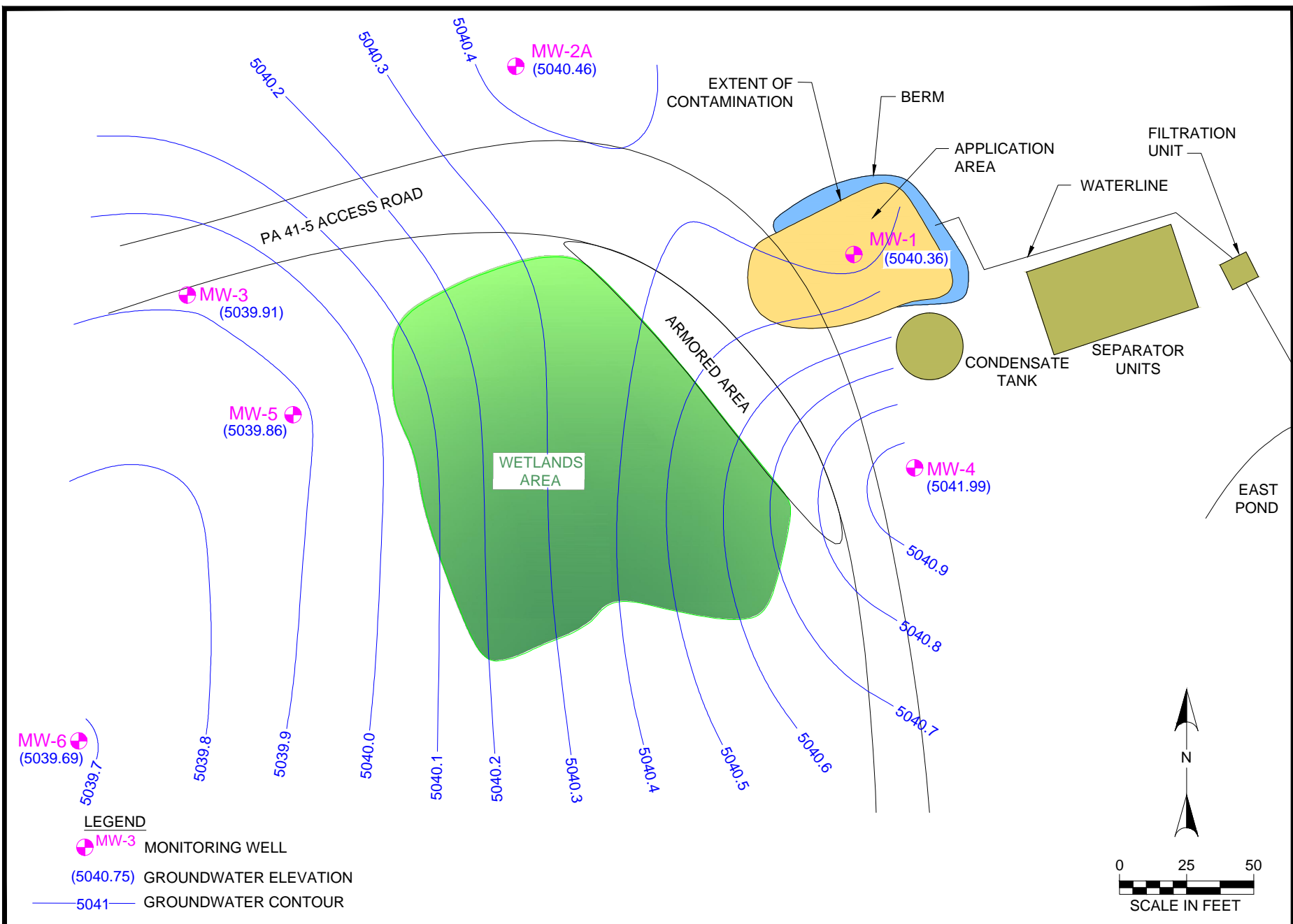


F:\Projects\013-3235\2014 Quarterly Sampling\04\Knight GW-04-2014.dwg Layout: GW



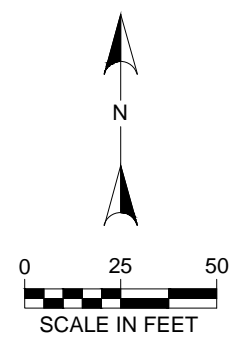
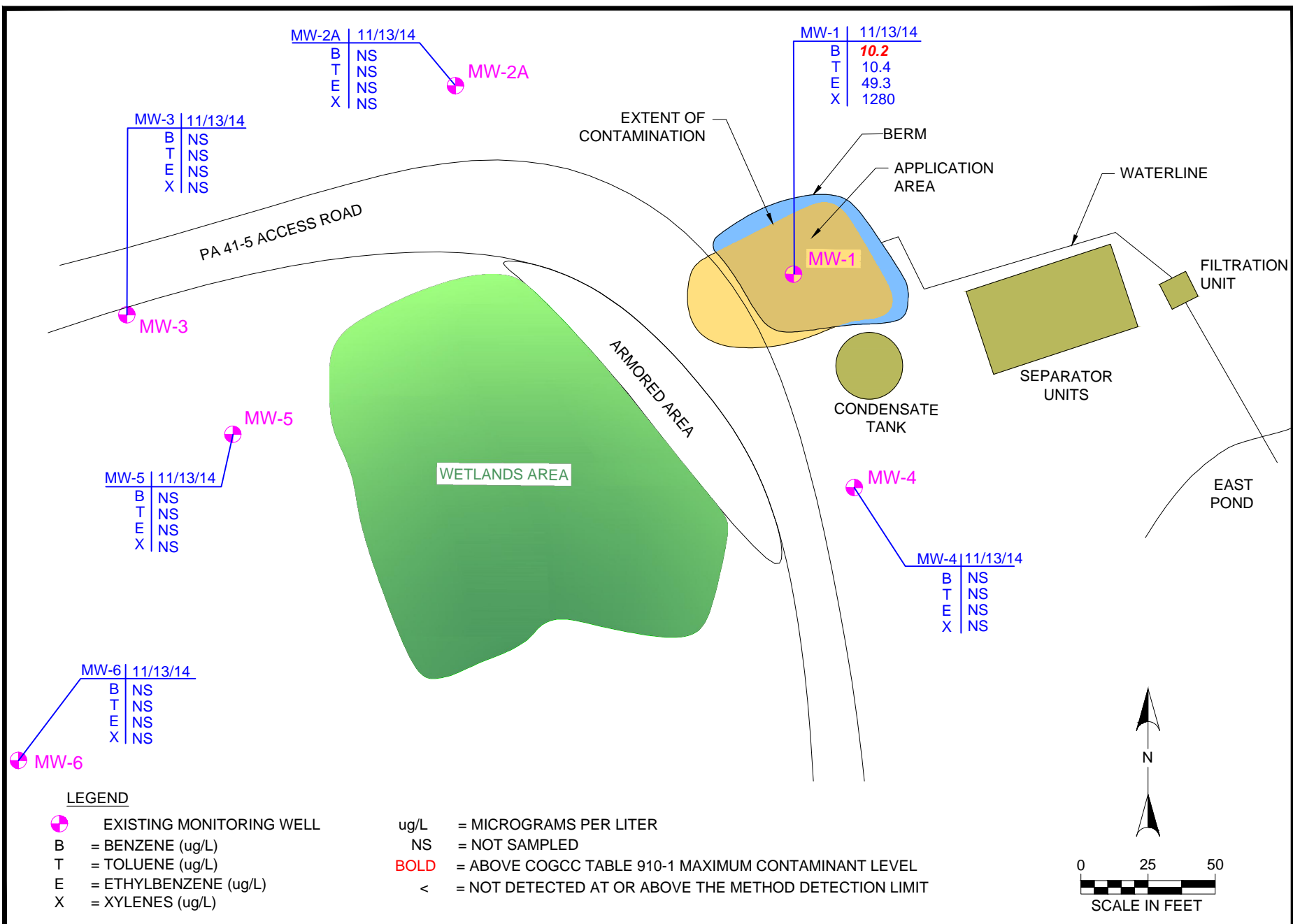
PROJECT NO:	013-3235
DRAWN BY:	abl
DATE:	12.12.2014

GROUNDWATER - PIEZOMETRIC SURFACE MAP - NOVEMBER 2014
 KNIGHT PA 311-4
 SEC 4, T7S, R95W
 PARACHUTE, COLORADO

OLSSON ASSOCIATES
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FIGURE	2
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F:\Projects\013-3235\2014 Quarterly Sampling\04\Knight GWA-04-2014.dwg Layout: GWA



PROJECT NO:	013-3235
DRAWN BY:	abl
DATE:	12.12.2014

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - NOVEMBER 2014
 KNIGHT PA 311-4
 SEC 4, T7S, R95W
 PARACHUTE, COLORADO

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FIGURE	3
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LABORATORY DATA SUMMARY										
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1
Sampling Period			4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
Depth to Water (feet)			5.57	5.52	5.28	5.52	6.78	6.00	5.16	6.15
Sample Date			11/18/2011	2/14/2012	5/8/2012	8/29/2012	11/26/2012	3/6/2013	5/30/2013	9/19/2013
Analytical Parameters										
TPH										
TPH Gasoline Range Organics	NA	mg/l	1.68	1.56	5.62	2.92	2.01	3.59	2.41	0.443
TPH Diesel Range Organics	NA	mg/l	0.596	0.412	0.996	0.886	0.518	0.405	0.361	0.283
BTEX										
Benzene	5	µg/l	7.9	1.2	<0.20	15.9	7.6	9.8	9.7	3.4
Toluene	560 to 1000	µg/l	1.4	< 1.0	<1.0	7.2 J	<5.0	<1.0	2.3	1.3J
Ethylbenzene	700	µg/l	24.3	< 1.0	<1.0	65.9	37.7	72.4	49.7	4.8
Xylene (total)	1400 to 10000	µg/l	477	227	26.7	517	421	772	658	101
PAHs										
Acenaphthene	NA	µg/l	< 0.2	< 0.60	<0.48	<0.48	<0.48	NT	NT	<0.49
Acenaphthylene	NA	µg/l	< 0.2	< 0.60	<0.48	<0.48	<0.48	NT	NT	<0.48
Anthracene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(a)anthracene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(a)pyrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(b)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(g,h,i)perylene	NA	µg/l	< 0.2	< 0.54	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(k)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Chrysene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Dibenzo(a,h)anthracene	NA	µg/l	< 0.2	< 0.78	<0.48	<0.48	<0.48	NT	NT	<0.48
Fluoranthene	NA	µg/l	< 0.2	< 0.71	<0.48	<0.48	<0.48	NT	NT	<0.48
Fluorene	NA	µg/l	< 0.2	< 0.55	<0.48	<0.48	<0.48	NT	NT	<0.48
Indeno(1,2,3-cd)pyrene	NA	µg/l	< 0.2	< 1.5	<0.48	<0.48	<0.48	NT	NT	<0.55
1-Methylnapthalene	NA	µg/l	1.1	< 0.68	1.1 J	0.67 J	0.50 J	NT	NT	<0.48
2-Methylnapthalene	NA	µg/l	1.6	0.83 J	2.0 J	1.0 J	<0.48	NT	NT	<0.48
Naphthalene	NA	µg/l	2.9	1.2 J	3.6 J	2.0 J	<0.48	NT	NT	0.69J
Phenanthrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Pyrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Metals										
Calcium	NA	mg/l	173	88.3	138	170	147	116	114	238
Iron	NA	mg/l	26.5	5.32	11.6	17.7	19.5	10.6	12.0	6.1
Magnesium	NA	mg/l	36.7	58.6	54.7	72.5	63.6	82.7	60.6	64.3
Manganese	NA	mg/l	1.13	0.418	0.653	0.947	0.748	0.709	0.650	0.658
Potassium	NA	mg/l	< 10	3.64	4.63	7.7	6.15	5.42	5.75	6.79
Selenium	NA	mg/l	< 0.01	< 0.05	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05
Sodium	NA	mg/l	50.2	63.8	64.7	104	80	101	86	118
General Chemistry										
Alkalinity, Bicarbonate	NA	mg/l	260	488	498	667	746	618	484	492
Alkalinity, Carbonate	NA	mg/l	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	NA	mg/l	264	488	497	667	746	618	484	492
Biological Oxygen Demand, 5 Day	NA	mg/l	10.5	10.9	22.6	21	28.4	15.4	11.8	12.7
Bromide	NA	mg/l	< 0.50	< 0.20	1.3	2.8	<0.25	0.16	<0.10 ^a	0.17
Chemical Oxygen Demand	NA	mg/l	31.6	18.4	62.3	79.6	21.7	45.9	21.2	31.6
Chloride	1.25 x bkgd	mg/l	16.0	11.5	9.0	139	39.2	12.3	9.7	163.0
Hydroxide Alkalinity	NA	mg/l	< 5.0	NT	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.66	< 0.23	<0.23	0.077	<0.050	0.26	0.88	0.24
Nitrogen, Nitrite	NA	mg/l	< 0.50	< 0.061	0.010	0.064	0.015	0.064	0.052	0.280
Phosphate, Ortho	NA	mg/l	NT	NT	NT	NT	NT	NT	NT	NT
Phosphorus, Total	NA	mg/l	3.5	0.59	1.1	NT	2.0	0.95	0.63	10.40
Plate Count, Total	NA	CFU/ml	1590000	110000	300000	360000	150000	NT	NT	NT
Total Dissolved Solids	NA	mg/l	NT	NT	NT	NT	NT	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	16.8	10.9	5.7	66.2	13.4	117	51.9	43.2
Total Organic Carbon	NA	mg/l	13.2	8.8	10.4	18.5	10.2	9.3	8.9	14.2
pH	NA	su	8.34	7.76	7.67	7.38	7.48	7.56	7.53	7.87
Field Readings										
Temperature	NA	deg. C	14.6	6.82	13.89	21.20	14.49	7.80	12.60	20.20
Specific Conductivity	NA	mS/cm	0.511	0.837	0.789	1.234	1.227	1.319	0.958	1.364
Dissolved Oxygen	NA	mg/l	6.55	2.25	3.25	1.51	0.95	1.34	0.28	6.5
pH	NA	su	9.05	7.37	7.71	7.49	7.7	7.3	7.8	8.75
Solids, Total Dissolved	NA	mg/l	0.3	0.5	0.5	0.8	NT	NT	0.6	0.9
Turbidity	NA	NTU	264	117	538	386	117	59.9	NT	NT

Over allowable limit

LABORATORY DATA SUMMARY										
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-1	MW-1	MW-1	MW-1	MW-1	MW-2A	MW-2A	MW-2A
Sampling Period			4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	4th Quarter	1st Quarter	3rd Quarter
Depth to Water (feet)			6.20	5.57	5.26	5.82	6.08	4.93	5.04	4.72
Sample Date			12/17/2013	2/20/2014	5/5/2014	10/9/2014	11/13/2014	11/18/2011	2/14/2012	8/29/2012
Analytical Parameters										
TPH										
TPH Gasoline Range Organics	NA	mg/l	3.20	0.29	3.07	4.23	3.63	< 0.050	< 0.10	< 0.10
TPH Diesel Range Organics	NA	mg/l	0.336	0.429	0.2	0.436	0.543	< 0.10	< 0.30	< 0.25
BTEX										
Benzene	5	µg/l	13.1	< 0.20	8.4	19.8	10.2	< 1.0	< 0.20	< 0.20
Toluene	560 to 1000	µg/l	4.8	3.1	5.1	< 5.0	10.4	< 1.0	< 1.0	< 1.0
Ethylbenzene	700	µg/l	18.7	< 1.0	< 2.0	54.1	49.3	< 1.0	< 1.0	< 1.0
Xylene (total)	1400 to 10000	µg/l	585	< 2.0	917 ^a	1350	1280	< 3.0	< 2.0	< 2.0
PAHs										
Acenaphthene	NA	µg/l	< 0.48	< 0.48	< 0.48	NT	NT	< 0.2	< 0.60	< 0.47
Acenaphthylene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.60	< 0.47
Anthracene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.47	< 0.47
Benzo(a)anthracene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.47	< 0.47
Benzo(a)pyrene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.47	< 0.47
Benzo(b)fluoranthene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.47	< 0.47
Benzo(g,h,i)perylene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.54	< 0.47
Benzo(k)fluoranthene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.47	< 0.47
Chrysene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.47	< 0.47
Dibenzo(a,h)anthracene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.78	< 0.47
Fluoranthene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.71	< 0.47
Fluorene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.55	< 0.47
Indeno(1,2,3-cd)pyrene	NA	µg/l	< 0.47	< 0.54	< 0.47	NT	NT	< 0.2	< 1.5	< 0.47
1-Methylnaphthalene	NA	µg/l	1.0 J	0.67 J	0.81	NT	NT	< 0.2	< 0.68	< 0.47
2-Methylnaphthalene	NA	µg/l	1.0 J	1.0 J	1.2	NT	NT	< 0.2	< 0.68	< 0.47
Naphthalene	NA	µg/l	2.6 J	2.3 J	2.6	NT	NT	< 0.2	< 0.73	< 0.47
Phenanthrene	NA	µg/l	< 0.47	< 0.47	ND	NT	NT	< 0.2	< 0.47	< 0.47
Pyrene	NA	µg/l	< 0.47	< 0.47	< 0.47	NT	NT	< 0.2	< 0.47	< 0.47
Metals										
Calcium	NA	mg/l	102	162	257	NT	NT	129	109	94.6
Iron	NA	mg/l	5.5	7.5	13.8	17.4	4.4	14	4.77	10.1
Magnesium	NA	mg/l	64.9	66.2	58.8	44.0	40.2	51.4	55.4	61.6
Manganese	NA	mg/l	0.646	1.020	1.500	1.890	0.616	1.72	2.03	1.64
Potassium	NA	mg/l	5.57	4.11	4.79	NT	NT	< 10	3.19	6.54
Selenium	NA	mg/l	< 0.05	< 0.05	< 0.05	NT	NT	< 0.01	< 0.05	< 0.05
Sodium	NA	mg/l	93.8	99.3	83.8	NT	NT	60.4	59.4	96.7
General Chemistry										
Alkalinity, Bicarbonate	NA	mg/l	635	697	773	517	383	372	440	364
Alkalinity, Carbonate	NA	mg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Alkalinity, Total as CaCO3	NA	mg/l	635	697	773	517	383	374	440	364
Biological Oxygen Demand, 5 Day	NA	mg/l	20.4	18.5	14	NT	NT	< 15	< 10	< 10
Bromide	NA	mg/l	0.10	< 0.10	< 0.10 ^a	NT	NT	< 0.50	< 0.20	< 0.10
Chemical Oxygen Demand	NA	mg/l	35.9	48.3	36.3	NT	NT	66.9	20.4	49
Chloride	1.25 x bkgd	mg/l	13.2	12.0	9.6	NT	NT	15.4	13.2	151
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	< 5.0	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.22	3	2.2	0.086	< 0.010	0.57	< 0.23	0.063
Nitrogen, Nitrite	NA	mg/l	0.076	0.270	0.098	< 0.0040	< 0.0040	< 0.50	< 0.061	0.04
Phosphate, Ortho	NA	mg/l	1.500	0.600	0.330	< 0.050	< 0.050	NT	NT	NT
Phosphorus, Total	NA	mg/l	5.0	46.1	40.80	26.8	3.5	0.89	1.3	NT
Plate Count, Total	NA	CFU/ml	NT	620000	NT	NT	NT	70000	6900	5600
Total Dissolved Solids	NA	mg/l	684	674	636	494	470	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	25.1	16.3	17.4	11.3	25	16.8	44.2	108
Total Organic Carbon	NA	mg/l	10.2	10.9	12.2	NT	NT	4.5	3.9	5.6
pH	NA	su	7.63	7.4	7.38	NT	NT	7.14	7.58	7.51
Field Readings										
Temperature	NA	deg. C	10.00	5.30	10.60	16.39	12.70	13.2	8.3	20.9
Specific Conductivity	NA	mS/cm	1.101	1.1	1.103	0.809	0.906	0.651	0.77	1.132
Dissolved Oxygen	NA	mg/l	0.27	0.29	0.08	1.03	0.77	0.24	1.22	1.73
pH	NA	su	8.19	NT	7.54	7.53	7.58	7.50	7.25	7.56
Solids, Total Dissolved	NA	mg/l	0.7150	0.7150	676.0	0.5	591.5	0.4	0.5	0.7
Turbidity	NA	NTU	NT	NT	NT	700	NT	653	766	1997

Over allowable limit

LABORATORY DATA SUMMARY											
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-2A	MW-2A	MW-2A	MW-2A	MW-2A	MW-2A	MW-2A	MW-2A	
Sampling Period			4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	
Depth to Water (feet)			5.65	5.50	4.44	5.16	5.44	4.91	4.35	5.01	
Sample Date			11/26/2012	3/6/2013	5/30/2013	9/19/2013	12/17/2013	2/20/2014	5/5/2014	10/9/2014	
Analytical Parameters											
TPH											
TPH Gasoline Range Organics	NA	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.050	<0.050	NT
TPH Diesel Range Organics	NA	mg/l	<0.17	<0.17	<0.17	<0.17	<0.17	.175 J	<0.17	<0.17	NT
BTEX											
Benzene	5	µg/l	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	NT
Toluene	560 to 1000	µg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NT
Ethylbenzene	700	µg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NT
Xylene (total)	1400 to 10000	µg/l	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NT
PAHs											
Acenaphthene	NA	µg/l	<0.48	NT	NT	<0.49	<0.48	<0.49	<0.49	<0.49	NT
Acenaphthylene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Anthracene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Benzo(a)anthracene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Benzo(a)pyrene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Benzo(b)fluoranthene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Benzo(g,h,i)perylene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Benzo(k)fluoranthene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Chrysene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Dibenzo(a,h)anthracene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Fluoranthene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Fluorene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.48	NT	NT	<0.55	<0.54	<0.54	<0.54	<0.48	NT
1-Methylnaphthalene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
2-Methylnaphthalene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Naphthalene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Phenanthrene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Pyrene	NA	µg/l	<0.48	NT	NT	<0.48	<0.47	<0.48	<0.48	<0.48	NT
Metals											
Calcium	NA	mg/l	208	107	102	123	134	84.6	154	154	NT
Iron	NA	mg/l	33.5	15.7	15.0	25.0	26.7	5.3	18.7	18.7	NT
Magnesium	NA	mg/l	81.6	65.2	64.7	67.2	68.4	64.4	68.5	68.5	NT
Manganese	NA	mg/l	3.37	3.93	2.62	1.61	2.57	1.25	1.72	1.72	NT
Potassium	NA	mg/l	8.6	6.06	5.93	6.84	6.43	6.22	5.99	5.99	NT
Selenium	NA	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NT
Sodium	NA	mg/l	97.8	95.6	90.2	122.0	120.0	106.0	98.2	98.2	NT
General Chemistry											
Alkalinity, Bicarbonate	NA	mg/l	299	382	483	354	414	512	509	509	NT
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NT
Alkalinity, Total as CaCO3	NA	mg/l	299	382	483	354	414	512	509	509	NT
Biological Oxygen Demand, 5 Day	NA	mg/l	<10	<10	1.4	<1.0	1.0	15.8	3.1	3.1	NT
Bromide	NA	mg/l	0.11	<0.10 ^a	<0.10 ^a	<0.10 ^a	<0.10	<0.10	<0.10 ^a	<0.10 ^a	NT
Chemical Oxygen Demand	NA	mg/l	<10	<10	71.3	24.3	14.7	23.7	14.6	14.6	NT
Chloride	1.25 x bkgd	mg/l	206	96.4	16.8	149	109	53	20.7	20.7	NT
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.031	0.22	0.035	<0.020 ^a	0.081	0.079	0.042	0.042	NT
Nitrogen, Nitrite	NA	mg/l	<0.0080	0.0080 ^a	<0.0080 ^a	<0.0080 ^a	<0.0080 ^a	0.049	<0.0080 ^a	<0.0080 ^a	NT
Phosphate, Ortho	NA	mg/l	NT	NT	NT	NT	<0.13 ^a	<0.10	<0.10 ^a	<0.10 ^a	NT
Phosphorus, Total	NA	mg/l	1.4	0.44	0.05	0.22	0.74	0.38	0.85	0.85	NT
Plate Count, Total	NA	CFU/ml	8100	NT	NT	NT	NT	110000	NT	NT	NT
Total Dissolved Solids	NA	mg/l	NT	NT	NT	NT	772	740	692	692	NT
Sulfate	1.25 x bkgd	mg/l	155	98.5	98.5	112	110	69.7	78.8	78.8	NT
Total Organic Carbon	NA	mg/l	4.9	4	5.3	5.2	5	11.4	4.3	4.3	NT
pH	NA	su	7.49	7.64	7.66	7.7	7.63	7.42	7.58	7.58	NT
Field Readings											
Temperature	NA	deg. C	13.1	9.98	11.50	17.50	10.10	5.70	9.90	9.90	NT
Specific Conductivity	NA	mS/cm	1.34	1.195	1.037	1.319	1.209	1.252	1.144	1.144	NT
Dissolved Oxygen	NA	mg/l	1.22	0.86	0.17	0.1	0.40	0.41	0.3	0.3	NT
pH	NA	su	7.75	7.31	7.7	7.83	8.90	NT	7.59	7.59	NT
Solids, Total Dissolved	NA	mg/l	NT	NT	0.7	0.9	0.7865	0.8125	741.0	741.0	NT
Turbidity	NA	NTU	345	96.3	NT	NT	NT	NT	NT	NT	NT

Over allowable limit

LABORATORY DATA SUMMARY										
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-2A	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3
Sampling Period			4th Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
Depth to Water (feet)			5.31	5.68	5.77	5.67	5.56	6.45	6.11	5.25
Sample Date			11/13/2014	11/18/2011	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	NA	mg/l	NT	< 0.050	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH Diesel Range Organics	NA	mg/l	NT	25.1	< 0.30	< 0.25	< 0.25	< 0.17	< 0.17	< 0.17
BTEX										
Benzene	5	µg/l	NT	< 1.0	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Toluene	560 to 1000	µg/l	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	700	µg/l	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylene (total)	1400 to 10000	µg/l	NT	< 3.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
PAHs										
Acenaphthene	NA	µg/l	NT	< 0.2	< 0.60	< 0.48	< 0.48	< 0.49	NT	NT
Acenaphthylene	NA	µg/l	NT	< 0.2	< 0.60	< 0.48	< 0.48	< 0.49	NT	NT
Anthracene	NA	µg/l	NT	< 0.2	< 0.47	< 0.48	< 0.48	< 0.49	NT	NT
Benzo(a)anthracene	NA	µg/l	NT	< 0.2	< 0.47	< 0.48	< 0.48	< 0.49	NT	NT
Benzo(a)pyrene	NA	µg/l	NT	< 0.2	< 0.47	< 0.48	< 0.48	< 0.49	NT	NT
Benzo(b)fluoranthene	NA	µg/l	NT	< 0.2	< 0.47	< 0.48	< 0.48	< 0.49	NT	NT
Benzo(g,h,i)perylene	NA	µg/l	NT	< 0.2	< 0.54	< 0.48	< 0.48	< 0.49	NT	NT
Benzo(k)fluoranthene	NA	µg/l	NT	< 0.2	< 0.47	< 0.48	< 0.48	< 0.49	NT	NT
Chrysene	NA	µg/l	NT	< 0.2	< 0.47	< 0.48	< 0.48	< 0.49	NT	NT
Dibenzo(a,h)anthracene	NA	µg/l	NT	< 0.2	< 0.78	< 0.48	< 0.48	< 0.49	NT	NT
Fluoranthene	NA	µg/l	NT	< 0.2	< 0.71	< 0.48	< 0.48	< 0.49	NT	NT
Fluorene	NA	µg/l	NT	< 0.2	< 0.55	< 0.48	< 0.48	< 0.49	NT	NT
Indeno(1,2,3-cd)pyrene	NA	µg/l	NT	< 0.2	< 1.5	< 0.48	< 0.48	< 0.49	NT	NT
1-Methylnaphthalene	NA	µg/l	NT	< 0.2	< 0.68	< 0.48	< 0.48	< 0.49	NT	NT
2-Methylnaphthalene	NA	µg/l	NT	< 0.2	< 0.68	< 0.48	< 0.48	< 0.49	NT	NT
Naphthalene	NA	µg/l	NT	< 0.2	< 0.73	< 0.48	< 0.48	< 0.49	NT	NT
Phenanthrene	NA	µg/l	NT	< 0.2	< 0.47	< 0.48	< 0.48	< 0.49	NT	NT
Pyrene	NA	µg/l	NT	< 0.2	< 0.47	< 0.48	< 0.48	< 0.49	NT	NT
Metals										
Calcium	NA	mg/l	NT	76.7	151	157	133	218	117	111
Iron	NA	mg/l	NT	4.8	6.79	26.8	16.3	35.4	12.7	10.4
Magnesium	NA	mg/l	NT	37.2	50.3	57.8	62.8	75.1	65.5	59.0
Manganese	NA	mg/l	NT	0.718	1.43	1.71	1.32	2.31	1.18	1.01
Potassium	NA	mg/l	NT	< 10	2.95	6.88	7.87	9.53	5.43	4.79
Selenium	NA	mg/l	NT	< 0.01	< 0.05	< 0.050	< 0.050	< 0.05	< 0.05	< 0.05
Sodium	NA	mg/l	NT	56.1	61.4	61.0	92.9	93.9	89.2	92.4
General Chemistry										
Alkalinity, Bicarbonate	NA	mg/l	NT	384	462	427	396	309	333	465
Alkalinity, Carbonate	NA	mg/l	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Alkalinity, Total as CaCO3	NA	mg/l	NT	386	462	427	396	309	333	465
Biological Oxygen Demand, 5 Day	NA	mg/l	NT	11.1	< 10	< 10	< 10	< 10	< 10	< 1.0
Bromide	NA	mg/l	NT	< 0.50	< 0.20	< 0.20	< 0.10	< 0.10	0.13	0.13
Chemical Oxygen Demand	NA	mg/l	NT	21	< 10	< 10	49	< 10	15.7	25.3
Chloride	1.25 x bkgd	mg/l	NT	16.7	14.5	12.9	151	210	161	49.5
Hydroxide Alkalinity	NA	mg/l	NT	< 5.0	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	NT	0.58	< 0.23	< 0.090	< 0.020	0.034	< 0.020 ^a	0.04
Nitrogen, Nitrite	NA	mg/l	NT	0.67	< 0.061	< 0.010	< 0.040	0.015	< 0.0080 ^a	< 0.020 ^a
Phosphate, Ortho	NA	mg/l	NT	NT	NT	NT	NT	NT	NT	NT
Phosphorus, Total	NA	mg/l	NT	0.45	1.7	1.3	NT	1.7	0.31	3.3
Plate Count, Total	NA	CFU/ml	NT	120000	8500	10000	14000	12000	NT	NT
Total Dissolved Solids	NA	mg/l	NT	NT	NT	NT	NT	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	NT	10.9	24	34.7	125	137	161	170
Total Organic Carbon	NA	mg/l	NT	4.5	4.3	4.2	5.6	4.4	3.7	6.1
pH	NA	su	NT	7.1	7.64	7.6	7.33	7.46	7.55	7.63
Field Readings										
Temperature	NA	deg. C	NT	14.8	7.46	13.49	21.37	14.35	7.88	13.60
Specific Conductivity	NA	mS/cm	NT	0.663	0.763	0.783	1.291	0.417	1.448	1.278
Dissolved Oxygen	NA	mg/l	NT	0.14	2.43	1.46	1.82	1.67	1	0.71
pH	NA	su	NT	7.41	7.26	7.8	7.48	7.75	7.25	7.61
Solids, Total Dissolved	NA	mg/l	NT	0.4	0.5	0.5	0.8	NT	NT	0.8
Turbidity	NA	NTU	NT	568	2000	1854	1102	1971	328	NT

Over allowable limit

LABORATORY DATA SUMMARY										
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-4	MW-4
Sampling Period			3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	4th Quarter	1st Quarter
Depth to Water (feet)			5.83	6.03	5.6	5.22	5.69	5.94	10.64	10.34
Sample Date			9/19/2013	12/17/2013	2/20/2014	5/5/2014	10/9/2014	11/13/2014	11/18/2011	2/14/2012
Analytical Parameters										
TPH										
TPH Gasoline Range Organics	NA	mg/l	<0.10	<0.10	<0.050	<0.050	NT	NT	< 0.050	< 0.10
TPH Diesel Range Organics	NA	mg/l	0.284	<0.17	<0.17	<0.17	NT	NT	<0.10	< 0.30
BTEX										
Benzene	5	µg/l	<0.20	<0.20	<0.20	<0.20	NT	NT	< 1.0	< 0.20
Toluene	560 to 1000	µg/l	<1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0
Ethylbenzene	700	µg/l	<1.0	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0
Xylene (total)	1400 to 10000	µg/l	<2.0	<2.0	<2.0	<2.0	NT	NT	< 3.0	< 2.0
PAHs										
Acenaphthene	NA	µg/l	<0.49	<0.49	<0.50	<0.49	NT	NT	< 0.2	< 0.60
Acenaphthylene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.60
Anthracene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.47
Benzo(a)anthracene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.47
Benzo(a)pyrene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.47
Benzo(b)fluoranthene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.47
Benzo(g,h,i)perylene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.54
Benzo(k)fluoranthene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.47
Chrysene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.47
Dibenzo(a,h)anthracene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.78
Fluoranthene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.71
Fluorene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.55
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.55	<0.54	<0.55	<0.48	NT	NT	< 0.2	< 1.5
1-Methylnaphthalene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.68
2-Methylnaphthalene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.68
Naphthalene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.73
Phenanthrene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.47
Pyrene	NA	µg/l	<0.48	<0.48	<0.49	<0.48	NT	NT	< 0.2	< 0.47
Metals										
Calcium	NA	mg/l	106	109	105	119	NT	NT	73.9	126
Iron	NA	mg/l	6.1	12.3	11.8	13.9	NT	NT	3.52	6.71
Magnesium	NA	mg/l	59.3	60.6	59.8	53.1	NT	NT	40.6	48.6
Manganese	NA	mg/l	0.77	1.08	1.18	1.43	NT	NT	1.74	1.71
Potassium	NA	mg/l	5.43	5.68	4.28	4.8	NT	NT	< 10	2.89
Selenium	NA	mg/l	<0.05	<0.050	<0.050	<0.050	NT	NT	< 0.01	< 0.05
Sodium	NA	mg/l	125.0	120.0	104.0	102.0	NT	NT	62.1	58.3
General Chemistry										
Alkalinity, Bicarbonate	NA	mg/l	380	394	423	463	NT	NT	392	364
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	<5.0	NT	NT	< 5.0	< 5.0
Alkalinity, Total as CaCO3	NA	mg/l	380	394	423	463	NT	NT	396	364
Biological Oxygen Demand, 5 Day	NA	mg/l	<1.0	<1.0	1.1	1.9	NT	NT	8.1	< 10
Bromide	NA	mg/l	<0.10 ^a	<0.10 ^a	0.11	0.11	NT	NT	< 0.50	< 0.20
Chemical Oxygen Demand	NA	mg/l	21.1	10.3	19.3	12.8	NT	NT	28.1	< 10
Chloride	1.25 x bkgd	mg/l	163	126	84	36.5	NT	NT	14.1	6.9
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	NT	< 5.0	NT
Nitrogen, Nitrate	NA	mg/l	0.12	0.093	0.031	<0.020 ^a	NT	NT	< 0.50	< 0.23
Nitrogen, Nitrite	NA	mg/l	<0.0080 ^a	<0.0080 ^a	<0.0080 ^a	<0.0080 ^a	NT	NT	< 0.50	< 0.061
Phosphate, Ortho	NA	mg/l	NT	<0.13	<0.10	<0.10 ^a	NT	NT	NT	NT
Phosphorus, Total	NA	mg/l	0.13	0.21	0.42	0.47	NT	NT	0.14	1.4
Plate Count, Total	NA	CFU/ml	NT	NT	42000	NT	NT	NT	120000	4600
Total Dissolved Solids	NA	mg/l	NT	788	728	690	NT	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	134	120	105	89.1	NT	NT	36.2	40.8
Total Organic Carbon	NA	mg/l	4.6	3.6	4.6	4.5	NT	NT	4.8	3.6
pH	NA	su	7.66	7.66	7.56	7.66	NT	NT	7.18	7.73
Field Readings										
Temperature	NA	deg. C	20.50	10.00	5.40	10.30	NT	NT	14.2	6.5
Specific Conductivity	NA	mS/cm	1.527	1.248	1.157	1.127	NT	NT	0.713	0.682
Dissolved Oxygen	NA	mg/l	0.34	0.44	0.68	0.2	NT	NT	0.15	2.34
pH	NA	su	7.36	7.92	NT	7.71	NT	NT	7.5	7.38
Solids, Total Dissolved	NA	mg/l	1.0	0.8125	0.7540	734.5	NT	NT	0.5	0.4
Turbidity	NA	NTU	NT	NT	NT	NT	NT	NT	62.7	443

Over allowable limit

LABORATORY DATA SUMMARY										
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4
Sampling Period			2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
Depth to Water (feet)			10.63	11.31	11.64	10.77	10.7	11.9	11.27	10.49
Sample Date			5/8/2012	8/29/2012	11/26/2012	3/6/2013	5/30/2013	9/19/2013	12/17/2013	2/20/2014
Analytical Parameters										
TPH										
TPH Gasoline Range Organics	NA	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.050
TPH Diesel Range Organics	NA	mg/l	<0.25	<0.25	<0.17	<0.17	<0.17	2.34	<0.17	<0.17
BTEX										
Benzene	5	µg/l	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	560 to 1000	µg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	700	µg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene (total)	1400 to 10000	µg/l	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PAHs										
Acenaphthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.48	<0.48	<0.50
Acenaphthylene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Anthracene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(a)anthracene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(a)pyrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(b)fluoranthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(g,h,i)perylene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(k)fluoranthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Chrysene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Dibenzo(a,h)anthracene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Fluoranthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Fluorene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.54	<0.54	<0.55
1-Methylnaphthalene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
2-Methylnaphthalene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Naphthalene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Phenanthrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Pyrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Metals										
Calcium	NA	mg/l	107	121	238	60.4	74.3	119.0	171.0	96.7
Iron	NA	mg/l	18.1	19.7	47.5	2.63	7.26	9.34	2.88	0.86
Magnesium	NA	mg/l	55.4	71.5	104	64.5	64.9	84.1	55.9	53.1
Manganese	NA	mg/l	1.91	4.4	2.16	0.316	0.533	0.48	0.29	0.198
Potassium	NA	mg/l	5.9	8.73	12.2	5	5.6	6.78	5.76	3.55
Selenium	NA	mg/l	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050
Sodium	NA	mg/l	71.8	99.1	110.0	99.2	85.0	118.0	109.0	83.6
General Chemistry										
Alkalinity, Bicarbonate	NA	mg/l	452	616	618	489	482	309	399	332
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	346	203	85.8
Alkalinity, Total as CaCO3	NA	mg/l	452	616	618	489	482	665	602	418
Biological Oxygen Demand, 5 Day	NA	mg/l	<10	10.7	<10	<10	2.4	<1.0	<1.0	<1.0
Bromide	NA	mg/l	<0.40	0.19	0.26	<0.10 ^a	<0.10 ^a	<0.25 ^a	0.34	0.09
Chemical Oxygen Demand	NA	mg/l	<10	57	20.3	23.7	12.4	245	45.5	30.1
Chloride	1.25 x bkgd	mg/l	7.2	13.1	16.4	8	12	12.1	8.5	6.5
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	<0.090	<0.020	<0.050	<0.020 ^a	1.7	0.056	0.55	1.3
Nitrogen, Nitrite	NA	mg/l	<0.010	0.008	<0.0080	<0.0080 ^a	0.02	2.5	0.034	0.046
Phosphate, Ortho	NA	mg/l	NT	NT	NT	NT	NT	NT	0.77	1.1
Phosphorus, Total	NA	mg/l	1.1	NT	1.2	0.10	0.16	80.30	134	12
Plate Count, Total	NA	CFU/ml	5400	3800	13000	NT	NT	NT	NT	5600
Total Dissolved Solids	NA	mg/l	NT	NT	NT	NT	NT	NT	464	504
Sulfate	1.25 x bkgd	mg/l	34.2	13	110	113	74.9	70.7	108	91.2
Total Organic Carbon	NA	mg/l	4.5	8.5	10.3	3.8	4.4	25.3	8.1	6.2
pH	NA	su	7.65	7.64	7.69	7.81	7.81	11.4	11.31	9.02
Field Readings										
Temperature	NA	deg. C	13.23	19.42	14.68	6.83	12.20	19.20	11.00	5.70
Specific Conductivity	NA	mS/cm	0.814	1.02	1.371	1.15	0.983	1.736	0.920	0.799
Dissolved Oxygen	NA	mg/l	2.74	1.67	1.96	1.24	1.01	18.24	4.59	4.99
pH	NA	su	7.93	7.6	7.85	7.42	7.82	12.23	9.54	NT
Solids, Total Dissolved	NA	mg/l	0.5	0.7	NT	NT	0.6	1.1	0.8045	0.5200
Turbidity	NA	NTU	930	1572	554	26.5	Nt	NT	NT	NT

Over allowable limit

LABORATORY DATA SUMMARY										
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-4	MW-4	MW-4	MW-5	MW-5	MW-5	MW-5	MW-5
Sampling Period			2nd Quarter	3rd Quarter	4th Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Depth to Water (feet)			10.32	11.04	11.23	5.63	6.06	6.11	6.12	6.8
Sample Date			5/5/2014	10/9/2014	11/13/2014	11/18/2011	2/14/2012	5/8/2012	8/29/2012	11/26/2012
Analytical Parameters										
TPH										
TPH Gasoline Range Organics	NA	mg/l	<0.050	NT	NT	< 0.050	< 0.10	<0.10	<0.10	<0.10
TPH Diesel Range Organics	NA	mg/l	<0.17	NT	NT	<0.10	< 0.30	<0.25	<0.25	<0.17
BTEX										
Benzene	5	µg/l	<0.20	NT	NT	< 1.0	< 0.20	<0.20	<0.20	<0.20
Toluene	560 to 1000	µg/l	<1.0	NT	NT	< 1.0	< 1.0	<1.0	<1.0	<1.0
Ethylbenzene	700	µg/l	<1.0	NT	NT	< 1.0	< 1.0	<1.0	<1.0	<1.0
Xylene (total)	1400 to 10000	µg/l	<2.0	NT	NT	< 3.0	< 2.0	<2.0	<2.0	<2.0
PAHs										
Acenaphthene	NA	µg/l	<0.49	NT	NT	< 0.2	< 0.60	<0.48	<0.48	<0.47
Acenaphthylene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.60	<0.48	<0.48	<0.47
Anthracene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.47
Benzo(a)anthracene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.47
Benzo(a)pyrene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.47
Benzo(b)fluoranthene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.47
Benzo(g,h,i)perylene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.54	<0.48	<0.48	<0.47
Benzo(k)fluoranthene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.47
Chrysene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.47
Dibenzo(a,h)anthracene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.78	<0.48	<0.48	<0.47
Fluoranthene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.71	<0.48	<0.48	<0.47
Fluorene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.55	<0.48	<0.48	<0.47
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.48	NT	NT	< 0.2	< 1.5	<0.48	<0.48	<0.47
1-Methylnaphthalene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.68	<0.48	<0.48	<0.47
2-Methylnaphthalene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.68	<0.48	<0.48	<0.47
Naphthalene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.73	<0.48	<0.48	<0.47
Phenanthrene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.47
Pyrene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.47
Metals										
Calcium	NA	mg/l	139.0	NT	NT	119	198	157	99.9	333
Iron	NA	mg/l	1.38	NT	NT	18.9	18.2	33.3	11.4	83.1
Magnesium	NA	mg/l	59.7	NT	NT	45.6	62.2	60.8	56.0	108
Manganese	NA	mg/l	0.327	NT	NT	0.977	1.56	1.33	0.808	2.81
Potassium	NA	mg/l	4.01	NT	NT	< 10	3.22	6.71	5.69	12.6
Selenium	NA	mg/l	<0.050	NT	NT	< 0.01	< 0.05	<0.050	<0.050	<0.05
Sodium	NA	mg/l	69.5	NT	NT	55.8	56.4	58.9	8.0	85.1
General Chemistry										
Alkalinity, Bicarbonate	NA	mg/l	458	NT	NT	364	540	481	429	452
Alkalinity, Carbonate	NA	mg/l	43.1	NT	NT	< 5.0	< 5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	NA	mg/l	501	NT	NT	366	540	481	429	452
Biological Oxygen Demand, 5 Day	NA	mg/l	<1.0	NT	NT	< 15	< 10	<10	<10	<10
Bromide	NA	mg/l	<0.10 ^a	NT	NT	< 0.50	< 4.0	<0.40	<0.10	0.1
Chemical Oxygen Demand	NA	mg/l	16	NT	NT	40.4	18.1	<10	75.5	10.8
Chloride	1.25 x bkgd	mg/l	5.7	NT	NT	18.1	20	10.6	133	198
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	< 5.0	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.18	NT	NT	0.51	< 0.45	<0.090	0.039	<0.050
Nitrogen, Nitrite	NA	mg/l	0.015	NT	NT	< 0.50	< 0.061	<0.010	0.052	0.011
Phosphate, Ortho	NA	mg/l	0.41	NT	NT	NT	NT	NT	NT	NT
Phosphorus, Total	NA	mg/l	12	NT	NT	1.2	2	1.6	NT	1.8
Plate Count, Total	NA	CFU/ml	NT	NT	NT	180000	3300	1900	63000	16000
Total Dissolved Solids	NA	mg/l	538	NT	NT	NT	NT	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	55.8	NT	NT	16.2	19	27.8	101	142
Total Organic Carbon	NA	mg/l	4.8	NT	NT	6.1	10.9	5.0	6.4	5.2
pH	NA	su	8.56	NT	NT	7.22	7.62	7.65	7.47	7.54
Field Readings										
Temperature	NA	deg. C	10.50	NT	NT	12.7	5.77	13.89	20.67	13.05
Specific Conductivity	NA	mS/cm	0.912	NT	NT	0.667	0.798	0.727	1.116	1.46
Dissolved Oxygen	NA	mg/l	5.23	NT	NT	0.13	1.75	2.24	1.15	1.2
pH	NA	su	8.65	NT	NT	7.47	7.22	7.85	7.51	7.76
Solids, Total Dissolved	NA	mg/l	591.5	NT	NT	0.4	0.5	0.5	0.7	NT
Turbidity	NA	NTU	NT	NT	NT	896	2000	2000	2000	465

Over allowable limit

LABORATORY DATA SUMMARY										
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5
Sampling Period			1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Depth to Water (feet)			6.6	5.81	6.38	6.59	5.99	5.85	6.09	6.31
Sample Date			3/6/2013	5/30/2013	9/19/2013	12/17/2013	2/20/2014	5/5/2014	10/9/2014	11/13/2014
Analytical Parameters										
TPH										
TPH Gasoline Range Organics	NA	mg/l	<0.10	<0.10	<0.10	<0.10	<0.050	<0.050	NT	NT
TPH Diesel Range Organics	NA	mg/l	<0.17	<0.17	<0.17	<0.17	0.42	<0.17	NT	NT
BTEX										
Benzene	5	µg/l	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	NT	NT
Toluene	560 to 1000	µg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NT	NT
Ethylbenzene	700	µg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NT	NT
Xylene (total)	1400 to 10000	µg/l	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NT	NT
PAHs										
Acenaphthene	NA	µg/l	NT	NT	<0.49	<0.48	<0.51	<0.49	NT	NT
Acenaphthylene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Anthracene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Benzo(a)anthracene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Benzo(a)pyrene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Benzo(b)fluoranthene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Benzo(g,h,i)perylene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Benzo(k)fluoranthene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Chrysene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Dibenzo(a,h)anthracene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Fluoranthene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Fluorene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Indeno(1,2,3-cd)pyrene	NA	µg/l	NT	NT	<0.54	<0.54	<0.57	<0.48	NT	NT
1-Methylnaphthalene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
2-Methylnaphthalene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Naphthalene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Phenanthrene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Pyrene	NA	µg/l	NT	NT	<0.48	<0.47	<0.50	<0.48	NT	NT
Metals										
Calcium	NA	mg/l	103	84	107	99.6	90.1	112.0	NT	NT
Iron	NA	mg/l	15.6	10.8	6.1	13.7	17.9	12.6	NT	NT
Magnesium	NA	mg/l	71.4	52.2	57.6	62.8	56.5	50.5	NT	NT
Manganese	NA	mg/l	0.849	0.587	0.67	0.721	0.692	0.754	NT	NT
Potassium	NA	mg/l	4.34	4.2	5.2	4.85	3.73	4.12	NT	NT
Selenium	NA	mg/l	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NT	NT
Sodium	NA	mg/l	97.9	88.4	116.0	122.0	92.7	89.4	NT	NT
General Chemistry										
Alkalinity, Bicarbonate	NA	mg/l	512	495	390	474	439	457	NT	NT
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	63.1	NT	NT
Alkalinity, Total as CaCO3	NA	mg/l	512	496	390	474	439	457	NT	NT
Biological Oxygen Demand, 5 Day	NA	mg/l	<10	1.8	<1.0	1.3	38.6	4.5	NT	NT
Bromide	NA	mg/l	0.16	0.25	<0.10 ^a	0.12	<0.10	<0.10 ^a	NT	NT
Chemical Oxygen Demand	NA	mg/l	20	12.7	18.3	17.0	74.0	11.8	NT	NT
Chloride	1.25 x bkgd	mg/l	78	15	150	72.2	41.4	12.6	NT	NT
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.022	<0.020 ^a	<0.020 ^a	<0.020 ^a	0.14	<0.020 ^a	NT	NT
Nitrogen, Nitrite	NA	mg/l	<0.0080 ^a	<0.0080 ^a	<0.0080 ^a	0.0099	<0.0080 ^a	0.023 ^a	NT	NT
Phosphate, Ortho	NA	mg/l	NT	NT	NT	<0.13	<0.10	<0.10	NT	NT
Phosphorus, Total	NA	mg/l	0.53	0.15	0.093	0.33	0.27	0.37	NT	NT
Plate Count, Total	NA	CFU/ml	NT	NT	NT	NT	16000	NT	NT	NT
Total Dissolved Solids	NA	mg/l	NT	NT	NT	776	677	612	NT	NT
Sulfate	1.25 x bkgd	mg/l	109	64.9	119	118	86.1	71.8	NT	NT
Total Organic Carbon	NA	mg/l	5.6	5.1	4.9	5.5	27.6	5.6	NT	NT
pH	NA	su	7.6	7.68	7.51	7.75	7.56	7.64	NT	NT
Field Readings										
Temperature	NA	deg. C	6.3	11.6	19.3	9.2	4.8	9.3	NT	NT
Specific Conductivity	NA	mS/cm	1.369	1.024	1.397	1.231	1.064	1.05	NT	NT
Dissolved Oxygen	NA	mg/l	0.85	0.23	0.09	0.08	0.25	0.12	NT	NT
pH	NA	su	7.3	7.67	7.71	8.13	NT	7.71	NT	NT
Solids, Total Dissolved	NA	mg/l	NT	0.67	0.91	0.7930	0.6890	682.5	NT	NT
Turbidity	NA	NTU	227	NT	NT	NT	NT	NT	NT	NT

Over allowable limit

LABORATORY DATA SUMMARY										
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6
Sampling Period			4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
Depth to Water (feet)			6.69	6.70	6.78	6.84	7.35	7.00	6.51	7.09
Sample Date			11/18/2011	2/14/2012	5/8/2012	8/29/2012	11/26/2012	3/6/2013	5/30/2013	9/19/2013
Analytical Parameters										
TPH										
TPH Gasoline Range Organics	NA	mg/l	< 0.050	< 0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH Diesel Range Organics	NA	mg/l	0.213	< 0.30	0.261	0.445	0.347	0.175 J	<0.17	<0.17
BTEX										
Benzene	5	µg/l	< 1.0	< 0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	560 to 1000	µg/l	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	700	µg/l	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene (total)	1400 to 10000	µg/l	< 3.0	< 2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PAHs										
Acenaphthene	NA	µg/l	< 0.2	< 0.60	<0.48	<0.48	<0.48	NT	NT	<0.49
Acenaphthylene	NA	µg/l	< 0.2	< 0.60	<0.48	<0.48	<0.48	NT	NT	<0.48
Anthracene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(a)anthracene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(a)pyrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(b)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(g,h,i)perylene	NA	µg/l	< 0.2	< 0.54	<0.48	<0.48	<0.48	NT	NT	<0.48
Benzo(k)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Chrysene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Dibenzo(a,h)anthracene	NA	µg/l	< 0.2	< 0.78	<0.48	<0.48	<0.48	NT	NT	<0.48
Fluoranthene	NA	µg/l	< 0.2	< 0.71	<0.48	<0.48	<0.48	NT	NT	<0.48
Fluorene	NA	µg/l	< 0.2	< 0.55	<0.48	<0.48	<0.48	NT	NT	<0.48
Indeno(1,2,3-cd)pyrene	NA	µg/l	< 0.2	< 1.5	<0.48	<0.48	<0.48	NT	NT	<0.54
1-Methylnaphthalene	NA	µg/l	< 0.2	< 0.68	<0.48	<0.48	<0.48	NT	NT	<0.48
2-Methylnaphthalene	NA	µg/l	< 0.2	< 0.68	<0.48	<0.48	<0.48	NT	NT	<0.48
Naphthalene	NA	µg/l	< 0.2	< 0.73	<0.48	<0.48	<0.48	NT	NT	<0.48
Phenanthrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Pyrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT	<0.48
Metals										
Calcium	NA	mg/l	80.8	72.8	78.8	114	229	103	66	111
Iron	NA	mg/l	16.7	4.98	13.2	6.90	46.60	14.50	8.70	5.01
Magnesium	NA	mg/l	51	57.9	53.8	57.4	92.7	86.7	55.7	58.3
Manganese	NA	mg/l	3.25	1.59	1.17	0.817	3.950	1.07	0.56	0.55
Potassium	NA	mg/l	< 10	2.17	4.43	6.43	9.82	5.24	4.01	6.08
Selenium	NA	mg/l	< 0.01	< 0.05	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05
Sodium	NA	mg/l	53.7	59.0	63.9	82.0	82.0	96.5	87.1	111.0
General Chemistry										
Alkalinity, Bicarbonate	NA	mg/l	388	435	438	352	356	574	466	394
Alkalinity, Carbonate	NA	mg/l	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	NA	mg/l	390	435	438	352	356	574	466	394
Biological Oxygen Demand, 5 Day	NA	mg/l	6.8	< 10	<10	<10	<10	<10	2	<1.0
Bromide	NA	mg/l	< 0.50	< 4.0	1.0	0.063	0.100	0.270	<0.10a	0.100
Chemical Oxygen Demand	NA	mg/l	96.8	35.3	<10	47.4	10.8	21.3	11.5	13.2
Chloride	1.25 x bkgd	mg/l	21.1	31	11.8	136	198	57.8	13	129
Hydroxide Alkalinity	NA	mg/l	< 5.0	NT	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.56	< 0.45	<0.23	<0.010	0.056	<0.020 ^a	0.021	<0.020 ^a
Nitrogen, Nitrite	NA	mg/l	< 0.50	< 0.061	<0.010	0.04	<0.0080	<0.0080 ^a	<0.0080a	<0.0080 ^a
Phosphate, Ortho	NA	mg/l	NT	NT	NT	NT	NT	NT	NT	NT
Phosphorus, Total	NA	mg/l	0.46	0.29	0.83	NT	1.6	0.32	0.22	2.5
Plate Count, Total	NA	CFU/ml	2210000	81000	64000	820000	420000	NT	NT	NT
Total Dissolved Solids	NA	mg/l	NT	NT	NT	NT	NT	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	45.1	21.7	13.2	114	114	95.9	62.5	120
Total Organic Carbon	NA	mg/l	34.6	11.5	7.3	5.2	5.2	7	5.1	4.7
pH	NA	su	7.2	7.59	7.65	7.39	5.57	7.61	7.65	7.57
Field Readings										
Temperature	NA	deg. C	12.7	5.44	14.02	21.30	12.89	5.30	12.20	21.16
Specific Conductivity	NA	mS/cm	0.749	0.866	0.790	1.145	1.395	1.368	0.956	1.364
Dissolved Oxygen	NA	mg/l	0.27	1.4	2.40	2.30	1.35	2.59	5.00	1.45
pH	NA	su	7.52	7.17	NT	7.49	7.72	7.35	7.78	7.71
Solids, Total Dissolved	NA	mg/l	0.5	0.6	0.5	0.7	0.6	NT	0.6	0.9
Turbidity	NA	NTU	478	248	576	201	384	NT	NT	NT

Over allowable limit

LABORATORY DATA SUMMARY							
Sample ID	COGCC Table 910-1 Standards	UNITS	MW-6	MW-6	MW-6	MW-6	MW-6
Sampling Period			4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Depth to Water (feet)			6.97	6.70	6.57	6.75	6.95
Sample Date			12/17/2013	2/20/2014	5/5/2014	10/9/2014	11/13/2014
Analytical Parameters							
TPH							
TPH Gasoline Range Organics	NA	mg/l	<0.10	<0.050	<0.050	NT	NT
TPH Diesel Range Organics	NA	mg/l	0.17	<0.17	<0.17	NT	NT
BTEX							
Benzene	5	µg/l	<0.20	<0.20	<0.20	NT	NT
Toluene	560 to 1000	µg/l	<1.0	<1.0	<1.0	NT	NT
Ethylbenzene	700	µg/l	<1.0	<1.0	<1.0	NT	NT
Xylene (total)	1400 to 10000	µg/l	<2.0	<2.0	<2.0	NT	NT
PAHs							
Acenaphthene	NA	µg/l	<0.48	<0.49	<0.49	NT	NT
Acenaphthylene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Anthracene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Benzo(a)anthracene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Benzo(a)pyrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Benzo(b)fluoranthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Benzo(g,h,i)perylene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Benzo(k)fluoranthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Chrysene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Dibenzo(a,h)anthracene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Fluoranthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Fluorene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.54	<0.54	<0.54	NT	NT
1-Methylnaphthalene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
2-Methylnaphthalene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Naphthalene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Phenanthrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Pyrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT
Metals							
Calcium	NA	mg/l	82.8	76.7	94.0	NT	NT
Iron	NA	mg/l	6.49	9.12	14.50	NT	NT
Magnesium	NA	mg/l	69.9	65.1	56.0	NT	NT
Manganese	NA	mg/l	0.838	0.550	0.795	NT	NT
Potassium	NA	mg/l	4.11	3.07	4.01	NT	NT
Selenium	NA	mg/l	<0.05	<0.050	<0.050	NT	NT
Sodium	NA	mg/l	118.0	88.0	85.5	NT	NT
General Chemistry							
Alkalinity, Bicarbonate	NA	mg/l	558	488	478	NT	NT
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	NT	NT
Alkalinity, Total as CaCO3	NA	mg/l	558	488	478	NT	NT
Biological Oxygen Demand, 5 Day	NA	mg/l	1.8	1.2	1.9	NT	NT
Bromide	NA	mg/l	<0.10 ^a	0.120	<0.10 ^a	NT	NT
Chemical Oxygen Demand	NA	mg/l	36.6	21.9	18.5	NT	NT
Chloride	1.25 x bkgd	mg/l	37.7	16.6	9.6	NT	NT
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.045	0.1	0.024	NT	NT
Nitrogen, Nitrite	NA	mg/l	<0.0080 ^a	<0.0080 ^a	<0.0080 ^a	NT	NT
Phosphate, Ortho	NA	mg/l	<0.13	<0.10	<0.10 ^a	NT	NT
Phosphorus, Total	NA	mg/l	0.59	0.33	0.22	NT	NT
Plate Count, Total	NA	CFU/ml	NT	370000	NT	NT	NT
Total Dissolved Solids	NA	mg/l	708	648	568	NT	NT
Sulfate	1.25 x bkgd	mg/l	73.6	56.8	36.2	NT	NT
Total Organic Carbon	NA	mg/l	5.5	5.3	4.3	NT	NT
pH	NA	su	7.7	7.61	7.65	NT	NT
Field Readings							
Temperature	NA	deg. C	7.60	2.90	9.60	NT	NT
Specific Conductivity	NA	mS/cm	1.160	1.067	0.983	NT	NT
Dissolved Oxygen	NA	mg/l	0.71	2.78	0.87	NT	NT
pH	NA	su	8.25	NT	7.7	NT	NT
Solids, Total Dissolved	NA	mg/l	0.7540	0.6890	637	NT	NT
Turbidity	NA	NTU	NT	NT	NT	NT	NT

Over allowable limit



11/24/14

Technical Report for

WPX Energy Rocky Mountain, LLC

CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

NXEPPARACH

Accutest Job Number: D64583

Sampling Date: 11/13/14

Report to:

**Olsson Associates
760 Horizon Drive Suite 102
Grand Junction, CO 81506
tdobransky@olssonassociates.com; karolina.blaney@wpxenergy.com
ATTN: Tim Dobransky**

Total number of pages in report: 36



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

**Scott Heideman
Laboratory Director**

Client Service contact: Renea Jackson 303-425-6021

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

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Test results relate only to samples analyzed.

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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D64583

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

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D64583-1	11/13/14	12:00 JD	11/14/14	AQ	Ground Water	MW-1
D64583-2	11/13/14	00:00 JD	11/14/14	AQ	Trip Blank Water	TRIP BLANK

Summary of Hits

Job Number: D64583
Account: WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)
Collected: 11/13/14

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D64583-1	MW-1					
TPH-GRO (C6-C10)		3.63	0.25	0.25	mg/l	SW846 8015B
Benzene		10.2	5.0	1.0	ug/l	SW846 8021B
Toluene		10.4	10	5.0	ug/l	SW846 8021B
Ethylbenzene		49.3	10	5.0	ug/l	SW846 8021B
Xylenes (total)		1280	10	10	ug/l	SW846 8021B
TPH-DRO (C10-C28)		0.543	0.19	0.17	mg/l	SW846-8015B
Iron		4370	70		ug/l	SW846 6010C
Magnesium		40200	200		ug/l	SW846 6010C
Manganese		616	5.0		ug/l	SW846 6010C
Alkalinity, Bicarbonate as CaCO3		383	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		383	5.0		mg/l	SM 2320B-2011
Phosphorus, Total		3.5	0.050		mg/l	HACH8190/SM4500P-B/E
Solids, Total Dissolved		470	10		mg/l	SM 2540C-2011
Sulfate		25.0	0.50		mg/l	EPA 300.0/SW846 9056

D64583-2 TRIP BLANK

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

3.1
3

Client Sample ID: MW-1		Date Sampled: 11/13/14
Lab Sample ID: D64583-1		Date Received: 11/14/14
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8015B		
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA24335.D	5	11/21/14	EP	n/a	n/a	GGA1351
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	3.63	0.25	0.25	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	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-1		
Lab Sample ID: D64583-1		Date Sampled: 11/13/14
Matrix: AQ - Ground Water		Date Received: 11/14/14
Method: SW846 8021B		Percent Solids: n/a
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA24335.D	5	11/21/14	EP	n/a	n/a	GTA1351
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	10.2	5.0	1.0	ug/l	
108-88-3	Toluene	10.4	10	5.0	ug/l	
100-41-4	Ethylbenzene	49.3	10	5.0	ug/l	
1330-20-7	Xylenes (total)	1280	10	10	ug/l	

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

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

3.1
3

Client Sample ID: MW-1		Date Sampled: 11/13/14
Lab Sample ID: D64583-1		Date Received: 11/14/14
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846-8015B SW846 3510C		
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD36797.D	1	11/18/14	JJ	11/17/14	OP10964	GFD1675
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)	0.543	0.19	0.17	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	89%		10-130%		

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-1	Date Sampled: 11/13/14
Lab Sample ID: D64583-1	Date Received: 11/14/14
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	4370	70	ug/l	1	11/17/14	11/18/14 KV	SW846 6010C ¹	SW846 3010A ²
Magnesium	40200	200	ug/l	1	11/17/14	11/18/14 KV	SW846 6010C ¹	SW846 3010A ²
Manganese	616	5.0	ug/l	1	11/17/14	11/18/14 KV	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA5499

(2) Prep QC Batch: MP14558

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-1	Date Sampled: 11/13/14
Lab Sample ID: D64583-1	Date Received: 11/14/14
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	383	5.0	mg/l	1	11/17/14	JD	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	11/17/14	JD	SM 2320B-2011
Alkalinity, Total as CaCO3	383	5.0	mg/l	1	11/17/14	JD	SM 2320B-2011
Nitrogen, Nitrate	< 0.010	0.010	mg/l	1	11/15/14 11:21	JB	EPA 300.0/SW846 9056
Nitrogen, Nitrite	< 0.0040	0.0040	mg/l	1	11/15/14 11:21	JB	EPA 300.0/SW846 9056
Phosphate, Ortho	< 0.050	0.050	mg/l	1	11/15/14 11:21	JB	EPA 300.0/SW846 9056
Phosphorus, Total	3.5	0.050	mg/l	5	11/21/14	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	470	10	mg/l	1	11/17/14	JF	SM 2540C-2011
Sulfate	25.0	0.50	mg/l	1	11/15/14 11:21	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

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Client Sample ID: TRIP BLANK	
Lab Sample ID: D64583-2	Date Sampled: 11/13/14
Matrix: AQ - Trip Blank Water	Date Received: 11/14/14
Method: SW846 8021B	Percent Solids: n/a
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA24338.D	1	11/21/14	EP	n/a	n/a	GTA1351
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	107%		60-140%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Job Number: D64583 **Client:** OLSSON **Project:** KNIGHT
Date / Time Received: 11/14/2014 2:30:00 PM **Delivery Method:** _____ **Airbill #'s:** _____
Cooler Temps (Initial/Adjusted): #1: (3.1/3.1);

<u>Cooler Security</u>		<u>Y or N</u>			<u>Y or N</u>
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"/>

<u>Cooler Temperature</u>		<u>Y or N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	<u>Bar Therm;</u>	
3. Cooler media:	<u>Ice (Bag)</u>	
4. No. Coolers:	<u>1</u>	

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

Comments

<u>Sample Integrity - Documentation</u>		<u>Y</u>	<u>or</u>	<u>N</u>
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"/>	

<u>Sample Integrity - Condition</u>		<u>Y</u>	<u>or</u>	<u>N</u>
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:	<u>Intact</u>			

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
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 recvd 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"/>

GC Volatiles

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QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D64583
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
GGA1351-MB	GA24333.D	1	11/21/14	EP	n/a	n/a	GGA1351

The QC reported here applies to the following samples:

Method: SW846 8015B

D64583-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.050	0.050	mg/l	

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

Method Blank Summary

Job Number: D64583
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
GTA1351-MB	TA24333.D	1	11/21/14	EP	n/a	n/a	GTA1351

The QC reported here applies to the following samples:

Method: SW846 8021B

D64583-1, D64583-2

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	105% 60-140%

Blank Spike Summary

Job Number: D64583
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
GGA1351-BS	GA24334.D	1	11/21/14	EP	n/a	n/a	GGA1351

The QC reported here applies to the following samples:

Method: SW846 8015B

D64583-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.17	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	97%	60-140%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D64583
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
GTA1351-BS	TA24334.D	1	11/21/14	EP	n/a	n/a	GTA1351

The QC reported here applies to the following samples:

Method: SW846 8021B

D64583-1, D64583-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	27.2	29.5	108	70-130
100-41-4	Ethylbenzene	45.6	48.5	106	70-130
108-88-3	Toluene	212	221	104	70-130
1330-20-7	Xylenes (total)	216	249	115	70-130

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D64583
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
D64583-1MS	GA24336.D	5	11/21/14	EP	n/a	n/a	GGA1351
D64583-1MSD	GA24337.D	5	11/21/14	EP	n/a	n/a	GGA1351
D64583-1	GA24335.D	5	11/21/14	EP	n/a	n/a	GGA1351

The QC reported here applies to the following samples:

Method: SW846 8015B

D64583-1

CAS No.	Compound	D64583-1 mg/l	Spike Q mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	3.63	11	13.6	91	11	13.0	85	5	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D64583-1	Limits
120-82-1	1,2,4-Trichlorobenzene	99%	98%	91%	60-140%

* = Outside of Control Limits.

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D64583
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
D64583-1MS	TA24336.D	5	11/21/14	EP	n/a	n/a	GTA1351
D64583-1MSD	TA24337.D	5	11/21/14	EP	n/a	n/a	GTA1351
D64583-1	TA24335.D	5	11/21/14	EP	n/a	n/a	GTA1351

The QC reported here applies to the following samples:

Method: SW846 8021B

D64583-1, D64583-2

CAS No.	Compound	D64583-1 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	10.2	136	147	101	136	140	95	5	64-130/30
100-41-4	Ethylbenzene	49.3	228	278	100	228	262	93	6	46-144/30
108-88-3	Toluene	10.4	1060	1050	98	1060	995	93	5	70-130/30
1330-20-7	Xylenes (total)	1280	1080	2440	107	1080	2310	95	5	59-143/30

CAS No.	Surrogate Recoveries	MS	MSD	D64583-1	Limits
120-82-1	1,2,4-Trichlorobenzene	113%	112%	104%	60-140%

* = Outside of Control Limits.

5.3.2
 5

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D64583
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
OP10964-MB	FI19442.D	1	11/17/14	JJ	11/17/14	OP10964	GFI1053

The QC reported here applies to the following samples:

Method: SW846-8015B

D64583-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.20	0.18	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	91% 10-130%

Blank Spike Summary

Job Number: D64583
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
OP10964-BS	FI19444.D	1	11/17/14	JJ	11/17/14	OP10964	GFI1053

The QC reported here applies to the following samples:

Method: SW846-8015B

D64583-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	2.91	58	33-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	86%	10-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D64583
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
OP10964-MS	FI19446.D	1	11/17/14	JJ	11/17/14	OP10964	GFI1053
OP10964-MSD	FI19448.D	1	11/17/14	JJ	11/17/14	OP10964	GFI1053
D60574-9	FI19450.D	1	11/17/14	JJ	11/17/14	OP10964	GFI1053

The QC reported here applies to the following samples:

Method: SW846-8015B

D64583-1

CAS No.	Compound	D60574-9 mg/l	Spike Q mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	5	2.53	51	5	2.75	55	8	33-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D60574-9	Limits
84-15-1	o-Terphenyl	83%	87%	95%	10-130%

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D64583
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP14558
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	41		
Antimony	30	2.1	19		
Arsenic	25	3.8	5.6		
Barium	10	.2	1.4		
Beryllium	10	.9	1.2		
Boron	50	.8	6.6		
Cadmium	10	.2	.36		
Calcium	400	2.4	41		
Chromium	10	.3	.4		
Cobalt	5.0	.5	.57		
Copper	10	.8	1.9		
Iron	70	1.5	9.5	10.6	<70
Lead	50	2.1	21		
Lithium	5.0	.4	2.7		
Magnesium	200	6.8	19	4.8	<200
Manganese	5.0	.5	.46	0.40	<5.0
Molybdenum	10	.4	.84		
Nickel	30	.5	.87		
Phosphorus	100	15	20		
Potassium	1000	99	270		
Selenium	50	7.1	11		
Silicon	50	4.7	5.2		
Silver	30	.3	.6		
Sodium	400	7.3	170		
Strontium	5.0	.01	.12		
Thallium	10	1.8	4		
Tin	50	12	16		
Titanium	10	.1	2.1		
Vanadium	10	.4	.4		
Zinc	30	.4	3.2		

Associated samples MP14558: D64583-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D64583
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP14558
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 11/17/14

Metal	D64583-1 Original MS	Spikelot ICPAL2	% Rec	QC Limits	
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron	anr				
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron	4370	9460	5000	101.8	75-125
Lead	anr				
Lithium					
Magnesium	40200	65800	25000	102.4	75-125
Manganese	616	1080	500	92.8	75-125
Molybdenum	anr				
Nickel	anr				
Phosphorus					
Potassium	anr				
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium	anr				
Thallium	anr				
Tin	anr				
Titanium	anr				
Vanadium	anr				
Zinc	anr				

Associated samples MP14558: D64583-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

7.1.2
 7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D64583
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP14558
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 11/17/14

Metal	D64583-1 Original MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit	
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron	anr					
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	4370	9450	5000	101.6	0.1	20
Lead	anr					
Lithium						
Magnesium	40200	65600	25000	101.6	0.3	20
Manganese	616	1090	500	94.8	0.9	20
Molybdenum	anr					
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium	anr					
Thallium	anr					
Tin	anr					
Titanium	anr					
Vanadium	anr					
Zinc	anr					

Associated samples MP14558: D64583-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

7.1.2
 7

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D64583
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP14558
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 11/17/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	5200	5000	104.0	80-120
Lead	anr			
Lithium				
Magnesium	25800	25000	103.2	80-120
Manganese	490	500	98.0	80-120
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Vanadium	anr			
Zinc	anr			

Associated samples MP14558: D64583-1

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

7.1.3
7

SERIAL DILUTION RESULTS SUMMARY

Login Number: D64583
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP14558
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 11/17/14

Metal	D64583-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	4370	4650	6.4	0-10
Lead	anr			
Lithium				
Magnesium	40200	43100	7.3	0-10
Manganese	616	650	5.4	0-10
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium	anr			
Thallium	anr			
Tin	anr			
Titanium	anr			
Vanadium	anr			
Zinc	anr			

Associated samples MP14558: D64583-1

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

7.1.4
7

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D64583
Account: WILLCOP - 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	GN27516	5.0	2.2	mg/l	100	97.7	97.7	90-110%
Alkalinity, Carbonate	GN27517	5.0	0.0	mg/l	100	97.7	97.7	80-120%
Alkalinity, Total as CaCO3	GN27508	5.0	2.2	mg/l	100	97.7	97.7	90-110%
Bromide	GP14048/GN27498	0.050	0.0	mg/l	0.5	0.513	102.6	90-110%
Chloride	GP14048/GN27498	0.50	0.0	mg/l	5	5.19	103.8	90-110%
Nitrogen, Nitrate	GP14048/GN27498	0.010	0.0	mg/l	0.1	0.107	107.0	90-110%
Nitrogen, Nitrite	GP14048/GN27498	0.0040	0.0	mg/l	0.05	0.0470	94.0	90-110%
Phosphate, Ortho	GP14048/GN27498	0.050	0.0	mg/l	0.5	0.501	100.2	90-110%
Phosphorus, Total	GP14098/GN27580	0.010	0.0	mg/l	0.38	0.36	95.2	80-120%
Solids, Total Dissolved	GN27500	10	0.0	mg/l	400	401	100.3	90-110%
Sulfate	GP14048/GN27498	0.50	0.0	mg/l	5	5.07	101.4	90-110%

Associated Samples:

Batch GN27500: D64583-1
Batch GN27508: D64583-1
Batch GN27516: D64583-1
Batch GN27517: D64583-1
Batch GP14048: D64583-1
Batch GP14098: D64583-1
(*) Outside of QC limits

8.1

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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D64583
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	GN27508	D64366-2	mg/l	157	156	1.1	0-20%
Phosphorus, Total	GP14098/GN27580	D64617-1	mg/l	0.032	0.038	17.1	0-20%
Solids, Total Dissolved	GN27500	D64412-4	mg/l	575	565	1.8	0-20%

Associated Samples:
Batch GN27500: D64583-1
Batch GN27508: D64583-1
Batch GP14098: D64583-1
(*) Outside of QC limits

8.2
8

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D64583
Account: WILLCOP - 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 CaCO3	GN27508	D64366-9	mg/l	101	100	195	94.5	80-120%
Bromide	GP14048/GN27498	D64522-1	mg/l	0.0	10	10.5	105.0	80-120%
Chloride	GP14048/GN27498	D64522-1	mg/l	130	100	235	105.0	80-120%
Nitrogen, Nitrate	GP14048/GN27498	D64522-1	mg/l	5.2	2	7.3	105.0	80-120%
Nitrogen, Nitrite	GP14048/GN27498	D64522-1	mg/l	0.27	1	1.2	93.0	80-120%
Phosphate, Ortho	GP14048/GN27498	D64522-1	mg/l	0.0	10	10.3	103.0	80-120%
Phosphorus, Total	GP14098/GN27580	D64616-1	mg/l	0.040	0.40	0.44	99.0	80-120%
Sulfate	GP14048/GN27498	D64522-1	mg/l	133	100	237	104.0	80-120%

Associated Samples:

Batch GN27508: D64583-1

Batch GP14048: D64583-1

Batch GP14098: D64583-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D64583
Account: WILLCOP - 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	GN27508	D64366-9	mg/l	101	100	195	0.2	20%
Bromide	GP14048/GN27498	D64522-1	mg/l	0.0	10	10.4	1.0	20%
Chloride	GP14048/GN27498	D64522-1	mg/l	130	100	237	0.8	20%
Nitrogen, Nitrate	GP14048/GN27498	D64522-1	mg/l	5.2	2	7.3	0.0	20%
Nitrogen, Nitrite	GP14048/GN27498	D64522-1	mg/l	0.27	1	1.2	0.0	20%
Phosphate, Ortho	GP14048/GN27498	D64522-1	mg/l	0.0	10	10.5	1.9	20%
Phosphorus, Total	GP14098/GN27580	D64616-1	mg/l	0.040	0.40	0.44	0.0	20%
Sulfate	GP14048/GN27498	D64522-1	mg/l	133	100	237	0.0	20%

Associated Samples:

Batch GN27508: D64583-1

Batch GP14048: D64583-1

Batch GP14098: D64583-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

8.4

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