

PROJECT NO: 011-1712

DRAWN BY: sds

DATE: 6.20.2013

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - MAY 2013  
KNIGHT PA 311-4  
SEC 4, T7S, R95W  
PARACHUTE, COLORADO

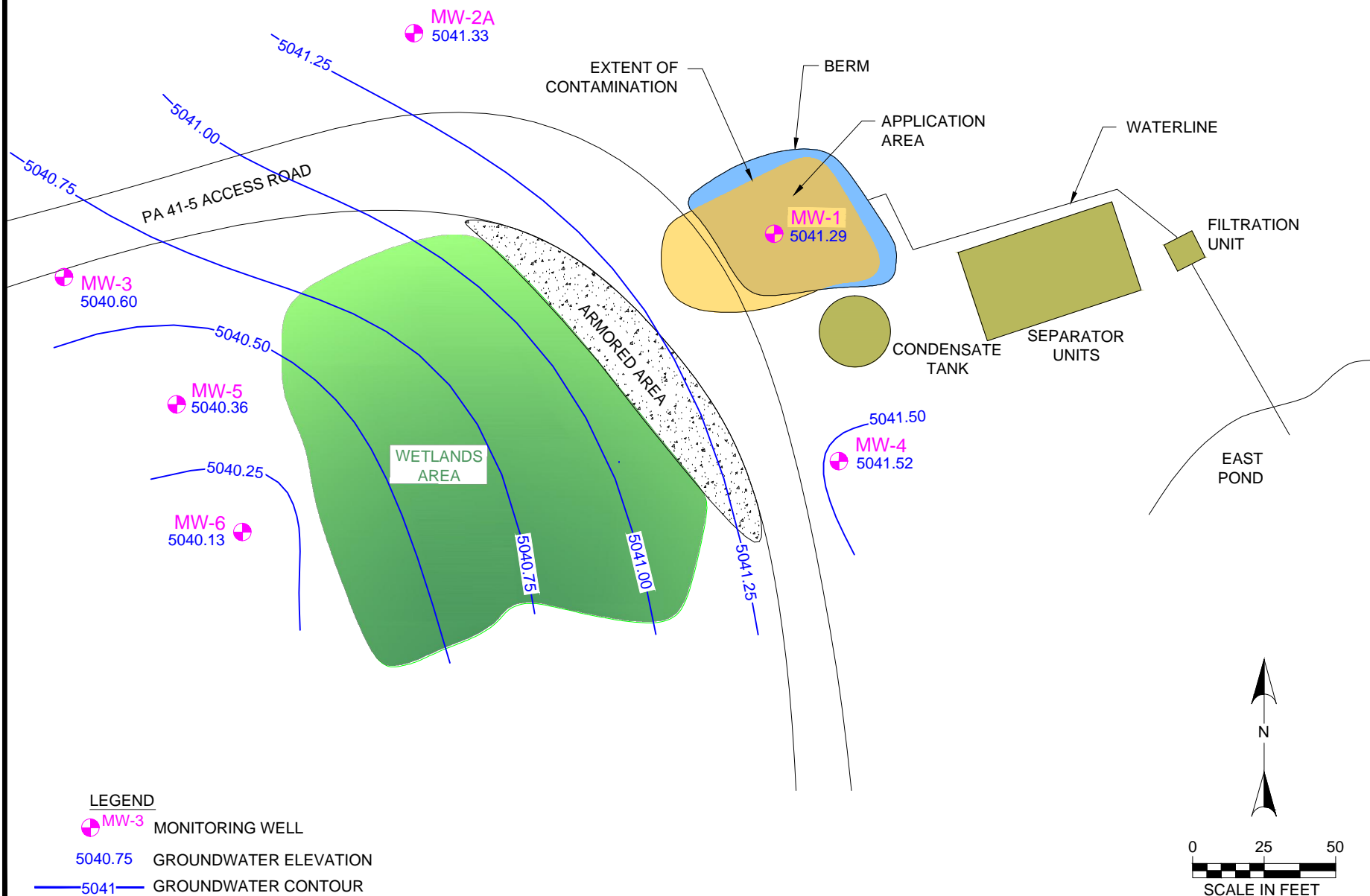
**OLSSON**  
ASSOCIATES

826 21 1/2 Road  
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FIGURE

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GROUNDWATER - PIEZOMETRIC SURFACE MAP - MAY 2013  
 KNIGHT PA 311-4  
 SEC 4, T7S, R95W  
 PARACHUTE, COLORADO

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FIGURE

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Table 1  
Post CoolOX Groundwater Monitoring  
Analytical Summary

SAMPLE SUMMARY						
Location Description	Knight Property Monitoring					
Sample Type	Groundwater					
LABORATORY DATA SUMMARY						
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-1	MW-1	MW-1	MW-1
Sampling Period			4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
Depth to Water (feet)			5.57	5.52	5.28	5.52
Sample Date			11/18/2011	2/14/2012	5/8/2012	8/29/2012
Analytical Parameters						
TPH						
TPH Gasoline Range Organics	NA	mg/l	1.68	1.56	5.62	2.92
TPH Diesel Range Organics	NA	mg/l	0.596	0.412	0.996	0.886
BTEX						
Benzene	5	µg/l	7.9	1.2	<0.20	15.9
Toluene	560 to 1000	µg/l	1.4	< 1.0	<1.0	7.2 J
Ethylbenzene	700	µg/l	24.3	< 1.0	<1.0	65.9
Xylene (total)	1400 to 10000	µg/l	477	227	26.7	517
PAHs						
Acenaphthene	NA	µg/l	< 0.2	< 0.60	<0.48	<0.48
Acenaphthylene	NA	µg/l	< 0.2	< 0.60	<0.48	<0.48
Anthracene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48
Benzo(a)anthracene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48
Benzo(a)pyrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48
Benzo(b)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48
Benzo(g,h,i)perylene	NA	µg/l	< 0.2	< 0.54	<0.48	<0.48
Benzo(k)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48
Chrysene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48
Dibenzo(a,h)anthracene	NA	µg/l	< 0.2	< 0.78	<0.48	<0.48
Fluoranthene	NA	µg/l	< 0.2	< 0.71	<0.48	<0.48
Fluorene	NA	µg/l	< 0.2	< 0.55	<0.48	<0.48
Indeno(1,2,3-cd)pyrene	NA	µg/l	< 0.2	< 1.5	<0.48	<0.48
1-Methylnapthalene	NA	µg/l	1.1	< 0.68	1.1 J	0.67 J
2-Methylnapthalene	NA	µg/l	1.6	0.83 J	2.0 J	1.0 J
Naphthalene	NA	µg/l	2.9	1.2 J	3.6 J	2.0 J
Phenanthrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48
Pyrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48
Metals						
Calcium	NA	mg/l	173	88.3	138	170
Iron	NA	mg/l	26.5	5.32	11.6	17.7
Magnesium	NA	mg/l	36.7	58.6	54.7	72.5
Manganese	NA	mg/l	1.13	0.418	0.653	0.947
Potassium	NA	mg/l	< 10	3.64	4.63	7.7
Selenium	NA	mg/l	< 0.01	< 0.05	<0.050	<0.050
Sodium	NA	mg/l	50.2	63.8	64.7	104
General Chemistry						
Alkalinity, Bicarbonate	NA	mg/l	260	488	498	667
Alkalinity, Carbonate	NA	mg/l	< 5.0	< 5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	NA	mg/l	264	488	497	667
Biological Oxygen Demand, 5 Day	NA	mg/l	10.5	10.9	22.6	21
Bromide	NA	mg/l	< 0.50	< 0.20	1.3	2.8
Chemical Oxygen Demand	NA	mg/l	31.6	18.4	62.3	79.6
Chloride	1.25 x bkgd	mg/l	16.0	11.5	9.0	139
Hydroxide Alkalinity	NA	mg/l	< 5.0	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.66	< 0.23	<0.23	0.077
Nitrogen, Nitrite	NA	mg/l	< 0.50	< 0.061	0.010	0.064
Phosphorus, Total	NA	mg/l	3.5	0.59	1.1	NT
Plate Count, Total	NA	CFU/ml	1590000	110000	300000	360000
Sulfate	1.25 x bkgd	mg/l	16.8	10.9	5.7	66.2
Total Organic Carbon	NA	mg/l	13.2	8.8	10.4	18.5
pH	NA	su	8.34	7.76	7.67	7.38
Field Readings						
Temperature	NA	deg. C	14.6	6.82	13.89	21.20
Specific Conductivity	NA	mS/cm	0.511	0.837	0.789	1.234
Dissolved Oxygen	NA	mg/l	6.55	2.25	3.25	1.51
pH	NA	su	9.05	7.37	7.71	7.49
Solids, Total Dissolved	NA	mg/l	0.3	0.5	0.5	0.8
Turbidity	NA	NTU	264	117	538	386

µg/l -micrograms per liter

mg/l -milligrams per liter

J - indicates an estimated value

µmhos/cm - micromhos per centimeter

mS/cm - millisiemens per centimeter

su - standard units

NA - not applicable

NTU - nephelometric turbidity units

CFU/ml - colony forming units per milliliter

a -Elevated detection limit due to matirx interference

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

Over allowable limit

Table 1  
Post CoolOX Groundwater Monitoring  
Analytical Summary

SAMPLE SUMMARY					
Location Description					
Sample Type					
LABORATORY DATA SUMMARY					
Sample ID	MW-1	MW-1	MW-1	MW-2A	MW-2A
Sampling Period	4th Quarter	1st Quarter	2nd Quarter	4th Quarter	1st Quarter
Depth to Water (feet)	6.78	6.00	5.16	4.93	5.04
Sample Date	11/26/2012	3/6/2013	5/30/2013	11/18/2011	2/14/2012
Analytical Parameters					
TPH					
TPH Gasoline Range Organics	2.01	3.59	2.41	< 0.050	< 0.10
TPH Diesel Range Organics	0.518	0.405	0.361	<0.10	< 0.30
BTEX					
Benzene	7.6	9.8	9.7	< 1.0	< 0.20
Toluene	<5.0	<1.0	2.3	< 1.0	< 1.0
Ethylbenzene	37.7	72.4	49.7	< 1.0	< 1.0
Xylene (total)	421	772	658	< 3.0	< 2.0
PAHs					
Acenaphthene	<0.48	NT	NT	< 0.2	< 0.60
Acenaphthylene	<0.48	NT	NT	< 0.2	< 0.60
Anthracene	<0.48	NT	NT	< 0.2	< 0.47
Benzo(a)anthracene	<0.48	NT	NT	< 0.2	< 0.47
Benzo(a)pyrene	<0.48	NT	NT	< 0.2	< 0.47
Benzo(b)fluoranthene	<0.48	NT	NT	< 0.2	< 0.47
Benzo(g,h,i)perylene	<0.48	NT	NT	< 0.2	< 0.54
Benzo(k)fluoranthene	<0.48	NT	NT	< 0.2	< 0.47
Chrysene	<0.48	NT	NT	< 0.2	< 0.47
Dibenzo(a,h)anthracene	<0.48	NT	NT	< 0.2	< 0.78
Fluoranthene	<0.48	NT	NT	< 0.2	< 0.71
Fluorene	<0.48	NT	NT	< 0.2	< 0.55
Indeno(1,2,3-cd)pyrene	<0.48	NT	NT	< 0.2	< 1.5
1-Methylnapthalene	0.50 J	NT	NT	< 0.2	< 0.68
2-Methylnapthalene	<0.48	NT	NT	< 0.2	< 0.68
Naphthalene	<0.48	NT	NT	< 0.2	< 0.73
Phenanthrene	<0.48	NT	NT	< 0.2	< 0.47
Pyrene	<0.48	NT	NT	< 0.2	< 0.47
Metals					
Calcium	147	116	114	129	109
Iron	19.5	10.6	12.0	14	4.77
Magnesium	63.6	82.7	60.6	51.4	55.4
Manganese	0.748	0.709	0.650	1.72	2.03
Potassium	6.15	5.42	5.75	< 10	3.19
Selenium	<0.05	<0.05	<0.05	< 0.01	< 0.05
Sodium	80	101	86	60.4	59.4
General Chemistry					
Alkalinity, Bicarbonate	746	618	484	372	440
Alkalinity, Carbonate	<5.0	<5.0	<5.0	< 5.0	< 5.0
Alkalinity, Total as CaCO3	746	618	484	374	440
Biological Oxygen Demand, 5 Day	28.4	15.4	11.8	< 15	< 10
Bromide	<0.25	0.16	<0.10 <sup>a</sup>	< 0.50	< 0.20
Chemical Oxygen Demand	21.7	45.9	21.2	66.9	20.4
Chloride	39.2	12.3	9.7	15.4	13.2
Hydroxide Alkalinity	NT	NT	NT	< 5.0	NT
Nitrogen, Nitrate	<0.050	0.26	0.88	0.57	< 0.23
Nitrogen, Nitrite	0.015	0.064	0.052	< 0.50	< 0.061
Phosphorus, Total	2.0	0.95	0.63	0.89	1.3
Plate Count, Total	150000	NT	NT	70000	6900
Sulfate	13.4	117	51.9	16.8	44.2
Total Organic Carbon	10.2	9.3	8.9	4.5	3.9
pH	7.48	7.56	7.53	7.14	7.58
Field Readings					
Temperature	14.49	7.80	12.60	13.2	8.3
Specific Conductivity	1.227	1.319	0.958	0.651	0.77
Dissolved Oxygen	0.95	1.34	0.28	0.24	1.22
pH	7.7	7.3	7.8	7.50	7.25
Solids, Total Dissolved	NT	NT	0.6	0.4	0.5
Turbidity	117	59.9	NT	653	766

µg/l -micrograms per liter

mg/l -milligrams per liter

J - indicates an estimated value

µmhos/cm - micromhos per centimeter

mS/cm - millisiemens per centimeter

Table 1  
Post CoolOX Groundwater Monitoring  
Analytical Summary

SAMPLE SUMMARY						
Location Description						
Sample Type						
LABORATORY DATA SUMMARY						
Sample ID	MW-2A	MW-2A	MW-2A	MW-2A	MW-3	MW-3
Sampling Period	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	4th Quarter	1st Quarter
Depth to Water (feet)	4.72	5.65	5.50	4.44	5.68	5.77
Sample Date	8/29/2012	11/26/2012	3/6/2013	5/30/2013	11/18/2011	2/14/2012
Analytical Parameters						
TPH						
TPH Gasoline Range Organics	<0.10	<0.10	<0.10	<0.10	< 0.050	< 0.10
TPH Diesel Range Organics	<0.25	<0.17	<0.17	<0.17	25.1	< 0.30
BTEX						
Benzene	< 0.20	<0.20	<0.20	<0.20	< 1.0	< 0.20
Toluene	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0
Ethylbenzene	< 1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0
Xylene (total)	< 2.0	<2.0	<2.0	<2.0	< 3.0	< 2.0
PAHs						
Acenaphthene	<0.47	<0.48	NT	NT	< 0.2	< 0.60
Acenaphthylene	<0.47	<0.48	NT	NT	< 0.2	< 0.60
Anthracene	<0.47	<0.48	NT	NT	< 0.2	< 0.47
Benzo(a)anthracene	<0.47	<0.48	NT	NT	< 0.2	< 0.47
Benzo(a)pyrene	<0.47	<0.48	NT	NT	< 0.2	< 0.47
Benzo(b)fluoranthene	<0.47	<0.48	NT	NT	< 0.2	< 0.47
Benzo(g,h,i)perylene	<0.47	<0.48	NT	NT	< 0.2	< 0.54
Benzo(k)fluoranthene	<0.47	<0.48	NT	NT	< 0.2	< 0.47
Chrysene	<0.47	<0.48	NT	NT	< 0.2	< 0.47
Dibenzo(a,h)anthracene	<0.47	<0.48	NT	NT	< 0.2	< 0.78
Fluoranthene	<0.47	<0.48	NT	NT	< 0.2	< 0.71
Fluorene	<0.47	<0.48	NT	NT	< 0.2	< 0.55
Indeno(1,2,3-cd)pyrene	<0.47	<0.48	NT	NT	< 0.2	< 1.5
1-Methylnapthalene	<0.47	<0.48	NT	NT	< 0.2	< 0.68
2-Methylnapthalene	<0.47	<0.48	NT	NT	< 0.2	< 0.68
Naphthalene	<0.47	<0.48	NT	NT	< 0.2	< 0.73
Phenanthrene	<0.47	<0.48	NT	NT	< 0.2	< 0.47
Pyrene	<0.47	<0.48	NT	NT	< 0.2	< 0.47
Metals						
Calcium	94.6	208	107	102	76.7	151
Iron	10.1	33.5	15.7	15.0	4.8	6.79
Magnesium	61.6	81.6	65.2	64.7	37.2	50.3
Manganese	1.64	3.37	3.93	2.62	0.718	1.43
Potassium	6.54	8.6	6.06	5.93	< 10	2.95
Selenium	< 0.05	<0.05	<0.05	<0.05	< 0.01	< 0.05
Sodium	96.7	97.8	95.6	90.2	56.1	61.4
General Chemistry						
Alkalinity, Bicarbonate	364	299	382	483	384	462
Alkalinity, Carbonate	<5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0
Alkalinity, Total as CaCO3	364	299	382	483	386	462
Biological Oxygen Demand, 5 Day	< 10	<10	<10	1.4	11.1	< 10
Bromide	<0.10	0.11	<0.10 <sup>a</sup>	<0.10 <sup>a</sup>	< 0.50	< 0.20
Chemical Oxygen Demand	49	<10	<10	71.3	21	< 10
Chloride	151	206	96.4	16.8	16.7	14.5
Hydroxide Alkalinity	NT	NT	NT	NT	< 5.0	NT
Nitrogen, Nitrate	0.063	0.031	0.22	0.035	0.58	< 0.23
Nitrogen, Nitrite	0.04	<0.0080	0.0080 <sup>a</sup>	<0.0080 <sup>a</sup>	0.67	< 0.061
Phosphorus, Total	NT	1.4	0.44	0.05	0.45	1.7
Plate Count, Total	5600	8100	NT	NT	120000	8500
Sulfate	108	155	98.5	98.5	10.9	24
Total Organic Carbon	5.6	4.9	4	5.3	4.5	4.3
pH	7.51	7.49	7.64	7.66	7.1	7.64
Field Readings						
Temperature	20.9	13.1	9.98	11.50	14.8	7.46
Specific Conductivity	1.132	1.34	1.195	1.037	0.663	0.763
Dissolved Oxygen	1.73	1.22	0.86	0.17	0.14	2.43
pH	7.56	7.75	7.31	7.7	7.41	7.26
Solids, Total Dissolved	0.7	NT	NT	0.7	0.4	0.5
Turbidity	1997	345	96.3	NT	568	2000

µg/l -micrograms per liter

mg/l -milligrams per liter

J - indicates an estimated value

µmhos/cm - micromhos per centimeter

mS/cm - millisiemens per centimeter



Table 1  
Post CoolOX Groundwater Monitoring  
Analytical Summary

SAMPLE SUMMARY						
Location Description						
Sample Type						
LABORATORY DATA SUMMARY						
Sample ID	MW-3	MW-3	MW-3	MW-3	MW-3	MW-4
Sampling Period	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	4th Quarter
Depth to Water (feet)	5.67	5.56	6.45	6.11	5.25	10.64
Sample Date	5/8/2012	8/29/2012	11/26/2012	3/6/2013	5/30/2013	11/18/2011
Analytical Parameters						
TPH						
TPH Gasoline Range Organics	<0.10	<0.10	<0.10	<0.10	<0.10	< 0.050
TPH Diesel Range Organics	<0.25	<0.25	<0.17	<0.17	<0.17	<0.10
BTEX						
Benzene	<0.20	<0.20	<0.20	<0.20	<0.20	< 1.0
Toluene	<1.0	<1.0	<1.0	<1.0	<1.0	< 1.0
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	< 1.0
Xylene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	< 3.0
PAHs						
Acenaphthene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Acenaphthylene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Anthracene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Benzo(a)anthracene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Benzo(a)pyrene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Benzo(b)fluoranthene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Benzo(g,h,i)perylene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Benzo(k)fluoranthene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Chrysene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Dibenzo(a,h)anthracene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Fluoranthene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Fluorene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Indeno(1,2,3-cd)pyrene	<0.48	<0.48	<0.49	NT	NT	< 0.2
1-Methylnapthalene	<0.48	<0.48	<0.49	NT	NT	< 0.2
2-Methylnapthalene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Naphthalene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Phenanthrene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Pyrene	<0.48	<0.48	<0.49	NT	NT	< 0.2
Metals						
Calcium	157	133	218	117	111	73.9
Iron	26.8	16.3	35.4	12.7	10.4	3.52
Magnesium	57.8	62.8	75.1	65.5	59.0	40.6
Manganese	1.71	1.32	2.31	1.18	1.01	1.74
Potassium	6.88	7.87	9.53	5.43	4.79	< 10
Selenium	<0.050	<0.050	<0.05	<0.05	<0.05	< 0.01
Sodium	61.0	92.9	93.9	89.2	92.4	62.1
General Chemistry						
Alkalinity, Bicarbonate	427	396	309	333	465	392
Alkalinity, Carbonate	<5.0	<5.0	<5.0	<5.0	<5.0	< 5.0
Alkalinity, Total as CaCO3	427	396	309	333	465	396
Biological Oxygen Demand, 5 Day	<10	<10	<10	<10	<1.0	8.1
Bromide	<0.20	<0.10	<0.10	0.13	0.13	< 0.50
Chemical Oxygen Demand	<10	49	<10	15.7	25.3	28.1
Chloride	12.9	151	210	161	49.5	14.1
Hydroxide Alkalinity	NT	NT	NT	NT	NT	< 5.0
Nitrogen, Nitrate	<0.090	<0.020	0.034	<0.020 <sup>a</sup>	0.04	< 0.50
Nitrogen, Nitrite	<0.010	<0.040	0.015	<0.0080 <sup>a</sup>	<0.020 <sup>a</sup>	< 0.50
Phosphorus, Total	1.3	NT	1.7	0.31	3.3	0.14
Plate Count, Total	10000	14000	12000	NT	NT	120000
Sulfate	34.7	125	137	161	170	36.2
Total Organic Carbon	4.2	5.6	4.4	3.7	6.1	4.8
pH	7.6	7.33	7.46	7.55	7.63	7.18
Field Readings						
Temperature	13.49	21.37	14.35	7.88	13.60	14.2
Specific Conductivity	0.783	1.291	0.417	1.448	1.278	0.713
Dissolved Oxygen	1.46	1.82	1.67	1	0.71	0.15
pH	7.8	7.48	7.75	7.25	7.61	7.5
Solids, Total Dissolved	0.5	0.8	NT	NT	0.8	0.5
Turbidity	1854	1102	1971	328	NT	62.7

µg/l -micrograms per liter

mg/l -milligrams per liter

J - indicates an estimated value

µmhos/cm - micromhos per centimeter

mS/cm - millisiemens per centimeter

Table 1  
Post CoolOX Groundwater Monitoring  
Analytical Summary

SAMPLE SUMMARY						
Location Description						
Sample Type						
LABORATORY DATA SUMMARY						
Sample ID	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4
Sampling Period	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
Depth to Water (feet)	10.34	10.63	11.31	11.64	10.77	10.7
Sample Date	2/14/2012	5/8/2012	8/29/2012	11/26/2012	3/6/2013	5/30/2013
Analytical Parameters						
TPH						
TPH Gasoline Range Organics	< 0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH Diesel Range Organics	< 0.30	<0.25	<0.25	<0.17	<0.17	<0.17
BTEX						
Benzene	< 0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene (total)	< 2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PAHs						
Acenaphthene	< 0.60	<0.47	<0.48	<0.48	NT	NT
Acenaphthylene	< 0.60	<0.47	<0.48	<0.48	NT	NT
Anthracene	< 0.47	<0.47	<0.48	<0.48	NT	NT
Benzo(a)anthracene	< 0.47	<0.47	<0.48	<0.48	NT	NT
Benzo(a)pyrene	< 0.47	<0.47	<0.48	<0.48	NT	NT
Benzo(b)fluoranthene	< 0.47	<0.47	<0.48	<0.48	NT	NT
Benzo(g,h,i)perylene	< 0.54	<0.47	<0.48	<0.48	NT	NT
Benzo(k)fluoranthene	< 0.47	<0.47	<0.48	<0.48	NT	NT
Chrysene	< 0.47	<0.47	<0.48	<0.48	NT	NT
Dibenzo(a,h)anthracene	< 0.78	<0.47	<0.48	<0.48	NT	NT
Fluoranthene	< 0.71	<0.47	<0.48	<0.48	NT	NT
Fluorene	< 0.55	<0.47	<0.48	<0.48	NT	NT
Indeno(1,2,3-cd)pyrene	< 1.5	<0.47	<0.48	<0.48	NT	NT
1-Methylnapthalene	< 0.68	<0.47	<0.48	<0.48	NT	NT
2-Methylnapthalene	< 0.68	<0.47	<0.48	<0.48	NT	NT
Naphthalene	< 0.73	<0.47	<0.48	<0.48	NT	NT
Phenanthrene	< 0.47	<0.47	<0.48	<0.48	NT	NT
Pyrene	< 0.47	<0.47	<0.48	<0.48	NT	NT
Metals						
Calcium	126	107	121	238	60.4	74.3
Iron	6.71	18.1	19.7	47.5	2.63	7.26
Magnesium	48.6	55.4	71.5	104	64.5	64.9
Manganese	1.71	1.91	4.4	2.16	0.316	0.533
Potassium	2.89	5.9	8.73	12.2	5	5.6
Selenium	< 0.05	<0.050	<0.050	<0.05	<0.05	<0.05
Sodium	58.3	71.8	99.1	110.0	99.2	85.0
General Chemistry						
Alkalinity, Bicarbonate	364	452	616	618	489	482
Alkalinity, Carbonate	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	364	452	616	618	489	482
Biological Oxygen Demand, 5 Day	< 10	<10	10.7	<10	<10	2.4
Bromide	< 0.20	<0.40	0.19	0.26	<0.10 <sup>a</sup>	<0.10 <sup>a</sup>
Chemical Oxygen Demand	< 10	<10	57	20.3	23.7	12.4
Chloride	6.9	7.2	13.1	16.4	8	12
Hydroxide Alkalinity	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	< 0.23	<0.090	<0.020	<0.050	<0.020 <sup>a</sup>	1.7
Nitrogen, Nitrite	< 0.061	<0.010	0.008	<0.0080	<0.0080 <sup>a</sup>	0.02
Phosphorus, Total	1.4	1.1	NT	1.2	0.10	0.16
Plate Count, Total	4600	5400	3800	13000	NT	NT
Sulfate	40.8	34.2	13	110	113	74.9
Total Organic Carbon	3.6	4.5	8.5	10.3	3.8	4.4
pH	7.73	7.65	7.64	7.69	7.81	7.81
Field Readings						
Temperature	6.5	13.23	19.42	14.68	6.83	12.20
Specific Conductivity	0.682	0.814	1.02	1.371	1.15	0.983
Dissolved Oxygen	2.34	2.74	1.67	1.96	1.24	1.01
pH	7.38	7.93	7.6	7.85	7.42	7.82
Solids, Total Dissolved	0.4	0.5	0.7	NT	NT	0.6
Turbidity	443	930	1572	554	26.5	Nt

µg/l -micrograms per liter

mg/l -milligrams per liter

J - indicates an estimated value

µmhos/cm - micromhos per centimeter

mS/cm - millisiemens per centimeter

Table 1  
Post CoolOX Groundwater Monitoring  
Analytical Summary

SAMPLE SUMMARY						
Location Description						
Sample Type						
LABORATORY DATA SUMMARY						
Sample ID	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5
Sampling Period	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
Depth to Water (feet)	5.63	6.06	6.11	6.12	6.8	6.6
Sample Date	11/18/2011	2/14/2012	5/8/2012	8/29/2012	11/26/2012	3/6/2013
Analytical Parameters						
TPH						
TPH Gasoline Range Organics	< 0.050	< 0.10	<0.10	<0.10	<0.10	<0.10
TPH Diesel Range Organics	<0.10	< 0.30	<0.25	<0.25	<0.17	<0.17
BTEX						
Benzene	< 1.0	< 0.20	<0.20	<0.20	<0.20	<0.20
Toluene	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Xylene (total)	< 3.0	< 2.0	<2.0	<2.0	<2.0	<2.0
PAHs						
Acenaphthene	< 0.2	< 0.60	<0.48	<0.48	<0.47	NT
Acenaphthylene	< 0.2	< 0.60	<0.48	<0.48	<0.47	NT
Anthracene	< 0.2	< 0.47	<0.48	<0.48	<0.47	NT
Benzo(a)anthracene	< 0.2	< 0.47	<0.48	<0.48	<0.47	NT
Benzo(a)pyrene	< 0.2	< 0.47	<0.48	<0.48	<0.47	NT
Benzo(b)fluoranthene	< 0.2	< 0.47	<0.48	<0.48	<0.47	NT
Benzo(g,h,i)perylene	< 0.2	< 0.54	<0.48	<0.48	<0.47	NT
Benzo(k)fluoranthene	< 0.2	< 0.47	<0.48	<0.48	<0.47	NT
Chrysene	< 0.2	< 0.47	<0.48	<0.48	<0.47	NT
Dibenzo(a,h)anthracene	< 0.2	< 0.78	<0.48	<0.48	<0.47	NT
Fluoranthene	< 0.2	< 0.71	<0.48	<0.48	<0.47	NT
Fluorene	< 0.2	< 0.55	<0.48	<0.48	<0.47	NT
Indeno(1,2,3-cd)pyrene	< 0.2	< 1.5	<0.48	<0.48	<0.47	NT
1-Methylnapthalene	< 0.2	< 0.68	<0.48	<0.48	<0.47	NT
2-Methylnapthalene	< 0.2	< 0.68	<0.48	<0.48	<0.47	NT
Naphthalene	< 0.2	< 0.73	<0.48	<0.48	<0.47	NT
Phenanthrene	< 0.2	< 0.47	<0.48	<0.48	<0.47	NT
Pyrene	< 0.2	< 0.47	<0.48	<0.48	<0.47	NT
Metals						
Calcium	119	198	157	99.9	333	103
Iron	18.9	18.2	33.3	11.4	83.1	15.6
Magnesium	45.6	62.2	60.8	56.0	108	71.4
Manganese	0.977	1.56	1.33	0.808	2.81	0.849
Potassium	< 10	3.22	6.71	5.69	12.6	4.34
Selenium	< 0.01	< 0.05	<0.050	<0.050	<0.05	<0.05
Sodium	55.8	56.4	58.9	8.0	85.1	97.9
General Chemistry						
Alkalinity, Bicarbonate	364	540	481	429	452	512
Alkalinity, Carbonate	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	366	540	481	429	452	512
Biological Oxygen Demand, 5 Day	< 15	< 10	<10	<10	<10	<10
Bromide	< 0.50	< 4.0	<0.40	<0.10	0.1	0.16
Chemical Oxygen Demand	40.4	18.1	<10	75.5	10.8	20
Chloride	18.1	20	10.6	133	198	78
Hydroxide Alkalinity	< 5.0	NT	NT	NT	NT	NT
Nitrogen, Nitrate	0.51	< 0.45	<0.090	0.039	<0.050	0.022
Nitrogen, Nitrite	< 0.50	< 0.061	<0.010	0.052	0.011	<0.0080 <sup>a</sup>
Phosphorus, Total	1.2	2	1.6	NT	1.8	0.53
Plate Count, Total	180000	3300	1900	63000	16000	NT
Sulfate	16.2	19	27.8	101	142	109
Total Organic Carbon	6.1	10.9	5.0	6.4	5.2	5.6
pH	7.22	7.62	7.65	7.47	7.54	7.6
Field Readings						
Temperature	12.7	5.77	13.89	20.67	13.05	6.3
Specific Conductivity	0.667	0.798	0.727	1.116	1.46	1.369
Dissolved Oxygen	0.13	1.75	2.24	1.15	1.2	0.85
pH	7.47	7.22	7.85	7.51	7.76	7.3
Solids, Total Dissolved	0.4	0.5	0.5	0.7	NT	NT
Turbidity	896	2000	2000	2000	465	227

µg/l -micrograms per liter

mg/l -milligrams per liter

J - indicates an estimated value

µmhos/cm - micromhos per centimeter

mS/cm - millisiemens per centimeter



Table 1  
Post CoolOX Groundwater Monitoring  
Analytical Summary

SAMPLE SUMMARY						
Location Description						
Sample Type						
LABORATORY DATA SUMMARY						
Sample ID	MW-5	MW-6	MW-6	MW-6	MW-6	MW-6
Sampling Period	2nd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Depth to Water (feet)	5.81	6.69	6.70	6.78	6.84	7.35
Sample Date	5/30/2013	11/18/2011	2/14/2012	5/8/2012	8/29/2012	11/26/2012
Analytical Parameters						
TPH						
TPH Gasoline Range Organics	<0.10	< 0.050	< 0.10	<0.10	<0.10	<0.10
TPH Diesel Range Organics	<0.17	0.213	< 0.30	0.261	0.445	0.347
BTEX						
Benzene	<0.20	< 1.0	< 0.20	<0.20	<0.20	<0.20
Toluene	<1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0
Xylene (total)	<2.0	< 3.0	< 2.0	<2.0	<2.0	<2.0
PAHs						
Acenaphthene	NT	< 0.2	< 0.60	<0.48	<0.48	<0.48
Acenaphthylene	NT	< 0.2	< 0.60	<0.48	<0.48	<0.48
Anthracene	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Benzo(a)anthracene	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Benzo(a)pyrene	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Benzo(b)fluoranthene	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Benzo(g,h,i)perylene	NT	< 0.2	< 0.54	<0.48	<0.48	<0.48
Benzo(k)fluoranthene	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Chrysene	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Dibenzo(a,h)anthracene	NT	< 0.2	< 0.78	<0.48	<0.48	<0.48
Fluoranthene	NT	< 0.2	< 0.71	<0.48	<0.48	<0.48
Fluorene	NT	< 0.2	< 0.55	<0.48	<0.48	<0.48
Indeno(1,2,3-cd)pyrene	NT	< 0.2	< 1.5	<0.48	<0.48	<0.48
1-Methylnapthalene	NT	< 0.2	< 0.68	<0.48	<0.48	<0.48
2-Methylnapthalene	NT	< 0.2	< 0.68	<0.48	<0.48	<0.48
Naphthalene	NT	< 0.2	< 0.73	<0.48	<0.48	<0.48
Phenanthrene	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Pyrene	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Metals						
Calcium	84	80.8	72.8	78.8	114	229
Iron	10.8	16.7	4.98	13.2	6.90	46.60
Magnesium	52.2	51	57.9	53.8	57.4	92.7
Manganese	0.587	3.25	1.59	1.17	0.817	3.950
Potassium	4.2	< 10	2.17	4.43	6.43	9.82
Selenium	<0.050	< 0.01	< 0.05	<0.050	<0.050	<0.05
Sodium	88.4	53.7	59.0	63.9	82.0	82.0
General Chemistry						
Alkalinity, Bicarbonate	495	388	435	438	352	356
Alkalinity, Carbonate	<5.0	< 5.0	< 5.0	<5.0		<5.0
Alkalinity, Total as CaCO3	496	390	435	438	352	356
Biological Oxygen Demand, 5 Day	1.8	6.8	< 10	<10	<10	<10
Bromide	0.25	< 0.50	< 4.0	1.0	0.063	0.100
Chemical Oxygen Demand	12.7	96.8	35.3	<10	47.4	10.8
Chloride	15	21.1	31	11.8	136	198
Hydroxide Alkalinity	NT	< 5.0	NT	NT	NT	NT
Nitrogen, Nitrate	<0.020 <sup>a</sup>	0.56	< 0.45	<0.23	<0.010	0.056
Nitrogen, Nitrite	<0.0080 <sup>a</sup>	< 0.50	< 0.061	<0.010	0.04	<0.0080
Phosphorus, Total	0.15	0.46	0.29	0.83	NT	1.6
Plate Count, Total	NT	2210000	81000	64000	820000	420000
Sulfate	64.9	45.1	21.7	13.2	114	114
Total Organic Carbon	5.1	34.6	11.5	7.3	5.2	5.2
pH	7.68	7.2	7.59	7.65	7.39	5.57
Field Readings						
Temperature	11.6	12.7	5.44	14.02	21.30	12.89
Specific Conductivity	1.024	0.749	0.866	0.790	1.145	1.395
Dissolved Oxygen	0.23	0.27	1.4	2.40	2.30	1.35
pH	7.67	7.52	7.17	NT	7.49	7.72
Solids, Total Dissolved	0.67	0.5	0.6	0.5	0.7	0.6
Turbidity	NT	478	248	576	201	384

µg/l -micrograms per liter

mg/l -milligrams per liter

J - indicates an estimated value

µmhos/cm - micromhos per centimeter

mS/cm - millisiemens per centimeter

Table 1  
Post CoolOX Groundwater Monitoring  
Analytical Summary

SAMPLE SUMMARY		
Location Description		
Sample Type		
LABORATORY DATA SUMMARY		
Sample ID	MW-6	MW-6
Sampling Period	1st Quarter	2nd Quarter
Depth to Water (feet)	7.00	6.51
Sample Date	3/6/2013	5/30/2013
Analytical Parameters		
TPH		
TPH Gasoline Range Organics	<0.10	<0.10
TPH Diesel Range Organics	0.175 J	<0.17
BTEX		
Benzene	<0.20	<0.20
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Xylene (total)	<2.0	<2.0
PAHs		
Acenaphthene	NT	NT
Acenaphthylene	NT	NT
Anthracene	NT	NT
Benzo(a)anthracene	NT	NT
Benzo(a)pyrene	NT	NT
Benzo(b)fluoranthene	NT	NT
Benzo(g,h,i)perylene	NT	NT
Benzo(k)fluoranthene	NT	NT
Chrysene	NT	NT
Dibenzo(a,h)anthracene	NT	NT
Fluoranthene	NT	NT
Fluorene	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT
1-Methylnapthalene	NT	NT
2-Methylnapthalene	NT	NT
Naphthalene	NT	NT
Phenanthrene	NT	NT
Pyrene	NT	NT
Metals		
Calcium	103	66
Iron	14.50	8.70
Magnesium	86.7	55.7
Manganese	1.07	0.56
Potassium	5.24	4.01
Selenium	<0.05	<0.05
Sodium	96.5	87.1
General Chemistry		
Alkalinity, Bicarbonate	574	466
Alkalinity, Carbonate	<5.0	<5.0
Alkalinity, Total as CaCO3	574	466
Biological Oxygen Demand, 5 Day	<10	2
Bromide	0.270	<0.10 <sup>a</sup>
Chemical Oxygen Demand	21.3	11.5
Chloride	57.8	13
Hydroxide Alkalinity	NT	NT
Nitrogen, Nitrate	<0.020 <sup>a</sup>	0.021
Nitrogen, Nitrite	<0.0080 <sup>a</sup>	<0.0080 <sup>a</sup>
Phosphorus, Total	0.32	0.22
Plate Count, Total	NT	NT
Sulfate	95.9	62.5
Total Organic Carbon	7	5.1
pH	7.61	7.65
Field Readings		
Temperature	5.30	12.20
Specific Conductivity	1.368	0.956
Dissolved Oxygen	2.59	5.00
pH	7.35	7.78
Solids, Total Dissolved	NT	0.6
Turbidity	NT	NT

µg/l -micrograms per liter

mg/l -milligrams per liter

J - indicates an estimated value

µmhos/cm - micromhos per centimeter

mS/cm - millisiemens per centimeter



06/14/13

## Technical Report for

**WPX Energy Rocky Mountain, LLC**

**CORCCOGJ: Knight Property Quarterly Sampling (011.1712)**

**NXEEPPARACH**

**Accutest Job Number: D46695**

**Sampling Date: 05/30/13**

### Report to:

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**Total number of pages in report: 69**



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

A handwritten signature in black ink, appearing to read 'Scott Heideman'.

**Scott Heideman**  
**Laboratory Director**

**Client Service contact: Renea Jackson 303-425-6021**

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

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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D46695

CORCCOGJ: Knight Property Quarterly Sampling (011.1712)  
Project No: NXEEPPARACH

Sample Number	Collected		Matrix Code	Type	Client Sample ID
	Date	Time By			
D46695-1	05/30/13	12:50 JV	05/31/13	AQ Ground Water	MW-1
D46695-2	05/30/13	11:25 JV	05/31/13	AQ Ground Water	MW-2A
D46695-3	05/30/13	10:55 JV	05/31/13	AQ Ground Water	MW-3
D46695-4	05/30/13	12:05 JV	05/31/13	AQ Ground Water	MW-4
D46695-5	05/30/13	09:55 JV	05/31/13	AQ Ground Water	MW-5
D46695-6	05/30/13	09:30 JV	05/31/13	AQ Ground Water	MW-6



## Summary of Hits

**Job Number:** D46695  
**Account:** WPX Energy Rocky Mountain, LLC  
**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)  
**Collected:** 05/30/13

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

### D46695-1 MW-1

TPH-GRO (C6-C10)	2.41	0.20	0.10	mg/l	SW846 8015B
Benzene	9.7	1.0	0.20	ug/l	SW846 8021B
Toluene	2.3	2.0	1.0	ug/l	SW846 8021B
Ethylbenzene	49.7	2.0	1.0	ug/l	SW846 8021B
Xylenes (total)	658	10	10	ug/l	SW846 8021B
TPH-DRO (C10-C28)	0.361	0.19	0.17	mg/l	SW846-8015B
Calcium	114000	400		ug/l	SW846 6010C
Iron	12000	70		ug/l	SW846 6010C
Magnesium	60600	200		ug/l	SW846 6010C
Manganese	650	5.0		ug/l	SW846 6010C
Potassium	5750	1000		ug/l	SW846 6010C
Sodium	85900	400		ug/l	SW846 6010C
Alkalinity, Bicarbonate as CaCO3	484	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	484	5.0		mg/l	SM 2320B-2011
BOD, 5 Day	11.8	1.0		mg/l	SM 5210B-2011
Chemical Oxygen Demand	21.2	10		mg/l	SM 5220D-2011
Chloride	9.7	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate	0.88	0.020		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.052	0.0080		mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	0.63	0.010		mg/l	HACH8190/SM4500P-B/E
Solids, Total Dissolved	610	10		mg/l	SM 2540C-2011
Sulfate	51.9	1.0		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	8.9	1.0		mg/l	SM 5310B-2011
pH	7.53			su	SM4500HB+ -2011/9040C

### D46695-2 MW-2A

Calcium	102000	400		ug/l	SW846 6010C
Iron	15000	70		ug/l	SW846 6010C
Magnesium	64700	200		ug/l	SW846 6010C
Manganese	2620	5.0		ug/l	SW846 6010C
Potassium	5930	1000		ug/l	SW846 6010C
Sodium	90200	400		ug/l	SW846 6010C
Alkalinity, Bicarbonate as CaCO3	483	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	483	5.0		mg/l	SM 2320B-2011
BOD, 5 Day	1.4	1.0		mg/l	SM 5210B-2011
Chemical Oxygen Demand	71.3	10		mg/l	SM 5220D-2011
Chloride	16.8	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate	0.035	0.020		mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	0.046	0.010		mg/l	HACH8190/SM4500P-B/E
Solids, Total Dissolved	1320	10		mg/l	SM 2540C-2011
Sulfate	98.5	2.5		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	5.3	1.0		mg/l	SM 5310B-2011

## Summary of Hits

**Job Number:** D46695  
**Account:** WPX Energy Rocky Mountain, LLC  
**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)  
**Collected:** 05/30/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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pH		7.66			su	SM4500HB+ -2011/9040C
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### D46695-3 MW-3

Calcium	111000	400		ug/l	SW846 6010C
Iron	10400	70		ug/l	SW846 6010C
Magnesium	59000	200		ug/l	SW846 6010C
Manganese	1010	5.0		ug/l	SW846 6010C
Potassium	4790	1000		ug/l	SW846 6010C
Sodium	92400	400		ug/l	SW846 6010C
Alkalinity, Bicarbonate as CaCO3	465	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	465	5.0		mg/l	SM 2320B-2011
BOD, 5 Day	< 1.0	1.0		mg/l	SM 5210B-2011
Bromide	0.13	0.10		mg/l	EPA 300.0/SW846 9056
Chemical Oxygen Demand	25.3	10		mg/l	SM 5220D-2011
Chloride	49.5	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate	0.040	0.020		mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	3.3	0.050		mg/l	HACH8190/SM4500P-B/E
Solids, Total Dissolved	796	10		mg/l	SM 2540C-2011
Sulfate	170	5.0		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	6.1	1.0		mg/l	SM 5310B-2011
pH	7.63			su	SM4500HB+ -2011/9040C

### D46695-4 MW-4

Calcium	74300	400		ug/l	SW846 6010C
Iron	7260	70		ug/l	SW846 6010C
Magnesium	64900	200		ug/l	SW846 6010C
Manganese	533	5.0		ug/l	SW846 6010C
Potassium	5600	1000		ug/l	SW846 6010C
Sodium	85000	400		ug/l	SW846 6010C
Alkalinity, Bicarbonate as CaCO3	482	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	482	5.0		mg/l	SM 2320B-2011
BOD, 5 Day	2.4	1.0		mg/l	SM 5210B-2011
Chemical Oxygen Demand	12.4	10		mg/l	SM 5220D-2011
Chloride	12.0	1.0		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate	1.7	0.020		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.020	0.0080		mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	0.16	0.010		mg/l	HACH8190/SM4500P-B/E
Solids, Total Dissolved	608	10		mg/l	SM 2540C-2011
Sulfate	74.9	2.5		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	4.4	1.0		mg/l	SM 5310B-2011
pH	7.81			su	SM4500HB+ -2011/9040C

## Summary of Hits

**Job Number:** D46695  
**Account:** WPX Energy Rocky Mountain, LLC  
**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)  
**Collected:** 05/30/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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### D46695-5

### MW-5

Calcium	84000	400			ug/l	SW846 6010C
Iron	10800	70			ug/l	SW846 6010C
Magnesium	52200	200			ug/l	SW846 6010C
Manganese	587	5.0			ug/l	SW846 6010C
Potassium	4200	1000			ug/l	SW846 6010C
Sodium	88400	400			ug/l	SW846 6010C
Alkalinity, Bicarbonate as CaCO3	495	5.0			mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	496	5.0			mg/l	SM 2320B-2011
BOD, 5 Day	1.8	1.0			mg/l	SM 5210B-2011
Bromide	0.25	0.10			mg/l	EPA 300.0/SW846 9056
Chemical Oxygen Demand	12.7	10			mg/l	SM 5220D-2011
Chloride	15.1	1.0			mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	0.15	0.010			mg/l	HACH8190/SM4500P-B/E
Solids, Total Dissolved	636	10			mg/l	SM 2540C-2011
Sulfate	64.9	2.5			mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	5.1	1.0			mg/l	SM 5310B-2011
pH	7.68				su	SM4500HB+ -2011/9040C

### D46695-6

### MW-6

Calcium	65800	400			ug/l	SW846 6010C
Iron	8700	70			ug/l	SW846 6010C
Magnesium	55700	200			ug/l	SW846 6010C
Manganese	563	5.0			ug/l	SW846 6010C
Potassium	4010	1000			ug/l	SW846 6010C
Sodium	87100	400			ug/l	SW846 6010C
Alkalinity, Bicarbonate as CaCO3	466	5.0			mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	466	5.0			mg/l	SM 2320B-2011
BOD, 5 Day	2.0	1.0			mg/l	SM 5210B-2011
Chemical Oxygen Demand	11.5	10			mg/l	SM 5220D-2011
Chloride	13.0	1.0			mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate	0.021	0.020			mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	0.22	0.010			mg/l	HACH8190/SM4500P-B/E
Solids, Total Dissolved	604	10			mg/l	SM 2540C-2011
Sulfate	62.5	2.5			mg/l	EPA 300.0/SW846 9056
Total Organic Carbon	5.1	1.0			mg/l	SM 5310B-2011
pH	7.65				su	SM4500HB+ -2011/9040C

### Sample Results

### Report of Analysis

## Report of Analysis

<b>Client Sample ID:</b>	MW-1	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-1	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA18842.D	1	06/03/13	BR	n/a	n/a	GGA1069
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	2.41	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	91%		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



## Report of Analysis

<b>Client Sample ID:</b>	MW-1	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-1	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8021B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA18842.D	1	06/03/13	BR	n/a	n/a	GTA1069
Run #2	TA18843.D	5	06/03/13	BR	n/a	n/a	GTA1069

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

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	9.7	1.0	0.20	ug/l	
108-88-3	Toluene	2.3	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	49.7	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	658 <sup>a</sup>	10	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	95%	90%	60-140%
120-82-1	1,2,4-Trichlorobenzene		86%	60-140%

(a) Result is from Run# 2

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

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<b>Client Sample ID:</b>	MW-1	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-1	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846-8015B SW846 3510C		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25140.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247
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)	0.361	0.19	0.17	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	53%		20-140%		

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

## Report of Analysis

<b>Client Sample ID:</b> MW-1	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-1	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	114000	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Iron	12000	70	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Magnesium	60600	200	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	650	5.0	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Potassium	5750	1000	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Selenium	< 50	50	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Sodium	85900	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA3619

(2) Prep QC Batch: MP10170

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-1	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-1	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	484	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Total as CaCO <sub>3</sub>	484	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
BOD, 5 Day	11.8	1.0	mg/l	1	05/31/13 12:10	KB	SM 5210B-2011
Bromide <sup>a</sup>	< 0.10	0.10	mg/l	2	05/31/13 13:55	GH	EPA 300.0/SW846 9056
Chemical Oxygen Demand	21.2	10	mg/l	1	06/04/13	JD	SM 5220D-2011
Chloride	9.7	1.0	mg/l	2	05/31/13 13:55	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate	0.88	0.020	mg/l	2	05/31/13 13:55	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.052	0.0080	mg/l	2	05/31/13 13:55	GH	EPA 300.0/SW846 9056
Phosphate, Ortho <sup>a</sup>	< 0.13	0.13	mg/l	2	05/31/13 13:55	GH	EPA 300.0/SW846 9056
Phosphorus, Total	0.63	0.010	mg/l	1	06/07/13	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	610	10	mg/l	1	06/03/13	RW	SM 2540C-2011
Sulfate	51.9	1.0	mg/l	2	05/31/13 13:55	GH	EPA 300.0/SW846 9056
Total Organic Carbon	8.9	1.0	mg/l	1	06/04/13 17:15	GH	SM 5310B-2011
pH	7.53		su	1	06/03/13 13:30	BF	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	MW-2A	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-2	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA18844.D	1	06/03/13	BR	n/a	n/a	GGA1069
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	90%		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



## Report of Analysis

<b>Client Sample ID:</b>	MW-2A	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-2	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8021B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA18844.D	1	06/03/13	BR	n/a	n/a	GTA1069
Run #2							

	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	96%		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

## Report of Analysis

<b>Client Sample ID:</b>	MW-2A	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-2	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846-8015B SW846 3510C		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25142.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247
Run #2							

	Initial Volume	Final Volume
Run #1	1040 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	57%		20-140%		

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

## Report of Analysis

<b>Client Sample ID:</b> MW-2A	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-2	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	102000	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Iron	15000	70	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Magnesium	64700	200	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	2620	5.0	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Potassium	5930	1000	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Selenium	< 50	50	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Sodium	90200	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA3619

(2) Prep QC Batch: MP10170

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-2A	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-2	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	483	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Total as CaCO <sub>3</sub>	483	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
BOD, 5 Day	1.4	1.0	mg/l	1	05/31/13 12:10	KB	SM 5210B-2011
Bromide <sup>a</sup>	< 0.10	0.10	mg/l	2	05/31/13 14:28	GH	EPA 300.0/SW846 9056
Chemical Oxygen Demand	71.3	10	mg/l	1	06/04/13	JD	SM 5220D-2011
Chloride	16.8	1.0	mg/l	2	05/31/13 14:28	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate	0.035	0.020	mg/l	2	05/31/13 14:28	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrite <sup>a</sup>	< 0.0080	0.0080	mg/l	2	05/31/13 14:28	GH	EPA 300.0/SW846 9056
Phosphate, Ortho <sup>a</sup>	< 0.13	0.13	mg/l	2	05/31/13 14:28	GH	EPA 300.0/SW846 9056
Phosphorus, Total	0.046	0.010	mg/l	1	06/07/13	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	1320	10	mg/l	1	06/03/13	RW	SM 2540C-2011
Sulfate	98.5	2.5	mg/l	5	05/31/13 18:12	GH	EPA 300.0/SW846 9056
Total Organic Carbon	5.3	1.0	mg/l	1	06/04/13 17:26	GH	SM 5310B-2011
pH	7.66		su	1	06/03/13 13:30	BF	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	MW-3	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-3	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA18847.D	1	06/03/13	BR	n/a	n/a	GGA1069
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	89%		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



## Report of Analysis

<b>Client Sample ID:</b>	MW-3	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-3	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8021B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA18847.D	1	06/03/13	BR	n/a	n/a	GTA1069
Run #2							

	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	94%		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

## Report of Analysis

<b>Client Sample ID:</b>	MW-3	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-3	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846-8015B SW846 3510C		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25144.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247
Run #2							

	Initial Volume	Final Volume
Run #1	1040 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	67%		20-140%		

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

## Report of Analysis

<b>Client Sample ID:</b> MW-3	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-3	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	111000	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Iron	10400	70	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Magnesium	59000	200	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	1010	5.0	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Potassium	4790	1000	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Selenium	< 50	50	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Sodium	92400	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA3619

(2) Prep QC Batch: MP10170

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-3	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-3	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	465	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Total as CaCO <sub>3</sub>	465	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
BOD, 5 Day	< 1.0	1.0	mg/l	1	05/31/13 12:10	KB	SM 5210B-2011
Bromide	0.13	0.10	mg/l	2	05/31/13 14:39	GH	EPA 300.0/SW846 9056
Chemical Oxygen Demand	25.3	10	mg/l	1	06/04/13	JD	SM 5220D-2011
Chloride	49.5	1.0	mg/l	2	05/31/13 14:39	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate	0.040	0.020	mg/l	2	05/31/13 14:39	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrite <sup>a</sup>	< 0.020	0.020	mg/l	5	05/31/13 18:23	GH	EPA 300.0/SW846 9056
Phosphate, Ortho <sup>a</sup>	< 0.13	0.13	mg/l	2	05/31/13 14:39	GH	EPA 300.0/SW846 9056
Phosphorus, Total	3.3	0.050	mg/l	5	06/07/13	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	796	10	mg/l	1	06/03/13	RW	SM 2540C-2011
Sulfate	170	5.0	mg/l	10	06/07/13 13:40	GH	EPA 300.0/SW846 9056
Total Organic Carbon	6.1	1.0	mg/l	1	06/04/13 17:37	GH	SM 5310B-2011
pH	7.63		su	1	06/03/13 13:30	BF	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	MW-4	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-4	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA18848.D	1	06/03/13	BR	n/a	n/a	GGA1069
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	85%		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

## Report of Analysis

<b>Client Sample ID:</b>	MW-4	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-4	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8021B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA18848.D	1	06/03/13	BR	n/a	n/a	GTA1069
Run #2							

	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	91%		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

## Report of Analysis

<b>Client Sample ID:</b>	MW-4	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-4	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846-8015B SW846 3510C		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25146.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.19	0.17	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	74%		20-140%		

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



## Report of Analysis

<b>Client Sample ID:</b> MW-4	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-4	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	74300	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Iron	7260	70	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Magnesium	64900	200	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	533	5.0	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Potassium	5600	1000	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Selenium	< 50	50	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Sodium	85000	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA3619

(2) Prep QC Batch: MP10170

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-4	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-4	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	482	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Total as CaCO <sub>3</sub>	482	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
BOD, 5 Day	2.4	1.0	mg/l	1	05/31/13 12:10	KB	SM 5210B-2011
Bromide <sup>a</sup>	< 0.10	0.10	mg/l	2	05/31/13 14:50	GH	EPA 300.0/SW846 9056
Chemical Oxygen Demand	12.4	10	mg/l	1	06/04/13	JD	SM 5220D-2011
Chloride	12.0	1.0	mg/l	2	05/31/13 14:50	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate	1.7	0.020	mg/l	2	05/31/13 14:50	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.020	0.0080	mg/l	2	05/31/13 14:50	GH	EPA 300.0/SW846 9056
Phosphate, Ortho <sup>a</sup>	< 0.13	0.13	mg/l	2	05/31/13 14:50	GH	EPA 300.0/SW846 9056
Phosphorus, Total	0.16	0.010	mg/l	1	06/07/13	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	608	10	mg/l	1	06/03/13	RW	SM 2540C-2011
Sulfate	74.9	2.5	mg/l	5	05/31/13 18:56	GH	EPA 300.0/SW846 9056
Total Organic Carbon	4.4	1.0	mg/l	1	06/04/13 17:48	GH	SM 5310B-2011
pH	7.81		su	1	06/03/13 13:30	BF	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	MW-5	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-5	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA18849.D	1	06/03/13	BR	n/a	n/a	GGA1069
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	86%		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

## Report of Analysis

<b>Client Sample ID:</b>	MW-5	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-5	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8021B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA18849.D	1	06/03/13	BR	n/a	n/a	GTA1069
Run #2							

	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	92%		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

## Report of Analysis

<b>Client Sample ID:</b>	MW-5	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-5	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846-8015B SW846 3510C		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25150.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247
Run #2							

	Initial Volume	Final Volume
Run #1	1030 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	66%		20-140%		

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

## Report of Analysis

<b>Client Sample ID:</b> MW-5	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-5	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	84000	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Iron	10800	70	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Magnesium	52200	200	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	587	5.0	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Potassium	4200	1000	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Selenium	< 50	50	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Sodium	88400	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA3619

(2) Prep QC Batch: MP10170

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-5	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-5	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	495	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Total as CaCO <sub>3</sub>	496	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
BOD, 5 Day	1.8	1.0	mg/l	1	05/31/13 12:10	KB	SM 5210B-2011
Bromide	0.25	0.10	mg/l	2	05/31/13 15:02	GH	EPA 300.0/SW846 9056
Chemical Oxygen Demand	12.7	10	mg/l	1	06/04/13	JD	SM 5220D-2011
Chloride	15.1	1.0	mg/l	2	05/31/13 15:02	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate <sup>a</sup>	< 0.020	0.020	mg/l	2	05/31/13 15:02	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrite <sup>a</sup>	< 0.0080	0.0080	mg/l	2	05/31/13 15:02	GH	EPA 300.0/SW846 9056
Phosphate, Ortho <sup>a</sup>	< 0.13	0.13	mg/l	2	05/31/13 15:02	GH	EPA 300.0/SW846 9056
Phosphorus, Total	0.15	0.010	mg/l	1	06/07/13	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	636	10	mg/l	1	06/03/13	RW	SM 2540C-2011
Sulfate	64.9	2.5	mg/l	5	05/31/13 19:07	GH	EPA 300.0/SW846 9056
Total Organic Carbon	5.1	1.0	mg/l	1	06/04/13 18:00	GH	SM 5310B-2011
pH	7.68		su	1	06/03/13 13:30	BF	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	MW-6	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-6	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA18850.D	1	06/03/13	BR	n/a	n/a	GGA1069
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	84%		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



## Report of Analysis

<b>Client Sample ID:</b>	MW-6	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-6	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8021B		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA18850.D	1	06/03/13	BR	n/a	n/a	GTA1069
Run #2							

	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	90%		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

## Report of Analysis

<b>Client Sample ID:</b>	MW-6	<b>Date Sampled:</b>	05/30/13
<b>Lab Sample ID:</b>	D46695-6	<b>Date Received:</b>	05/31/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846-8015B SW846 3510C		
<b>Project:</b>	CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25136.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247
Run #2							

	Initial Volume	Final Volume
Run #1	1040 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	67%		20-140%		

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

## Report of Analysis

<b>Client Sample ID:</b> MW-6	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-6	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	65800	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Iron	8700	70	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Magnesium	55700	200	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	563	5.0	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Potassium	4010	1000	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Selenium	< 50	50	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>
Sodium	87100	400	ug/l	1	06/03/13	06/03/13 JB	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA3619

(2) Prep QC Batch: MP10170

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-6	<b>Date Sampled:</b> 05/30/13
<b>Lab Sample ID:</b> D46695-6	<b>Date Received:</b> 05/31/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	466	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
Alkalinity, Total as CaCO <sub>3</sub>	466	5.0	mg/l	1	06/07/13	KB	SM 2320B-2011
BOD, 5 Day	2.0	1.0	mg/l	1	05/31/13 12:10	KB	SM 5210B-2011
Bromide <sup>a</sup>	< 0.10	0.10	mg/l	2	05/31/13 15:13	GH	EPA 300.0/SW846 9056
Chemical Oxygen Demand	11.5	10	mg/l	1	06/04/13	JD	SM 5220D-2011
Chloride	13.0	1.0	mg/l	2	05/31/13 15:13	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrate	0.021	0.020	mg/l	2	05/31/13 15:13	GH	EPA 300.0/SW846 9056
Nitrogen, Nitrite <sup>a</sup>	< 0.0080	0.0080	mg/l	2	05/31/13 15:13	GH	EPA 300.0/SW846 9056
Phosphate, Ortho <sup>a</sup>	< 0.13	0.13	mg/l	2	05/31/13 15:13	GH	EPA 300.0/SW846 9056
Phosphorus, Total	0.22	0.010	mg/l	1	06/07/13	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	604	10	mg/l	1	06/03/13	RW	SM 2540C-2011
Sulfate	62.5	2.5	mg/l	5	05/31/13 19:19	GH	EPA 300.0/SW846 9056
Total Organic Carbon	5.1	1.0	mg/l	1	06/04/13 18:13	GH	SM 5310B-2011
pH	7.65		su	1	06/03/13 13:30	BF	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

## Misc. Forms

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody



## WPX 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 #	Accutest Job # <b>D46695</b>

Client / Reporting Information		Project Information										Requested Analysis (see TEST CODE sheet)										Matrix Codes									
Company Name <b>Olsson Associates</b>		Project Name: <b>CORCCOGJ:</b> <b>Knight Property Quarterly Sampling (011.1712)</b>										<div>GRO/DRO - (8015) BTEX - (8021B) TOC - (SW9060) BOD - (SM5210) COD - (SM5220D) Anions - (E300.0)* Alkalinity Series - (SM2320) Total Metals - (SW846)** Heterophob Plate Count TDS/pH - (SM4500) OPO4</div>										<div>UW - 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</div>									
Street Address <b>760 Horizon Drive Suite 102</b>		Street <b>Grand Junction, CO 81506</b>																													
City <b>Grand Junction, CO 81506</b>		City <b>Grand Junction, CO 81506</b>																													
Project Contact <b>Tim Dobransky</b>		Project # <b>NXEEPPARACH</b>																													
Email <b>tdobransky@olssonassociates.</b>		Client Purchase Order # <b>NXEEPPARACH</b>										Street Address <b>1058 County Road 215</b>																			
Phone # <b>970-263-7800</b>		Project Manager <b>Parachute, CO 81635</b>										City <b>Parachute, CO 81635</b>																			
Sample(s) Name(s)		Attention: <b>Leo Braun</b>										Email Invoices: <b>Leo.Braun@wpxenergy.com</b>																			
Field ID / Point of Collection		Collection										Number of preserved Bottles										LAB USE ONLY									
MECH/DI Val #		Date										Time										Sampled by									
MW-1		5/30/13										1250										JVM									
MW-2A		5/30/13										1125										JVM									
MW-3		5/30/13										1055										CLF									
MW-4		5/30/13										1205										CLF									
MW-5		5/30/13										0955										JVM									
MW-6		5/30/13										0930										CLF									
Turnaround Time (Business days)		Data Deliverable Information										Comments / Special Instructions																			
<input type="checkbox"/> 1 Day <input checked="" type="checkbox"/> 3 Business Day Std. (per contract) <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency <input type="checkbox"/> Emergency & Rush T/A data available VIA Lablink		Approved By (Accutest PM): / Date: <b>JGM 12/8/12</b>										<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMBN <input type="checkbox"/> COMMBN+ <input type="checkbox"/> State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input checked="" type="checkbox"/> Report by PDF <input type="checkbox"/> EDD Format Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results/QC Narrative (+ = chromatograms)										Also email final report to: <b>Karolina.Blaney@wpxenergy.com</b> *Anions - NO2, NO3, PO4, SO4, Br, Cl **Metals - Ca, Fe, K, Mg, Mn, Na, Se									
Relinquished by: <b>1</b>		Date Time: <b>5.30.13 1410</b>										Received By: <b>2</b>										Date Time: <b>5.30.13 1230</b>									
Relinquished by: <b>3</b>		Date Time:										Received By: <b>4</b>										Date Time:									
Relinquished by: <b>5</b>		Date Time:										Received By: <b>5</b>										Date Time:									
Custody Seal #		Intact										Preserved where applicable										On Ice									
		Not Intact																				Cooler Temp: <b>4.0</b>									

D46695: Chain of Custody

Page 1 of 4

# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D46695

Client: OLSSON

Immediate Client Services Action Required: No

Date / Time Received: 5/31/2013 12:30:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: KNIGHT PROPERTY

Airbill #'s: CO

## Cooler Security

Y or N

Y or N

- |                           |                                     |                          |                       |                                     |                          |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present:       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact:  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

## Cooler Temperature

Y or N

- |                              |                                     |                          |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved:   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | Infrared gun                        |                          |
| 3. Cooler media:             | Ice (bag)                           |                          |

## Quality Control Preservation

Y or N

N/A

- |                                 |                                     |                          |                                     |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/>            | <input type="checkbox"/> |                                     |
| 2. Trip Blank listed on COC:    | <input type="checkbox"/>            | <input type="checkbox"/> |                                     |
| 3. Samples preserved properly:  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                                     |
| 4. VOCs headspace free:         | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

## Sample Integrity - Documentation

Y or N

- |  |                                     |                          |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles:   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete:        | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

## Sample Integrity - Condition

Y or N

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

## Sample Integrity - Instructions

Y or N N/A

- |   |                                     |                                     |                                     |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear:           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 2. Bottles received for unspecified tests | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                                     |
| 3. Sufficient volume rec'd for analysis:  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 4. Compositing instructions clear:        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear:          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

Comments

Accutest Laboratories  
V:(303) 425-6021

4036 Youngfield Street  
F: (303) 425-6854

Wheat Ridge, CO  
www.accutest.com







# industrial LABORATORIES

Industrial Laboratories is your independent,  
third-party analytical testing laboratory

To: Accutest Mountain States (AMS)  
4036 Youngfield St.

Wheat Ridge CO 80033

Attn: Shea Greiner

## TEST REPORT

ACCUTEST - M

Date Received: 5/31/2013

Date Reported: 6/3/2013

PO Number: D46695X

Note: Sample test procedures conform to EPA 40CFR136 requirements.

Lab No.	Sample Description	Test		Result	Units	MDL	Analysis	
		Method					Date	By
130531007-01A	D46695X-1, 05/30/13, 12:50 PM	* Heterotrophic Plate Count		21000	CFU/mL		RJ	
		SM 9215B				5/31/2013		
130531007-02A	D46695X-2, 05/30/13, 11:25 AM	* Heterotrophic Plate Count		4800	CFU/mL		RJ	
		SM 9215B				5/31/2013		
130531007-03A	D46695X-3, 05/30/13, 10:55 AM	* Heterotrophic Plate Count		17000	CFU/mL		RJ	
		SM 9215B				5/31/2013		
130531007-04A	D46695X-4, 05/30/13, 12:05 AM	* Heterotrophic Plate Count		3200	CFU/mL		RJ	
		SM 9215B				5/31/2013		
130531007-05A	D46695X-5, 05/30/13, 9:55 AM	* Heterotrophic Plate Count		1100	CFU/mL		RJ	
		SM 9215B				5/31/2013		
130531007-06A	D46695X-6, 05/30/13, 9:30 AM	* Heterotrophic Plate Count		31000	CFU/mL		RJ	
		SM 9215B				5/31/2013		

\* = Scope Analysis

# = Subcontracted Analysis

MDL = Method Detection Limit

ND = Not Detected at the Method Detection Limit

Page: 1 of 1

Department Manager

4046 Youngfield Street • Wheat Ridge, Colorado 80033 • (303) 287-9691 • (303) 287-0964 FAX • www.industriallabs.net

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D46695: Chain of Custody

Page 4 of 4

## GC Volatiles

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## QC Data Summaries

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Includes the following where applicable:

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

## Method Blank Summary

Page 1 of 1

**Job Number:** D46695

**Account:** WILLCOP WPX Energy Rocky Mountain, LLC

**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA1069-MB	GA18838.D	1	06/03/13	BR	n/a	n/a	GGA1069

The QC reported here applies to the following samples:

Method: SW846 8015B

D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	86% 60-140%

## Method Blank Summary

Page 1 of 1

**Job Number:** D46695

**Account:** WILLCOP WPX Energy Rocky Mountain, LLC

**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA1069-MB	TA18838.D	1	06/03/13	BR	n/a	n/a	GTA1069

The QC reported here applies to the following samples:

Method: SW846 8021B

D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

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	92% 60-140%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D46695

**Account:** WILLCOP WPX Energy Rocky Mountain, LLC

**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA1069-BS	GA18839.D	1	06/03/13	BR	n/a	n/a	GGA1069

The QC reported here applies to the following samples:

Method: SW846 8015B

D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.09	95	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	98%	60-140%

\* = Outside of Control Limits.

## Blank Spike Summary

Page 1 of 1

**Job Number:** D46695

**Account:** WILLCOP WPX Energy Rocky Mountain, LLC

**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA1069-BS	TA18839.D	1	06/03/13	BR	n/a	n/a	GTA1069

The QC reported here applies to the following samples:

Method: SW846 8021B

D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	27.2	26.8	99	70-130
100-41-4	Ethylbenzene	45.6	44.5	98	70-130
108-88-3	Toluene	212	201	95	70-130
1330-20-7	Xylenes (total)	216	219	101	70-130

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

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D46695

**Account:** WILLCOP WPX Energy Rocky Mountain, LLC

**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D46695-2MS	GA18845.D	1	06/03/13	BR	n/a	n/a	GGA1069
D46695-2MSD	GA18846.D	1	06/03/13	BR	n/a	n/a	GGA1069
D46695-2	GA18844.D	1	06/03/13	BR	n/a	n/a	GGA1069

The QC reported here applies to the following samples:

Method: SW846 8015B

D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

CAS No.	Compound	D46695-2 mg/l	Spike Q mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	2.2	2.00	91	2.00	91	0	60-145/30

CAS No.	Surrogate Recoveries	MS	MSD	D46695-2	Limits
120-82-1	1,2,4-Trichlorobenzene	90%	91%	90%	60-140%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D46695

**Account:** WILLCOP WPX Energy Rocky Mountain, LLC

**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D46695-2MS	TA18845.D	1	06/03/13	BR	n/a	n/a	GTA1069
D46695-2MSD	TA18846.D	1	06/03/13	BR	n/a	n/a	GTA1069
D46695-2	TA18844.D	1	06/03/13	BR	n/a	n/a	GTA1069

The QC reported here applies to the following samples:

Method: SW846 8021B

D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

CAS No.	Compound	D46695-2 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	26.6	98	26.3	97	1	55-133/30
100-41-4	Ethylbenzene	ND	45.6	43.9	96	43.6	96	1	63-130/30
108-88-3	Toluene	ND	212	200	95	196	93	2	70-130/30
1330-20-7	Xylenes (total)	ND	216	217	101	215	100	1	64-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D46695-2	Limits
120-82-1	1,2,4-Trichlorobenzene	95%	96%	96%	60-140%

\* = Outside of Control Limits.



## 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

Page 1 of 1

**Job Number:** D46695

**Account:** WILLCOP WPX Energy Rocky Mountain, LLC

**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7972-MB	FD25120.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247

The QC reported here applies to the following samples:

Method: SW846-8015B

D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

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	44% 20-140%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D46695

**Account:** WILLCOP WPX Energy Rocky Mountain, LLC

**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7972-BS	FD25122.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247

The QC reported here applies to the following samples:

Method: SW846-8015B

D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	20	16.8	84	36-140

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	55%	20-140%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D46695

**Account:** WILLCOP WPX Energy Rocky Mountain, LLC

**Project:** CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7972-MS	FD25124.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247
OP7972-MSD	FD25126.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247
D46755-3	FD25128.D	1	06/06/13	TU	06/05/13	OP7972	GFD1247

The QC reported here applies to the following samples:

Method: SW846-8015B

D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

CAS No.	Compound	D46755-3 mg/l	Spike Q	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	20	15.1	76	12.3	62	20	28-140/30

CAS No.	Surrogate Recoveries	MS	MSD	D46755-3	Limits
84-15-1	o-Terphenyl	58%	47%	41%	20-140%

\* = Outside of Control Limits.

## Metals Analysis

### QC Data Summaries

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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: D46695  
Account: WILLCOF - WPX Energy Rocky Mountain, LLC  
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170  
Matrix Type: AQUEOUS

Methods: SW846 6010C  
Units: ug/l

Prep Date: 06/03/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	8.6	41		
Antimony	30	3.2	19		
Arsenic	25	5.2	5.6		
Barium	10	1.4	1.4		
Beryllium	10	.8	1.2		
Boron	50	6.7	6.6		
Cadmium	10	.4	.36		
Calcium	400	2.2	41	12.2	<400
Chromium	10	.4	.4		
Cobalt	5.0	.4	.57		
Copper	10	1.2	1.9		
Iron	70	2.2	9.5	7.6	<70
Lead	50	3.6	21		
Lithium	5.0	1.9	2.7		
Magnesium	200	14	19	4.0	<200
Manganese	5.0	.01	.46	0.20	<5.0
Molybdenum	10	.8	.84		
Nickel	30	.9	.87		
Phosphorus	100	15	20		
Potassium	1000	130	270	96.8	<1000
Selenium	50	8.8	11	-1.5	<50
Silicon	50	5.2	5.2		
Silver	30	.4	.6		
Sodium	400	4.9	170	-38	<400
Strontium	5.0	.01	.12		
Thallium	10	2.9	4		
Tin	50	13	16		
Titanium	10	.15	2.1		
Uranium	50	3.7	5.5		
Vanadium	10	.4	.4		
Zinc	30	.6	3.2		

Associated samples MP10170: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D46695  
Account: WILLCOPI - WPX Energy Rocky Mountain, LLC  
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170  
Matrix Type: AQUEOUS

Methods: SW846 6010C  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46695

Account: WILLCOP - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170

Methods: SW846 6010C

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

06/03/13

Metal	D46707-1 Original MS	Spikelot ICPAL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium	4870	30300	25000	101.7 75-125
Chromium				
Cobalt				
Copper	anr			
Iron	103	5230	5000	102.5 75-125
Lead	anr			
Lithium				
Magnesium	756	26600	25000	103.4 75-125
Manganese	3.8	483	500	95.8 75-125
Molybdenum				
Nickel				
Phosphorus				
Potassium	892	26600	25000	102.8 75-125
Selenium	0.0	1060	1000	106.0 75-125
Silicon				
Silver				
Sodium	1900	27600	25000	102.8 75-125
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP10170: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46695

Account: WILLCOP - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170

Methods: SW846 6010C

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46695

Account: WILLCOP - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170

Methods: SW846 6010C

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

06/03/13

Metal	D46707-1 Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium	4870	30300	25000	101.7	0.0	20
Chromium						
Cobalt						
Copper	anr					
Iron	103	5170	5000	101.3	1.2	20
Lead	anr					
Lithium						
Magnesium	756	26300	25000	102.2	1.1	20
Manganese	3.8	480	500	95.2	0.6	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	892	26100	25000	100.8	1.9	20
Selenium	0.0	1060	1000	106.0	0.0	20
Silicon						
Silver						
Sodium	1900	26800	25000	99.6	2.9	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP10170: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46695

Account: WILLCOP - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170

Methods: SW846 6010C

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D46695

Account: WILLCOP - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170

Methods: SW846 6010C

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

06/03/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium	25200	25000	100.8	80-120
Chromium				
Cobalt				
Copper	anr			
Iron	5090	5000	101.8	80-120
Lead	anr			
Lithium				
Magnesium	25700	25000	102.8	80-120
Manganese	477	500	95.4	80-120
Molybdenum				
Nickel				
Phosphorus				
Potassium	25700	25000	102.8	80-120
Selenium	1070	1000	107.0	80-120
Silicon				
Silver				
Sodium	25300	25000	101.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP10170: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

Results &lt; IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D46695

Account: WILLCOP - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170

Methods: SW846 6010C

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

# SERIAL DILUTION RESULTS SUMMARY

Login Number: D46695

Account: WILLCOP - WPX Energy Rocky Mountain, LLC  
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170  
Matrix Type: AQUEOUS

Methods: SW846 6010C  
Units: ug/l

Prep Date: 06/03/13

Metal	D46707-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium	4870	5030	3.3	0-10
Chromium				
Cobalt				
Copper	anr			
Iron	103	104	0.9	0-10
Lead	anr			
Lithium				
Magnesium	756	779	3.0	0-10
Manganese	3.80	3.00	21.1*(a)	0-10
Molybdenum				
Nickel				
Phosphorus				
Potassium	892	922	3.4	0-10
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver				
Sodium	1900	1720	9.5	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP10170: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D46695

Account: WILLCOF - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP10170

Methods: SW846 6010C

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

(a) Serial dilution indicates possible matrix interference.

7.1.4

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## General Chemistry

### QC Data Summaries

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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: D46695  
Account: WILLCOPI - WPX Energy Rocky Mountain, LLC  
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN20503	5.0	0.0	mg/l	100.0	96.1	96.1	90-110%
Alkalinity, Carbonate	GN20504	5.0	0.0	mg/l	100.0	96.1	96.1	80-120%
Alkalinity, Total as CaCO3	GN20502	5.0	0.0	mg/l	100.0	96.1	96.1	90-110%
BOD, 5 Day	GP10105/GN20463	1.0	0.0	mg/l	198	178	89.9	85-115%
Bromide	GP10097/GN20400	0.050	0.0	mg/l	20	21.0	105.0	90-110%
Bromide	GP10154/GN20517	0.050	0.0	mg/l	20	20.8	104.0	90-110%
Chemical Oxygen Demand	GP10124/GN20454	10	0.0	mg/l	100	103	103.0	80-120%
Chloride	GP10097/GN20400	0.50	0.0	mg/l	20	19.5	97.5	90-110%
Chloride	GP10154/GN20517	0.50	0.0	mg/l	20	20.0	100.0	90-110%
Fluoride	GP10154/GN20517	0.10	0.0	mg/l	10	9.53	95.3	90-110%
Nitrogen, Nitrate	GP10097/GN20400	0.010	0.0	mg/l	4.52	4.50	99.6	90-110%
Nitrogen, Nitrate	GP10154/GN20517	0.010	0.0	mg/l	4.52	4.49	99.4	90-110%
Nitrogen, Nitrite	GP10097/GN20400	0.0040	0.0	mg/l	6.09	6.07	99.7	90-110%
Nitrogen, Nitrite	GP10154/GN20517	0.0040	0.0	mg/l	6.09	5.98	98.2	90-110%
Phosphate, Ortho	GP10097/GN20400	0.065	0.0	mg/l	9.78	10.3	105.3	90-110%
Phosphate, Ortho	GP10154/GN20517	0.065	0.0	mg/l	9.78	10.1	103.2	90-110%
Phosphorus, Total	GP10147/GN20516	0.010	0.0	mg/l	.304	0.32	104.1	80-120%
Solids, Total Dissolved	GN20414	10	0.0	mg/l	400	393	98.3	90-110%
Sulfate	GP10097/GN20400	0.50	0.0	mg/l	30	30.2	100.7	90-110%
Sulfate	GP10154/GN20517	0.50	0.0	mg/l	30	30.3	101.0	90-110%
Total Organic Carbon	GP10122/GN20449	1.0	0.0	mg/l	8.82	8.88	100.7	90-110%
pH	GN20426			su	8.00	8.02	100.3	99.3-100.7%

Associated Samples:

Batch GN20414: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GN20426: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GN20502: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GN20503: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GN20504: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10097: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10105: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10122: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10124: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10147: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10154: D46695-3

(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D46695  
Account: WILLCOP - WPX Energy Rocky Mountain, LLC  
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN20502	D46710-1	mg/l	43.3	43.6	0.7	0-20%
BOD, 5 Day	GP10105/GN20463	D46685-2	mg/l	229	230	0.5	0-20%
Chemical Oxygen Demand	GP10124/GN20454	D46695-6	mg/l	11.5	9.9	14.7	0-25%
Phosphorus, Total	GP10147/GN20516	D46640-1	mg/l	0.023	0.024	4.2	0-20%
Solids, Total Dissolved	GN20414	D46654-1	mg/l	836	816	2.4	0-20%
Total Organic Carbon	GP10122/GN20449	D46695-6	mg/l	5.1	5.0	2.0	0-20%

Associated Samples:

Batch GN20414: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GN20502: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10105: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10122: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10124: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10147: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
(\*) Outside of QC limits

8.2

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MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D46695  
Account: WILLCOPI - WPX Energy Rocky Mountain, LLC  
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO <sub>3</sub>	GN20502	D46710-1	mg/l	43.3	100.0	139	95.4	80-120%
Bromide	GP10097/GN20400	D46684-1	mg/l	0.0	25	26.9	107.6	80-120%
Bromide	GP10154/GN20517	D46932-6	mg/l	0.10	2.5	2.7	104.0	80-120%
Chemical Oxygen Demand	GP10124/GN20454	D46695-6	mg/l	11.5	40	56.9	113.7	70-130%
Chloride	GP10097/GN20400	D46684-1	mg/l	13.9	100	117	103.1	80-120%
Chloride	GP10154/GN20517	D46932-6	mg/l	66.3	50	119	105.4	80-120%
Fluoride	GP10154/GN20517	D46932-6	mg/l	0.47	2.5	2.9	97.2	80-120%
Nitrogen, Nitrate	GP10097/GN20400	D46684-1	mg/l	0.28	5.65	6.1	103.0	80-120%
Nitrogen, Nitrate	GP10154/GN20517	D46932-6	mg/l	0.018	0.565	0.59	101.2	80-120%
Nitrogen, Nitrite	GP10097/GN20400	D46684-1	mg/l	0.0	3.05	3.2	105.1	80-120%
Nitrogen, Nitrite	GP10154/GN20517	D46932-6	mg/l	0.0030 U	0.305	0.33	108.4	80-120%
Phosphate, Ortho	GP10097/GN20400	D46684-1	mg/l	0.0	8.15	9.0	110.4	80-120%
Phosphate, Ortho	GP10154/GN20517	D46932-6	mg/l	0.035 U	0.815	0.83	101.8	80-120%
Phosphorus, Total	GP10147/GN20516	D46640-1	mg/l	0.023	.40	0.42	100.4	80-120%
Sulfate	GP10097/GN20400	D46684-1	mg/l	132	100	234	102.0	80-120%
Sulfate	GP10154/GN20517	D46932-6	mg/l	24.9	50	77.2	104.6	80-120%
Total Organic Carbon	GP10122/GN20449	D46695-6	mg/l	5.1	10	15.2	101.0	80-120%

Associated Samples:

Batch GN20502: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

Batch GP10097: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

Batch GP10122: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

Batch GP10124: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

Batch GP10147: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6

Batch GP10154: D46695-3

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D46695  
Account: WILLCOPI - WPX Energy Rocky Mountain, LLC  
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN20502	D46710-1	mg/l	43.3	100.0	139	0.4	20%
Bromide	GP10097/GN20400	D46684-1	mg/l	0.0	25	27.4	1.8	20%
Bromide	GP10154/GN20517	D46932-6	mg/l	0.10	2.5	2.7	0.0	20%
Chemical Oxygen Demand	GP10124/GN20454	D46695-6	mg/l	11.5	40	58.5	2.7	25%
Chloride	GP10097/GN20400	D46684-1	mg/l	13.9	100	119	1.7	20%
Chloride	GP10154/GN20517	D46932-6	mg/l	66.3	50	119	0.0	20%
Fluoride	GP10154/GN20517	D46932-6	mg/l	0.47	2.5	2.9	0.0	20%
Nitrogen, Nitrate	GP10097/GN20400	D46684-1	mg/l	0.28	5.65	6.2	1.6	20%
Nitrogen, Nitrate	GP10154/GN20517	D46932-6	mg/l	0.018	0.565	0.59	0.0	20%
Nitrogen, Nitrite	GP10097/GN20400	D46684-1	mg/l	0.0	3.05	3.3	3.1	20%
Nitrogen, Nitrite	GP10154/GN20517	D46932-6	mg/l	0.0030 U	0.305	0.33	0.0	20%
Phosphate, Ortho	GP10097/GN20400	D46684-1	mg/l	0.0	8.15	9.2	2.2	20%
Phosphate, Ortho	GP10154/GN20517	D46932-6	mg/l	0.035 U	0.815	0.84	1.2	20%
Phosphorus, Total	GP10147/GN20516	D46640-1	mg/l	0.023	.40	0.400	4.0	20%
Sulfate	GP10097/GN20400	D46684-1	mg/l	132	100	237	1.3	20%
Sulfate	GP10154/GN20517	D46932-6	mg/l	24.9	50	77.3	0.1	20%
Total Organic Carbon	GP10122/GN20449	D46695-6	mg/l	5.1	10	15.2	0.0	20%

Associated Samples:

Batch GN20502: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10097: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10122: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10124: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10147: D46695-1, D46695-2, D46695-3, D46695-4, D46695-5, D46695-6  
Batch GP10154: D46695-3

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits