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Test results relate only to samples analyzed.

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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D55251

CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
D55251-1	02/19/14	08:30 JSKB	02/20/14	AQ	Ground Water	RMV 216-21 MW1
D55251-1F	02/19/14	08:30 JSKB	02/20/14	AQ	Groundwater Filtered	RMV 216-21 MW1
D55251-2	02/19/14	09:50 JSKB	02/20/14	AQ	Ground Water	RMV 216-21 MW5
D55251-2F	02/19/14	09:50 JSKB	02/20/14	AQ	Groundwater Filtered	RMV 216-21 MW5
D55251-3	02/19/14	08:25 JSKB	02/20/14	AQ	Ground Water	RMV 216-21 MW6
D55251-3F	02/19/14	08:25 JSKB	02/20/14	AQ	Groundwater Filtered	RMV 216-21 MW6
D55251-4	02/19/14	10:15 JSKB	02/20/14	AQ	Ground Water	RMV 216-21 MW7
D55251-4F	02/19/14	10:15 JSKB	02/20/14	AQ	Groundwater Filtered	RMV 216-21 MW7
D55251-5	02/19/14	08:45 JSKB	02/20/14	AQ	Ground Water	RMV 216-21 MW8
D55251-5F	02/19/14	08:45 JSKB	02/20/14	AQ	Groundwater Filtered	RMV 216-21 MW8
D55251-6	02/19/14	09:25 JSKB	02/20/14	AQ	Ground Water	RMV 216-21 MW9
D55251-6F	02/19/14	09:25 JSKB	02/20/14	AQ	Groundwater Filtered	RMV 216-21 MW9
D55251-7	02/19/14	00:00 JSKB	02/20/14	AQ	Trip Blank Water	TRIP BLANK

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: WPX Energy Rocky Mountain, LLC

Job No D55251

Site: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Report Date 2/27/2014 9:21:14 AM

On 02/20/2014, 6 sample(s), 1 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D55251 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 GC By Method SW846 8021B

Matrix: AQ

Batch ID: GTA1188

- All samples were analyzed within the recommended method holding time.
- Sample(s) D55207-12MS, D55207-12MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D55251-4, -6: The pH of the sample was >2 at time of analysis.

Metals By Method SW846 6010C

Matrix: AQ

Batch ID: MP12358

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55252-1MS, D55252-1MSD, D55252-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Potassium are outside control limits for sample MP12358-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP12358-SD1 for Magnesium, Manganese, Sodium: Serial dilution indicates possible matrix interference.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix: AQ **Batch ID:** GP12011

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55251-1MS, D55251-1MSD were used as the QC samples for the Chloride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate analysis.

Matrix: AQ **Batch ID:** GP12018

- All samples were prepared and analyzed within the recommended method holding time with exceptions noted below.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55218-1MS, D55218-1MSD were used as the QC samples for the Chloride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate analysis.
- D55251-3 for Nitrogen, Nitrate: Sample analyzed beyond recommended hold time due to instrument failure on Feb. 20, 2014.
- D55251-3 for Nitrogen, Nitrite: Sample analyzed beyond recommended hold time due to instrument failure on Feb. 20, 2014.
- D55251-4 for Nitrogen, Nitrate: Sample analyzed beyond recommended hold time due to instrument failure on Feb. 20, 2014.

Matrix: AQ **Batch ID:** R20417

- The data for EPA 300.0/SW846 9056 meets quality control requirements.
- D55251-1 through -6 for Nitrogen, Nitrate + Nitrite: Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R20418

- The data for EPA 300.0/SW846 9056 meets quality control requirements.

Matrix: AQ **Batch ID:** R20419

- The data for EPA 300.0/SW846 9056 meets quality control requirements.

Matrix: AQ **Batch ID:** R20420

- The data for EPA 300.0/SW846 9056 meets quality control requirements.

Matrix: AQ **Batch ID:** R20457

- The data for EPA 300.0/SW846 9056 meets quality control requirements.

Matrix: AQ **Batch ID:** R20458

- The data for EPA 300.0/SW846 9056 meets quality control requirements.

Wet Chemistry By Method SM 2320B-2011

Matrix: AQ **Batch ID:** GN23738

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55101-1DUP, D55101-1MS, D55101-1MSD were used as the QC samples for the Alkalinity, Total as CaCO₃ analysis.

Matrix: AQ **Batch ID:** GN23739

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

Matrix: AQ **Batch ID:** GN23740

- 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 2540C-2011

Matrix: AQ	Batch ID: GN23755
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- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55251-3DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM 5310B-2011

Matrix: AQ	Batch ID: GP12030
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- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55181-1MS, D55181-1MSD, D55289-1DUP were used as the QC samples for the Total Organic Carbon analysis.

Wet Chemistry By Method SM4500HB+-2011/9040C

Matrix: AQ	Batch ID: GN23737
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- The following samples were run outside of holding time for method SM4500HB+-2011/9040C: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6

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: D55251
Account: WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)
Collected: 02/19/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D55251-1 RMV 216-21 MW1

Benzene	0.41 J	1.0	0.20	ug/l	SW846 8021B
Alkalinity, Bicarbonate as CaCO3	613	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	613	5.0		mg/l	SM 2320B-2011
Chloride	202	50		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate	30.4	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^a	30.5	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.14	0.020		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved	3120	10		mg/l	SM 2540C-2011
Sulfate	1350	50		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	5.4	1.0		mg/l	SM 5310B-2011
pH	7.06			su	SM4500HB+ -2011/9040C

D55251-1F RMV 216-21 MW1

Calcium	215000	400		ug/l	SW846 6010C
Magnesium	206000	200		ug/l	SW846 6010C
Manganese	513	5.0		ug/l	SW846 6010C
Potassium	5240	1000		ug/l	SW846 6010C
Sodium	394000	400		ug/l	SW846 6010C

D55251-2 RMV 216-21 MW5

Alkalinity, Bicarbonate as CaCO3	546	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	546	5.0		mg/l	SM 2320B-2011
Chloride	282	50		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate	32.4	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^a	32.4	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.048	0.020		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved	3420	10		mg/l	SM 2540C-2011
Sulfate	1430	50		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	5.6	1.0		mg/l	SM 5310B-2011
pH	7.06			su	SM4500HB+ -2011/9040C

D55251-2F RMV 216-21 MW5

Calcium	221000	400		ug/l	SW846 6010C
Iron	91.9	70		ug/l	SW846 6010C
Magnesium	223000	200		ug/l	SW846 6010C
Manganese	116	5.0		ug/l	SW846 6010C
Potassium	5010	1000		ug/l	SW846 6010C
Sodium	438000	400		ug/l	SW846 6010C

Summary of Hits

Job Number: D55251
Account: WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)
Collected: 02/19/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D55251-3 RMV 216-21 MW6

Benzene	6.2	1.0	0.20	ug/l	SW846 8021B
Alkalinity, Bicarbonate as CaCO3	609	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	609	5.0		mg/l	SM 2320B-2011
Chloride	767	50		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate ^b	38.0	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^a	43.9	1.4		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrite ^b	5.9	0.40		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved	4180	10		mg/l	SM 2540C-2011
Sulfate	1460	50		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	9.4	1.0		mg/l	SM 5310B-2011
pH	7.00			su	SM4500HB+ -2011/9040C

D55251-3F RMV 216-21 MW6

Calcium	258000	400		ug/l	SW846 6010C
Magnesium	299000	200		ug/l	SW846 6010C
Manganese	260	5.0		ug/l	SW846 6010C
Potassium	5650	1000		ug/l	SW846 6010C
Sodium	555000	400		ug/l	SW846 6010C

D55251-4 RMV 216-21 MW7

Alkalinity, Bicarbonate as CaCO3	620	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	620	5.0		mg/l	SM 2320B-2011
Chloride	163	50		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate ^b	23.8	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^a	23.8	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.041	0.020		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved	3180	10		mg/l	SM 2540C-2011
Sulfate	1420	50		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	6.4	1.0		mg/l	SM 5310B-2011
pH	7.11			su	SM4500HB+ -2011/9040C

D55251-4F RMV 216-21 MW7

Calcium	224000	400		ug/l	SW846 6010C
Magnesium	215000	200		ug/l	SW846 6010C
Potassium	4930	1000		ug/l	SW846 6010C
Sodium	397000	400		ug/l	SW846 6010C

D55251-5 RMV 216-21 MW8

Alkalinity, Bicarbonate as CaCO3	551	5.0		mg/l	SM 2320B-2011
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Summary of Hits

Job Number: D55251
Account: WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)
Collected: 02/19/14



Lab Sample ID	Client Sample ID	Result/ Analyte	Qual	RL	MDL	Units	Method
		Alkalinity, Total as CaCO ₃	551	5.0		mg/l	SM 2320B-2011
		Chloride	283	50		mg/l	EPA 300.0/SW846 9056
		Nitrogen, Nitrate	33.3	1.0		mg/l	EPA 300.0/SW846 9056
		Nitrogen, Nitrate + Nitrite ^a	33.4	1.0		mg/l	EPA 300.0/SW846 9056
		Nitrogen, Nitrite	0.070	0.040		mg/l	EPA 300.0/SW846 9056
		Solids, Total Dissolved	3390	10		mg/l	SM 2540C-2011
		Sulfate	1440	50		mg/l	EPA 300.0/SW846 9056
		Total Organic Carbon	5.9	1.0		mg/l	SM 5310B-2011
		pH	7.12			su	SM4500HB+ -2011/9040C
D55251-5F RMV 216-21 MW8							
		Calcium	211000	400		ug/l	SW846 6010C
		Magnesium	233000	200		ug/l	SW846 6010C
		Manganese	8.3	5.0		ug/l	SW846 6010C
		Potassium	5130	1000		ug/l	SW846 6010C
		Sodium	435000	400		ug/l	SW846 6010C
D55251-6 RMV 216-21 MW9							
		Benzene ^c	2.7	1.0	0.20	ug/l	SW846 8021B
		Alkalinity, Bicarbonate as CaCO ₃	700	5.0		mg/l	SM 2320B-2011
		Alkalinity, Total as CaCO ₃	700	5.0		mg/l	SM 2320B-2011
		Chloride	655	50		mg/l	EPA 300.0/SW846 9056
		Nitrogen, Nitrate	54.4	2.0		mg/l	EPA 300.0/SW846 9056
		Nitrogen, Nitrate + Nitrite ^a	57.7	2.4		mg/l	EPA 300.0/SW846 9056
		Nitrogen, Nitrite	3.3	0.40		mg/l	EPA 300.0/SW846 9056
		Solids, Total Dissolved	4450	10		mg/l	SM 2540C-2011
		Sulfate	1780	50		mg/l	EPA 300.0/SW846 9056
		Total Organic Carbon	10.4	1.0		mg/l	SM 5310B-2011
		pH	7.00			su	SM4500HB+ -2011/9040C
D55251-6F RMV 216-21 MW9							
		Calcium	318000	400		ug/l	SW846 6010C
		Magnesium	333000	200		ug/l	SW846 6010C
		Manganese	188	5.0		ug/l	SW846 6010C
		Potassium	6620	1000		ug/l	SW846 6010C
		Sodium	504000	400		ug/l	SW846 6010C
D55251-7 TRIP BLANK							

No hits reported in this sample.

(a) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

Summary of Hits

Job Number: D55251
Account: WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)
Collected: 02/19/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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- (b) Sample analyzed beyond recommended hold time due to instrument failure on Feb. 20, 2014.
- (c) The pH of the sample was > 2 at time of analysis.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: RMV 216-21 MW1	
Lab Sample ID: D55251-1	Date Sampled: 02/19/14
Matrix: AQ - Ground Water	Date Received: 02/20/14
Method: SW846 8021B	Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA21126.D	1	02/21/14	EV	n/a	n/a	GTA1188
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.41	1.0	0.20	ug/l	J
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	104%		60-140%

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

4.1
 4

Report of Analysis

Client Sample ID: RMV 216-21 MW1	Date Sampled: 02/19/14
Lab Sample ID: D55251-1	Date Received: 02/20/14
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	613	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Total as CaCO ₃	613	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Chloride	202	50	mg/l	100	02/20/14 16:56	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrate	30.4	1.0	mg/l	100	02/20/14 16:56	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^a	30.5	1.0	mg/l	1	02/20/14 16:56	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.14	0.020	mg/l	5	02/20/14 15:19	KB	EPA 300.0/SW846 9056
Solids, Total Dissolved	3120	10	mg/l	1	02/25/14	RW	SM 2540C-2011
Sulfate	1350	50	mg/l	100	02/20/14 16:56	KB	EPA 300.0/SW846 9056
Total Organic Carbon	5.4	1.0	mg/l	1	02/24/14 11:45	RW	SM 5310B-2011
pH	7.06		su	1	02/21/14 13:50	AK	SM4500HB+ -2011/9040C

(a) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

RL = Reporting Limit

Report of Analysis

Client Sample ID: RMV 216-21 MW1	Date Sampled: 02/19/14
Lab Sample ID: D55251-1F	Date Received: 02/20/14
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	215000	400	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Iron	< 70	70	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Magnesium	206000	200	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Manganese	513	5.0	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Potassium	5240	1000	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Selenium	< 50	50	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Sodium	394000	400	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³

- (1) Instrument QC Batch: MA4492
- (2) Instrument QC Batch: MA4496
- (3) Prep QC Batch: MP12358

RL = Reporting Limit

4.2
4

Report of Analysis

Client Sample ID: RMV 216-21 MW5		Date Sampled: 02/19/14
Lab Sample ID: D55251-2		Date Received: 02/20/14
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8021B		
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA21127.D	1	02/21/14	EV	n/a	n/a	GTA1188
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	104%		60-140%

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

4.3
4

Report of Analysis

Client Sample ID: RMV 216-21 MW5	Date Sampled: 02/19/14
Lab Sample ID: D55251-2	Date Received: 02/20/14
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	546	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Total as CaCO3	546	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Chloride	282	50	mg/l	100	02/20/14 17:57	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrate	32.4	1.0	mg/l	100	02/20/14 17:57	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^a	32.4	1.0	mg/l	1	02/20/14 17:57	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.048	0.020	mg/l	5	02/20/14 15:31	KB	EPA 300.0/SW846 9056
Solids, Total Dissolved	3420	10	mg/l	1	02/25/14	RW	SM 2540C-2011
Sulfate	1430	50	mg/l	100	02/20/14 17:57	KB	EPA 300.0/SW846 9056
Total Organic Carbon	5.6	1.0	mg/l	1	02/24/14 11:56	RW	SM 5310B-2011
pH	7.06		su	1	02/21/14 13:50	AK	SM4500HB+ -2011/9040C

(a) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

RL = Reporting Limit

4.3
 4

Report of Analysis

Client Sample ID: RMV 216-21 MW5		Date Sampled: 02/19/14
Lab Sample ID: D55251-2F		Date Received: 02/20/14
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	221000	400	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Iron	91.9	70	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Magnesium	223000	200	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Manganese	116	5.0	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Potassium	5010	1000	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Selenium	< 50	50	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Sodium	438000	400	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³

- (1) Instrument QC Batch: MA4492
- (2) Instrument QC Batch: MA4496
- (3) Prep QC Batch: MP12358

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: RMV 216-21 MW6		Date Sampled: 02/19/14
Lab Sample ID: D55251-3		Date Received: 02/20/14
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8021B		
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA21128.D	1	02/21/14	EV	n/a	n/a	GTA1188
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	6.2	1.0	0.20	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	104%		60-140%

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

4.5
4

Report of Analysis

Client Sample ID: RMV 216-21 MW6		Date Sampled: 02/19/14
Lab Sample ID: D55251-3		Date Received: 02/20/14
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	609	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Total as CaCO3	609	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Chloride	767	50	mg/l	100	02/21/14 12:14	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate ^a	38.0	1.0	mg/l	100	02/21/14 12:14	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^b	43.9	1.4	mg/l	1	02/21/14 12:14	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrite ^a	5.9	0.40	mg/l	100	02/21/14 12:14	GH	EPA 300.0/SW846 9056
Solids, Total Dissolved	4180	10	mg/l	1	02/25/14	RW	SM 2540C-2011
Sulfate	1460	50	mg/l	100	02/21/14 12:14	GH	EPA 300.0/SW846 9056
Total Organic Carbon	9.4	1.0	mg/l	1	02/24/14 12:07	RW	SM 5310B-2011
pH	7.00		su	1	02/21/14 13:50	AK	SM4500HB+ -2011/9040C

(a) Sample analyzed beyond recommended hold time due to instrument failure on Feb. 20, 2014.

(b) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

RL = Reporting Limit

4.5
4

Report of Analysis

Client Sample ID: RMV 216-21 MW6		Date Sampled: 02/19/14
Lab Sample ID: D55251-3F		Date Received: 02/20/14
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	258000	400	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Iron	< 70	70	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Magnesium	299000	200	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Manganese	260	5.0	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Potassium	5650	1000	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Selenium	< 50	50	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Sodium	555000	400	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³

- (1) Instrument QC Batch: MA4492
- (2) Instrument QC Batch: MA4496
- (3) Prep QC Batch: MP12358

RL = Reporting Limit

4.6
4

Report of Analysis

Client Sample ID: RMV 216-21 MW7	Date Sampled: 02/19/14
Lab Sample ID: D55251-4	Date Received: 02/20/14
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8021B	
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	TA21129.D	1	02/21/14	EV	n/a	n/a	GTA1188
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	103%		60-140%

(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

4.7
4

Report of Analysis

Client Sample ID: RMV 216-21 MW7	Date Sampled: 02/19/14
Lab Sample ID: D55251-4	Date Received: 02/20/14
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	620	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Total as CaCO ₃	620	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Chloride	163	50	mg/l	100	02/21/14 12:26	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate ^a	23.8	1.0	mg/l	100	02/21/14 12:26	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^b	23.8	1.0	mg/l	1	02/21/14 12:26	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.041	0.020	mg/l	5	02/20/14 15:56	KB	EPA 300.0/SW846 9056
Solids, Total Dissolved	3180	10	mg/l	1	02/25/14	RW	SM 2540C-2011
Sulfate	1420	50	mg/l	100	02/21/14 12:26	GH	EPA 300.0/SW846 9056
Total Organic Carbon	6.4	1.0	mg/l	1	02/24/14 12:20	RW	SM 5310B-2011
pH	7.11		su	1	02/21/14 13:50	AK	SM4500HB+ -2011/9040C

(a) Sample analyzed beyond recommended hold time due to instrument failure on Feb. 20, 2014.

(b) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

RL = Reporting Limit

Report of Analysis

Client Sample ID: RMV 216-21 MW7		Date Sampled: 02/19/14
Lab Sample ID: D55251-4F		Date Received: 02/20/14
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	224000	400	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Iron	< 70	70	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Magnesium	215000	200	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Manganese	< 5.0	5.0	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Potassium	4930	1000	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Selenium	< 50	50	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Sodium	397000	400	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³

- (1) Instrument QC Batch: MA4492
- (2) Instrument QC Batch: MA4496
- (3) Prep QC Batch: MP12358

RL = Reporting Limit

4.8
4

Report of Analysis

Client Sample ID: RMV 216-21 MW8		Date Sampled: 02/19/14
Lab Sample ID: D55251-5		Date Received: 02/20/14
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8021B		
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA21130.D	1	02/21/14	EV	n/a	n/a	GTA1188
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	103%		60-140%

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

4.9
4

Report of Analysis

Client Sample ID: RMV 216-21 MW8	Date Sampled: 02/19/14
Lab Sample ID: D55251-5	Date Received: 02/20/14
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	551	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Total as CaCO3	551	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Chloride	283	50	mg/l	100	02/20/14 19:10	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrate	33.3	1.0	mg/l	100	02/20/14 19:10	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^a	33.4	1.0	mg/l	1	02/20/14 19:10	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.070	0.040	mg/l	10	02/20/14 18:57	KB	EPA 300.0/SW846 9056
Solids, Total Dissolved	3390	10	mg/l	1	02/25/14	RW	SM 2540C-2011
Sulfate	1440	50	mg/l	100	02/20/14 19:10	KB	EPA 300.0/SW846 9056
Total Organic Carbon	5.9	1.0	mg/l	1	02/24/14 12:31	RW	SM 5310B-2011
pH	7.12		su	1	02/21/14 13:50	AK	SM4500HB+ -2011/9040C

(a) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

RL = Reporting Limit

Report of Analysis

Client Sample ID: RMV 216-21 MW8	Date Sampled: 02/19/14
Lab Sample ID: D55251-5F	Date Received: 02/20/14
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	211000	400	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Iron	< 70	70	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Magnesium	233000	200	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Manganese	8.3	5.0	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Potassium	5130	1000	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Selenium	< 50	50	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Sodium	435000	400	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³

- (1) Instrument QC Batch: MA4492
- (2) Instrument QC Batch: MA4496
- (3) Prep QC Batch: MP12358

RL = Reporting Limit

4.10
4

Report of Analysis

Client Sample ID: RMV 216-21 MW9		Date Sampled: 02/19/14
Lab Sample ID: D55251-6		Date Received: 02/20/14
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8021B		
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	TA21131.D	1	02/21/14	EV	n/a	n/a	GTA1188
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	2.7	1.0	0.20	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	102%		60-140%

(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

4.11
4

Report of Analysis

Client Sample ID: RMV 216-21 MW9	Date Sampled: 02/19/14
Lab Sample ID: D55251-6	Date Received: 02/20/14
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	700	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Alkalinity, Total as CaCO3	700	5.0	mg/l	1	02/21/14	BF	SM 2320B-2011
Chloride	655	50	mg/l	100	02/20/14 19:22	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrate	54.4	2.0	mg/l	200	02/20/14 19:34	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrate + Nitrite ^a	57.7	2.4	mg/l	1	02/20/14 19:34	KB	EPA 300.0/SW846 9056
Nitrogen, Nitrite	3.3	0.40	mg/l	100	02/20/14 19:22	KB	EPA 300.0/SW846 9056
Solids, Total Dissolved	4450	10	mg/l	1	02/25/14	RW	SM 2540C-2011
Sulfate	1780	50	mg/l	100	02/20/14 19:22	KB	EPA 300.0/SW846 9056
Total Organic Carbon	10.4	1.0	mg/l	1	02/24/14 12:42	RW	SM 5310B-2011
pH	7.00		su	1	02/21/14 13:50	AK	SM4500HB+ -2011/9040C

(a) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

RL = Reporting Limit

4.11
 4

Report of Analysis

Client Sample ID: RMV 216-21 MW9		Date Sampled: 02/19/14
Lab Sample ID: D55251-6F		Date Received: 02/20/14
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	318000	400	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Iron	< 70	70	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Magnesium	333000	200	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Manganese	188	5.0	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Potassium	6620	1000	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³
Selenium	< 50	50	ug/l	1	02/24/14	02/25/14 KV	SW846 6010C ²	SW846 3010A ³
Sodium	504000	400	ug/l	1	02/24/14	02/24/14 KV	SW846 6010C ¹	SW846 3010A ³

- (1) Instrument QC Batch: MA4492
- (2) Instrument QC Batch: MA4496
- (3) Prep QC Batch: MP12358

RL = Reporting Limit

4.12
4

Report of Analysis

Client Sample ID: TRIP BLANK	Date Sampled: 02/19/14
Lab Sample ID: D55251-7	Date Received: 02/20/14
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8021B	
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA21132.D	1	02/21/14	EV	n/a	n/a	GTA1188
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	104%		60-140%

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

4.13
4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

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: D55251
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA1188-MB	TA21121.D	1	02/21/14	EV	n/a	n/a	GTA1188

The QC reported here applies to the following samples:

Method: SW846 8021B

D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6, D55251-7

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	104% 60-140%

Blank Spike Summary

Job Number: D55251
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA1188-BS	TA21122.D	1	02/21/14	EV	n/a	n/a	GTA1188

The QC reported here applies to the following samples:

Method: SW846 8021B

D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6, D55251-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	27.2	25.2	93	70-130
100-41-4	Ethylbenzene	45.6	43.3	95	70-130
108-88-3	Toluene	212	194	92	70-130
1330-20-7	Xylenes (total)	216	220	102	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	111%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55251
Account: WILLCOP WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55207-12MS	TA21124.D	1	02/21/14	EV	n/a	n/a	GTA1188
D55207-12MSD	TA21125.D	1	02/21/14	EV	n/a	n/a	GTA1188
D55207-12	TA21123.D	1	02/21/14	EV	n/a	n/a	GTA1188

The QC reported here applies to the following samples:

Method: SW846 8021B

D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6, D55251-7

CAS No.	Compound	D55207-12 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	27.2	25.6	94	25.3	93	1	55-133/30
100-41-4	Ethylbenzene	ND	45.6	44.6	98	43.7	96	2	63-130/30
108-88-3	Toluene	ND	212	199	94	195	92	2	70-130/30
1330-20-7	Xylenes (total)	ND	216	225	104	221	102	2	64-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D55207-12	Limits
120-82-1	1,2,4-Trichlorobenzene	110%	110%	106%	60-140%

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55251
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

QC Batch ID: MP12358
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/24/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	41		
Antimony	30	2.1	19		
Arsenic	25	3.8	5.6		
Barium	10	.2	1.4		
Beryllium	10	.9	1.2		
Boron	50	.8	6.6		
Cadmium	10	.2	.36		
Calcium	400	2.4	41	20.2	<400
Chromium	10	.3	.4		
Cobalt	5.0	.5	.57		
Copper	10	.8	1.9		
Iron	70	1.5	9.5	10.2	<70
Lead	50	2.1	21		
Lithium	5.0	.4	2.7		
Magnesium	200	6.8	19	4.3	<200
Manganese	5.0	.5	.46	0.60	<5.0
Molybdenum	10	.4	.84		
Nickel	30	.5	.87		
Phosphorus	100	15	20		
Potassium	1000	99	270	40.1	<1000
Selenium	50	7.1	11	1.2	<50
Silicon	50	4.7	5.2		
Silver	30	.3	.6		
Sodium	400	7.3	170	103	<400
Strontium	5.0	.01	.12		
Thallium	10	1.8	4		
Tin	50	12	16		
Titanium	10	.1	2.1		
Uranium	50	2.9	5.5		
Vanadium	10	.4	.4		
Zinc	30	.4	3.2		

Associated samples MP12358: D55251-1F, D55251-2F, D55251-3F, D55251-4F, D55251-5F, D55251-6F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55251
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

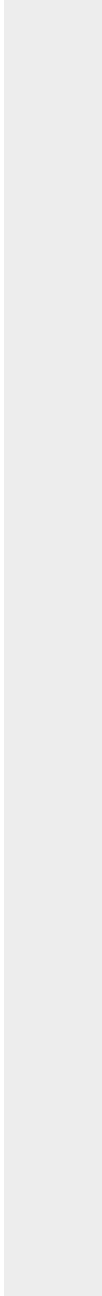
QC Batch ID: MP12358
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/24/14

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



7.1.1
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55251
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

QC Batch ID: MP12358
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 02/24/14

Metal	D55252-1 Original MS		SpikeLot ICPAL2 % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	63400	86200	25000	107.2	75-125
Chromium					
Cobalt					
Copper					
Iron	274	5260	5000	99.7	75-125
Lead					
Lithium					
Magnesium	29100	56000	25000	107.6	75-125
Manganese	97.6	595	500	99.5	75-125
Molybdenum					
Nickel					
Phosphorus					
Potassium	593	24800	25000	96.8	75-125
Selenium	0.0	1110	1000	111.0	75-125
Silicon					
Silver					
Sodium	50700	78500	25000	107.2	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP12358: D55251-1F, D55251-2F, D55251-3F, D55251-4F, D55251-5F, D55251-6F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55251
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

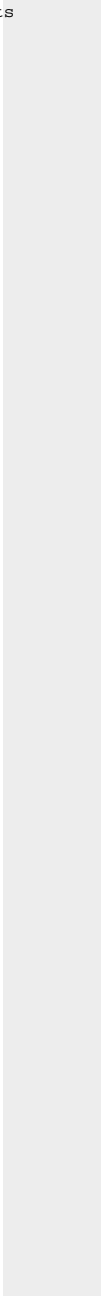
QC Batch ID: MP12358
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/24/14

Metal	D55252-1 Original MS	SpikeLot ICPAL2	% Rec	QC Limits
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(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55251
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

QC Batch ID: MP12358
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 02/24/14

Metal	D55252-1 Original MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	63400	84200	25000	99.2	2.3	20
Chromium						
Cobalt						
Copper						
Iron	274	5260	5000	99.7	0.0	20
Lead						
Lithium						
Magnesium	29100	56300	25000	108.8	0.5	20
Manganese	97.6	636	500	107.7	6.7	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	593	25300	25000	98.8	2.0	20
Selenium	0.0	1110	1000	111.0	0.0	20
Silicon						
Silver						
Sodium	50700	78000	25000	105.2	0.6	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP12358: D55251-1F, D55251-2F, D55251-3F, D55251-4F, D55251-5F, D55251-6F

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

7.1.2
 7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55251
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

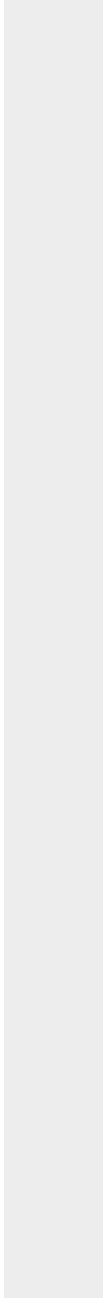
QC Batch ID: MP12358
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/24/14

Metal	D55252-1 Original MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
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(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested



7.1.2
7

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55251
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

QC Batch ID: MP12358
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 02/24/14

Metal	BSP Result	SpikeLot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	24900	25000	99.6	80-120
Chromium				
Cobalt				
Copper				
Iron	5060	5000	101.2	80-120
Lead				
Lithium				
Magnesium	26800	25000	107.2	80-120
Manganese	518	500	103.6	80-120
Molybdenum				
Nickel				
Phosphorus				
Potassium	24100	25000	96.4	80-120
Selenium	1100	1000	110.0	80-120
Silicon				
Silver				
Sodium	25000	25000	100.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP12358: D55251-1F, D55251-2F, D55251-3F, D55251-4F, D55251-5F, D55251-6F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55251
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

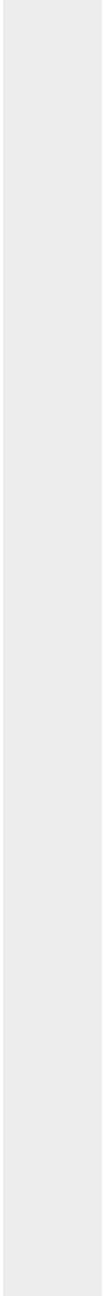
QC Batch ID: MP12358
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/24/14

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



SERIAL DILUTION RESULTS SUMMARY

Login Number: D55251
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

QC Batch ID: MP12358
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 02/24/14

Metal	D55252-1 Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	63400	59700	0.5	0-10
Chromium				
Cobalt				
Copper				
Iron	274	251	8.7	0-10
Lead				
Lithium				
Magnesium	27700	33200	14.3*(a)	0-10
Manganese	97.6	111	13.2*(a)	0-10
Molybdenum				
Nickel				
Phosphorus				
Potassium	593	957	61.3 (b)	0-10
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver				
Sodium	50700	59900	15.7*(a)	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP12358: D55251-1F, D55251-2F, D55251-3F, D55251-4F, D55251-5F, D55251-6F

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

7.1.4
7

SERIAL DILUTION RESULTS SUMMARY

Login Number: D55251
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

QC Batch ID: MP12358
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/24/14

Metal	D55252-1	QC
	Original SDL 1:5 %DIF	Limits

- (anr) Analyte not requested
- (a) Serial dilution indicates possible matrix interference.
- (b) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

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: D55251
Account: WILLCOPI - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN23739	5.0	0.0	mg/l	100	96.3	96.3	90-110%
Alkalinity, Carbonate	GN23740	5.0	0.0	mg/l	100	96.3	96.3	80-120%
Alkalinity, Total as CaCO3	GN23738	5.0	0.0	mg/l	100	96.3	96.3	90-110%
Bromide	GP12018/GN23734	0.050	0.0	mg/l	0.5	0.533	106.6	90-110%
Chloride	GP12011/GN23726	0.50	0.0	mg/l	5	5.01	100.2	90-110%
Chloride	GP12018/GN23734	0.50	0.0	mg/l	5	5.05	101.0	90-110%
Nitrogen, Nitrate	GP12011/GN23726	0.010	0.0	mg/l	0.1	0.104	104.0	90-110%
Nitrogen, Nitrate	GP12018/GN23734	0.010	0.0	mg/l	0.1	0.101	101.0	90-110%
Nitrogen, Nitrite	GP12011/GN23726	0.0040	0.0	mg/l	0.05	0.0501	100.2	90-110%
Nitrogen, Nitrite	GP12018/GN23734	0.0040	0.0	mg/l	0.05	0.0487	97.4	90-110%
Phosphate, Ortho	GP12018/GN23734	0.050	0.0	mg/l	0.5	0.494	98.8	90-110%
Solids, Total Dissolved	GN23755	10	0.0	mg/l	400	412	103.0	90-110%
Sulfate	GP12011/GN23726	0.50	0.0	mg/l	5	5.10	102.0	90-110%
Sulfate	GP12018/GN23734	0.50	0.0	mg/l	5	5.09	101.8	90-110%
Total Organic Carbon	GP12030/GN23766	1.0	0.0	mg/l	8.82	8.64	98.0	90-110%
pH	GN23737			su	8.00	7.96	99.5	99.3-100

Associated Samples:

Batch GN23737: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6
 Batch GN23738: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6
 Batch GN23739: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6
 Batch GN23740: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6
 Batch GN23755: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6
 Batch GP12011: D55251-1, D55251-2, D55251-4, D55251-5, D55251-6
 Batch GP12018: D55251-3, D55251-4
 Batch GP12030: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6
 (*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55251
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN23738	D55101-1	mg/l	136	134	1.6	0-20%
Solids, Total Dissolved	GN23755	D55251-3	mg/l	4180	4260	1.9	0-20%
Total Organic Carbon	GP12030/GN23766	D55289-1	mg/l	10.9	10.8	0.9	0-20%

Associated Samples:

Batch GN23738: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6

Batch GN23755: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6

Batch GP12030: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6

(*) Outside of QC limits

8.2

8

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55251
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN23738	D55101-1	mg/l	136	100	230	94.2	80-120%
Bromide	GP12018/GN23734	D55218-1	mg/l	0.0	10	10.7	107.0	80-120%
Chloride	GP12011/GN23726	D55251-1	mg/l	202	500	670	93.6	80-120%
Chloride	GP12011/GN23726	D55251-1	mg/l	189	500	670	93.6	80-120%
Chloride	GP12018/GN23734	D55218-1	mg/l	139	100	245	106.0	80-120%
Nitrogen, Nitrate	GP12011/GN23726	D55251-1	mg/l	35.4	10	39.4	90.0	80-120%
Nitrogen, Nitrate	GP12011/GN23726	D55251-1	mg/l	30.4	10	39.4	90.0	80-120%
Nitrogen, Nitrate	GP12018/GN23734	D55218-1	mg/l	5.5	2.5	8.1	104.0	80-120%
Nitrogen, Nitrite	GP12011/GN23726	D55251-1	mg/l	0.14	0.25	0.41	108.0	80-120%
Nitrogen, Nitrite	GP12011/GN23726	D55251-1	mg/l	0.0	0.25	0.41	108.0	80-120%
Nitrogen, Nitrite	GP12018/GN23734	D55218-1	mg/l	0.0	1.25	1.3	104.0	80-120%
Phosphate, Ortho	GP12018/GN23734	D55218-1	mg/l	0.0	10	11.9	119.0	80-120%
Sulfate	GP12011/GN23726	D55251-1	mg/l	-1100	500	1860	102.0	80-120%
Sulfate	GP12011/GN23726	D55251-1	mg/l	1350	500	1860	102.0	80-120%
Sulfate	GP12018/GN23734	D55218-1	mg/l	112	100	216	104.0	80-120%
Total Organic Carbon	GP12030/GN23766	D55181-1	mg/l	2.6	10	12.5	99.0	80-120%

Associated Samples:

Batch GN23738: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6

Batch GP12011: D55251-1, D55251-2, D55251-4, D55251-5, D55251-6

Batch GP12018: D55251-3, D55251-4

Batch GP12030: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55251
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: RMV 216-21 GW Monitoring(012.1539)

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN23738	D55101-1	mg/l	136	100	229	1.1	20%
Bromide	GP12018/GN23734	D55218-1	mg/l	0.0	10	10.6	0.9	20%
Chloride	GP12011/GN23726	D55251-1	mg/l	202	500	667	0.4	20%
Chloride	GP12011/GN23726	D55251-1	mg/l	189	500	667	0.4	20%
Chloride	GP12018/GN23734	D55218-1	mg/l	139	100	245	0.0	20%
Nitrogen, Nitrate	GP12011/GN23726	D55251-1	mg/l	35.4	10	39.3	0.3	20%
Nitrogen, Nitrate	GP12011/GN23726	D55251-1	mg/l	30.4	10	39.3	0.3	20%
Nitrogen, Nitrate	GP12018/GN23734	D55218-1	mg/l	5.5	2.5	8.1	0.0	20%
Nitrogen, Nitrite	GP12011/GN23726	D55251-1	mg/l	0.14	0.25	0.40	12.3	20%
Nitrogen, Nitrite	GP12011/GN23726	D55251-1	mg/l	0.0	0.25	0.40	12.3	20%
Nitrogen, Nitrite	GP12018/GN23734	D55218-1	mg/l	0.0	1.25	1.3	0.0	20%
Phosphate, Ortho	GP12018/GN23734	D55218-1	mg/l	0.0	10	11.6	2.6	20%
Sulfate	GP12011/GN23726	D55251-1	mg/l	-1100	500	1850	0.5	20%
Sulfate	GP12011/GN23726	D55251-1	mg/l	1350	500	1850	0.5	20%
Sulfate	GP12018/GN23734	D55218-1	mg/l	112	100	216	0.0	20%
Total Organic Carbon	GP12030/GN23766	D55181-1	mg/l	2.6	10	12.4	0.8	20%

Associated Samples:

Batch GN23738: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6

Batch GP12011: D55251-1, D55251-2, D55251-4, D55251-5, D55251-6

Batch GP12018: D55251-3, D55251-4

Batch GP12030: D55251-1, D55251-2, D55251-3, D55251-4, D55251-5, D55251-6

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

8.4

8