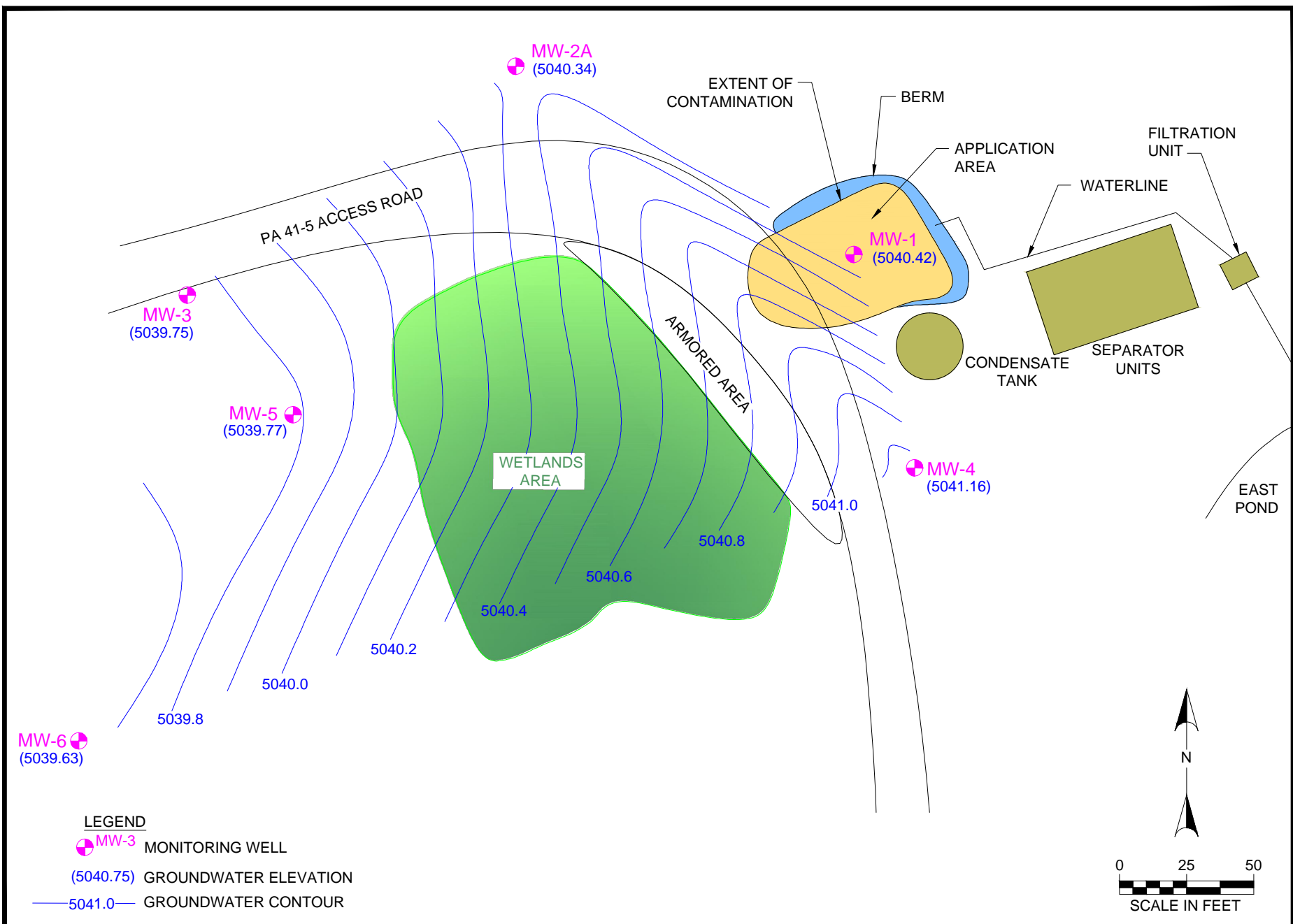





F:\Projects\013-3235\2015 Quarterly Sampling\01\Knight_GW-01-2015.dwg Layout: GW



LEGEND

-  MW-3 MONITORING WELL
-  (5040.75) GROUNDWATER ELEVATION
-  5041.0 GROUNDWATER CONTOUR

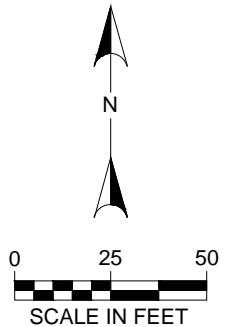
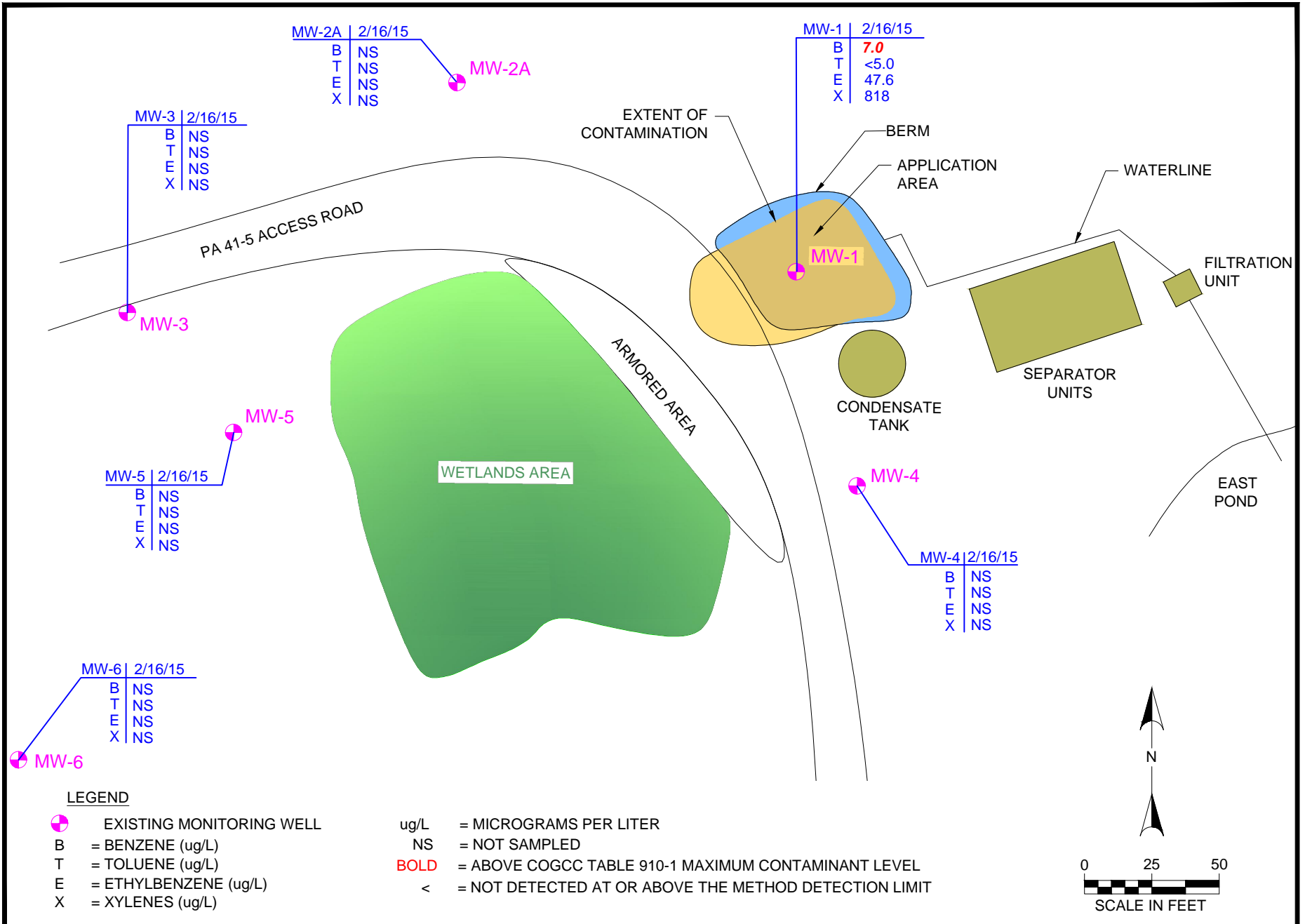
PROJECT NO:	013-3235
DRAWN BY:	abl
DATE:	02.09.2015

GROUNDWATER - PIEZOMETRIC SURFACE MAP - FEBRUARY 2015
 KNIGHT PA 311-4
 SEC 4, T7S, R95W
 PARACHUTE, COLORADO

OLSSON ASSOCIATES
 760 Horizon Drive; Suite 102
 Grand Junction, CO 81506
 TEL 970.263.7800
 FAX 970.263.7456

FIGURE	2
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F:\Projects\013-3235\2015 Quarterly Sampling\01\Knight_CWA-01-2015.dwg Layout: CWA



PROJECT NO:	013-3235
DRAWN BY:	abl
DATE:	04.09.2015

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - FEBRUARY 2015
 KNIGHT PA 311-4
 SEC 4, T7S, R95W
 PARACHUTE, COLORADO

OLSSON ASSOCIATES
 760 Horizon Drive; Suite102
 Grand Junction, CO 81506
 TEL 970.263.7800
 FAX 970.263.7456

FIGURE	3
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Water Analytical Data

Sample ID	COGCC Table 910-1 Standards	UNITS	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
Depth to Water (feet)			5.57	5.52	5.28	5.52	6.78	6.00	5.16
Sample Date			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	1.68	1.56	5.62	2.92	2.01	3.59	2.41
TPH Diesel Range Organics	NA	mg/l	0.596	0.412	0.996	0.886	0.518	0.405	0.361
BTEX									
Benzene	5	µg/l	7.9	1.2	<0.20	15.9	7.6	9.8	9.7
Toluene	560 to 1000	µg/l	1.4	< 1.0	<1.0	7.2 J	<5.0	<1.0	2.3
Ethylbenzene	700	µg/l	24.3	< 1.0	<1.0	65.9	37.7	72.4	49.7
Xylene (total)	1400 to 10000	µg/l	477	227	26.7	517	421	772	658
PAHs									
Acenaphthene	NA	µg/l	< 0.2	< 0.60	<0.48	<0.48	<0.48	NT	NT
Acenaphthylene	NA	µg/l	< 0.2	< 0.60	<0.48	<0.48	<0.48	NT	NT
Anthracene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT
Benzo(a)anthracene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT
Benzo(a)pyrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT
Benzo(b)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT
Benzo(g,h,i)perylene	NA	µg/l	< 0.2	< 0.54	<0.48	<0.48	<0.48	NT	NT
Benzo(k)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT
Chrysene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT
Dibenzo(a,h)anthracene	NA	µg/l	< 0.2	< 0.78	<0.48	<0.48	<0.48	NT	NT
Fluoranthene	NA	µg/l	< 0.2	< 0.71	<0.48	<0.48	<0.48	NT	NT
Fluorene	NA	µg/l	< 0.2	< 0.55	<0.48	<0.48	<0.48	NT	NT
Indeno(1,2,3-cd)pyrene	NA	µg/l	< 0.2	< 1.5	<0.48	<0.48	<0.48	NT	NT
1-Methylnaphthalene	NA	µg/l	1.1	< 0.68	1.1 J	0.67 J	0.50 J	NT	NT
2-Methylnaphthalene	NA	µg/l	1.6	0.83 J	2.0 J	1.0 J	<0.48	NT	NT
Naphthalene	NA	µg/l	2.9	1.2 J	3.6 J	2.0 J	<0.48	NT	NT
Phenanthrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT
Pyrene	NA	µg/l	< 0.2	< 0.47	<0.48	<0.48	<0.48	NT	NT
Metals									
Calcium	NA	mg/l	173	88.3	138	170	147	116	114
Iron	NA	mg/l	26.5	5.32	11.6	17.7	19.5	10.6	12.0
Magnesium	NA	mg/l	36.7	58.6	54.7	72.5	63.6	82.7	60.6
Manganese	NA	mg/l	1.13	0.418	0.653	0.947	0.748	0.709	0.650
Potassium	NA	mg/l	< 10	3.64	4.63	7.7	6.15	5.42	5.75
Selenium	NA	mg/l	< 0.01	< 0.05	<0.050	<0.050	<0.05	<0.05	<0.05
Sodium	NA	mg/l	50.2	63.8	64.7	104	80	101	86
General Chemistry									
Alkalinity, Bicarbonate	NA	mg/l	260	488	498	667	746	618	484
Alkalinity, Carbonate	NA	mg/l	< 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
Biological Oxygen Demand, 5 Day	NA	mg/l	10.5	10.9	22.6	21	28.4	15.4	11.8
Bromide	NA	mg/l	< 0.50	< 0.20	1.3	2.8	<0.25	0.16	<0.10 ^a
Chemical Oxygen Demand	NA	mg/l	31.6	18.4	62.3	79.6	21.7	45.9	21.2
Chloride	1.25 x bkgd	mg/l	16.0	11.5	9.0	139	39.2	12.3	9.7
Hydroxide Alkalinity	NA	mg/l	< 5.0	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
Nitrogen, Nitrite	NA	mg/l	< 0.50	< 0.061	0.010	0.064	0.015	0.064	0.052
Phosphate, Ortho	NA	mg/l	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
Plate Count, Total	NA	CFU/ml	1590000	110000	300000	360000	150000	NT	NT
Total Dissolved Solids	NA	mg/l	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
Total Organic Carbon	NA	mg/l	13.2	8.8	10.4	18.5	10.2	9.3	8.9
pH	NA	su	8.34	7.76	7.67	7.38	7.48	7.56	7.53
Field Readings									
Temperature	NA	deg. C	14.6	6.82	13.89	21.20	14.49	7.80	12.60
Specific Conductivity	NA	mS/cm	0.511	0.837	0.789	1.234	1.227	1.319	0.958
Dissolved Oxygen	NA	mg/l	6.55	2.25	3.25	1.51	0.95	1.34	0.28
pH	NA	su	9.05	7.37	7.71	7.49	7.7	7.3	7.8
Solids, Total Dissolved	NA	mg/l	0.3	0.5	0.5	0.8	NT	NT	0.6
Turbidity	NA	NTU	264	117	538	386	117	59.9	NT
µg/l - micrograms per liter	a - Dilution required due to matrix interference								
mg/l - milligrams per liter	b - Elevated detection limit due to matrix interference								
J - indicates an estimated value	c - Elevated detection limit due to dilution required for possible matrix interference								
µmhos/cm - micromhos per centimeter									
mS/cm - millisiemens per centimeter	Over allowable limit								
su - standard units									
NA - not applicable									
NTU - nephelometric turbidity units									
CFU/ml - colony forming units per milliliter									
a -Elevated detection limit due to matrix interference									

Water Analytical Data

Sample ID	COGCC Table 910-1 Standards	UNITS	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1
Sampling Period			3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
Depth to Water (feet)			6.15	6.20	5.57	5.26	5.82	6.08	6.02
Sample Date			9/19/2013	12/17/2013	2/20/2014	5/5/2014	10/9/2014	11/13/2014	2/16/2015
Analytical Parameters									
TPH									
TPH Gasoline Range Organics	NA	mg/l	0.443	3.20	0.29	3.07	4.23	3.63	2.77
TPH Diesel Range Organics	NA	mg/l	0.283	0.336	0.429	0.2	0.436	0.543	<0.28
BTEX									
Benzene	5	µg/l	3.4	13.1	<0.20	8.4	19.8	10.2	7.0
Toluene	560 to 1000	µg/l	1.3J	4.8	3.1	5.1	<5.0	10.4	<5.0
Ethylbenzene	700	µg/l	4.8	18.7	<1.0	<2.0	54.1	49.3	47.6
Xylene (total)	1400 to 10000	µg/l	101	585	<2.0	917 ^a	1350	1280	818
PAHs									
Acenaphthene	NA	µg/l	<0.49	<0.48	<0.48	<0.48	NT	NT	NT
Acenaphthylene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Anthracene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Benzo(a)anthracene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Benzo(a)pyrene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Benzo(b)fluoranthene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Benzo(g,h,i)perylene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Benzo(k)fluoranthene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Chrysene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Dibenzo(a,h)anthracene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Fluoranthene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Fluorene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.55	<0.47	<0.54	<0.47	NT	NT	NT
1-Methylnaphthalene	NA	µg/l	<0.48	1.0 J	0.67 J	0.81	NT	NT	NT
2-Methylnaphthalene	NA	µg/l	<0.48	1.0 J	1.0 J	1.2	NT	NT	NT
Naphthalene	NA	µg/l	0.69J	2.6 J	2.3 J	2.6	NT	NT	NT
Phenanthrene	NA	µg/l	<0.48	<0.47	<0.47	ND	NT	NT	NT
Pyrene	NA	µg/l	<0.48	<0.47	<0.47	<0.47	NT	NT	NT
Metals									
Calcium	NA	mg/l	238	102	162	257	NT	NT	NT
Iron	NA	mg/l	6.1	5.5	7.5	13.8	17.4	4.4	5.75
Magnesium	NA	mg/l	64.3	64.9	66.2	58.8	44.0	40.2	61.0
Manganese	NA	mg/l	0.658	0.646	1.020	1.500	1.890	0.616	0.800
Potassium	NA	mg/l	6.79	5.57	4.11	4.79	NT	NT	NT
Selenium	NA	mg/l	<0.05	<0.05	<0.05	<0.05	NT	NT	NT
Sodium	NA	mg/l	118	93.8	99.3	83.8	NT	NT	NT
General Chemistry									
Alkalinity, Bicarbonate	NA	mg/l	492	635	697	773	517	383	490
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO ₃	NA	mg/l	492	635	697	773	517	383	490
Biological Oxygen Demand, 5 Day	NA	mg/l	12.7	20.4	18.5	14	NT	NT	NT
Bromide	NA	mg/l	0.17	0.10	<0.10	<0.10 ^a	NT	NT	NT
Chemical Oxygen Demand	NA	mg/l	31.6	35.9	48.3	36.3	NT	NT	NT
Chloride	1.25 x bkgd	mg/l	163.0	13.2	12.0	9.6	NT	NT	NT
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.24	0.22	3	2.2	0.086	<0.010	<0.02
Nitrogen, Nitrite	NA	mg/l	0.280	0.076	0.270	0.098	<0.0040	<0.0040	<0.008
Phosphate, Ortho	NA	mg/l	NT	1.500	0.600	0.330	<0.050	<0.050	<0.01
Phosphorus, Total	NA	mg/l	10.40	5.0	46.1	40.80	26.8	3.5	4.6
Plate Count, Total	NA	CFU/ml	NT	NT	620000	NT	NT	NT	NT
Total Dissolved Solids	NA	mg/l	NT	684	674	636	494	470	572
Sulfate	1.25 x bkgd	mg/l	43.2	25.1	16.3	17.4	11.3	25	11.8
Total Organic Carbon	NA	mg/l	14.2	10.2	10.9	12.2	NT	NT	NT
pH	NA	su	7.87	7.63	7.4	7.38	NT	NT	NT
Field Readings									
Temperature	NA	deg. C	20.20	10.00	5.30	10.60	16.39	12.70	7.40
Specific Conductivity	NA	mS/cm	1.364	1.101	1.1	1.103	0.809	0.906	0.991
Dissolved Oxygen	NA	mg/l	6.5	0.27	0.29	0.08	1.03	0.77	0.5
pH	NA	su	8.75	8.19	NT	7.54	7.53	7.58	7.75
Solids, Total Dissolved	NA	mg/l	0.9	0.7150	0.7150	0.7	0.5	591.5	0.5
Turbidity	NA	NTU	NT	NT	NT	NT	700	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
su - standard units
NA - not applicable
NTU - nephelometric turbidity units
CFU/ml - colony forming units per milliliter
a - Elevated detection limit due to matrix interference
b - Elevated detection limit due to matrix interference
c - Elevated detection limit due to dilution
Over allowable limit

Water Analytical Data

Sample ID	COGCC Table 910-1 Standards	UNITS	MW-2A	MW-2A	MW-2A	MW-2A	MW-2A	MW-2A	MW-2A
Sampling Period			4th Quarter	1st Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
Depth to Water (feet)			4.93	5.04	4.72	5.65	5.50	4.44	5.16
Sample Date			11/18/2011	2/14/2012	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
TPH Diesel Range Organics	NA	mg/l	<0.10	< 0.30	<0.25	<0.17	<0.17	<0.17	<0.17
BTEX									
Benzene	5	µg/l	< 1.0	< 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
Ethylbenzene	700	µg/l	< 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
PAHs									
Acenaphthene	NA	µg/l	< 0.2	< 0.60	<0.47	<0.48	NT	NT	<0.49
Acenaphthylene	NA	µg/l	< 0.2	< 0.60	<0.47	<0.48	NT	NT	<0.48
Anthracene	NA	µg/l	< 0.2	< 0.47	<0.47	<0.48	NT	NT	<0.48
Benzo(a)anthracene	NA	µg/l	< 0.2	< 0.47	<0.47	<0.48	NT	NT	<0.48
Benzo(a)pyrene	NA	µg/l	< 0.2	< 0.47	<0.47	<0.48	NT	NT	<0.48
Benzo(b)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.47	<0.48	NT	NT	<0.48
Benzo(g,h,i)perylene	NA	µg/l	< 0.2	< 0.54	<0.47	<0.48	NT	NT	<0.48
Benzo(k)fluoranthene	NA	µg/l	< 0.2	< 0.47	<0.47	<0.48	NT	NT	<0.48
Chrysene	NA	µg/l	< 0.2	< 0.47	<0.47	<0.48	NT	NT	<0.48
Dibenzo(a,h)anthracene	NA	µg/l	< 0.2	< 0.78	<0.47	<0.48	NT	NT	<0.48
Fluoranthene	NA	µg/l	< 0.2	< 0.71	<0.47	<0.48	NT	NT	<0.48
Fluorene	NA	µg/l	< 0.2	< 0.55	<0.47	<0.48	NT	NT	<0.48
Indeno(1,2,3-cd)pyrene	NA	µg/l	< 0.2	< 1.5	<0.47	<0.48	NT	NT	<0.55
1-Methylnaphthalene	NA	µg/l	< 0.2	< 0.68	<0.47	<0.48	NT	NT	<0.48
2-Methylnaphthalene	NA	µg/l	< 0.2	< 0.68	<0.47	<0.48	NT	NT	<0.48
Naphthalene	NA	µg/l	< 0.2	< 0.73	<0.47	<0.48	NT	NT	<0.48
Phenanthrene	NA	µg/l	< 0.2	< 0.47	<0.47	<0.48	NT	NT	<0.48
Pyrene	NA	µg/l	< 0.2	< 0.47	<0.47	<0.48	NT	NT	<0.48
Metals									
Calcium	NA	mg/l	129	109	94.6	208	107	102	123
Iron	NA	mg/l	14	4.77	10.1	33.5	15.7	15.0	25.0
Magnesium	NA	mg/l	51.4	55.4	61.6	81.6	65.2	64.7	67.2
Manganese	NA	mg/l	1.72	2.03	1.64	3.37	3.93	2.62	1.61
Potassium	NA	mg/l	< 10	3.19	6.54	8.6	6.06	5.93	6.84
Selenium	NA	mg/l	< 0.01	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05
Sodium	NA	mg/l	60.4	59.4	96.7	97.8	95.6	90.2	122.0
General Chemistry									
Alkalinity, Bicarbonate	NA	mg/l	372	440	364	299	382	483	354
Alkalinity, Carbonate	NA	mg/l	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	NA	mg/l	374	440	364	299	382	483	354
Biological Oxygen Demand, 5 Day	NA	mg/l	< 15	< 10	< 10	<10	<10	1.4	<1.0
Bromide	NA	mg/l	< 0.50	< 0.20	<0.10	0.11	<0.10 ^a	<0.10 ^a	<0.10 ^a
Chemical Oxygen Demand	NA	mg/l	66.9	20.4	49	<10	<10	71.3	24.3
Chloride	1.25 x bkgd	mg/l	15.4	13.2	151	206	96.4	16.8	149
Hydroxide Alkalinity	NA	mg/l	< 5.0	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.57	< 0.23	0.063	0.031	0.22	0.035	<0.020 ^a
Nitrogen, Nitrite	NA	mg/l	< 0.50	< 0.061	0.04	<0.0080	0.0080 ^a	<0.0080 ^a	<0.0080 ^a
Phosphate, Ortho	NA	mg/l	NT	NT	NT	NT	NT	NT	NT
Phosphorus, Total	NA	mg/l	0.89	1.3	NT	1.4	0.44	0.05	0.22
Plate Count, Total	NA	CFU/ml	70000	6900	5600	8100	NT	NT	NT
Total Dissolved Solids	NA	mg/l	NT	NT	NT	NT	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	16.8	44.2	108	155	98.5	98.5	112
Total Organic Carbon	NA	mg/l	4.5	3.9	5.6	4.9	4	5.3	5.2
pH	NA	su	7.14	7.58	7.51	7.49	7.64	7.66	7.7
Field Readings									
Temperature	NA	deg. C	13.2	8.3	20.9	13.1	9.98	11.50	17.50
Specific Conductivity	NA	mS/cm	0.651	0.77	1.132	1.34	1.195	1.037	1.319
Dissolved Oxygen	NA	mg/l	0.24	1.22	1.73	1.22	0.86	0.17	0.1
pH	NA	su	7.50	7.25	7.56	7.75	7.31	7.7	7.83
Solids, Total Dissolved	NA	mg/l	0.4	0.5	0.7	NT	NT	0.7	0.9
Turbidity	NA	NTU	653	766	1997	345	96.3	NT	NT
<p>µg/l - micrograms per liter</p> <p>mg/l - milligrams per liter</p> <p>J - indicates an estimated value</p> <p>µmhos/cm - micromhos per centimeter</p> <p>mS/cm - millisiemens per centimeter</p> <p>su - standard units</p> <p>NA - not applicable</p> <p>NTU - nephelometric turbidity units</p> <p>CFU/ml - colony forming units per milliliter</p> <p>a -Elevated detection limit due to matrix interference</p> <p>a - Dilution required due to matrix interfere</p> <p>b - Elevated detection limit due to matrix ir</p> <p>c - Elevated detection limit due to dilution i</p>									

Water Analytical Data

Sample ID	COGCC Table 910-1 Standards	UNITS	MW-2A	MW-2A	MW-2A	MW-2A	MW-2A	MW-3	MW-3
Sampling Period			4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	1st Quarter	4th Quarter	1st Quarter
Depth to Water (feet)			5.44	4.91	4.35	5.01	5.43	5.68	5.77
Sample Date			12/17/2013	2/20/2014	5/5/2014	10/9/2014	2/16/2015	11/18/2011	2/14/2012
Analytical Parameters									
TPH									
TPH Gasoline Range Organics	NA	mg/l	<0.10	<0.050	<0.050	NT	NT	< 0.050	< 0.10
TPH Diesel Range Organics	NA	mg/l	.175 J	<0.17	<0.17	NT	NT	25.1	< 0.30
BTEX									
Benzene	5	µg/l	<0.20	<0.20	<0.20	NT	NT	< 1.0	< 0.20
Toluene	560 to 1000	µg/l	<1.0	<1.0	<1.0	NT	NT	< 1.0	< 1.0
Ethylbenzene	700	µg/l	<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	NT	NT	< 3.0	< 2.0
PAHs									
Acenaphthene	NA	µg/l	<0.48	<0.49	<0.49	NT	NT	< 0.2	< 0.60
Acenaphthylene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.60
Anthracene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.47
Benzo(a)anthracene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.47
Benzo(a)pyrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.47
Benzo(b)fluoranthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.47
Benzo(g,h,i)perylene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.54
Benzo(k)fluoranthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.47
Chrysene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.47
Dibenzo(a,h)anthracene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.78
Fluoranthene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.71
Fluorene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.55
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.54	<0.54	<0.48	NT	NT	< 0.2	< 1.5
1-Methylnaphthalene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.68
2-Methylnaphthalene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.68
Naphthalene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.73
Phenanthrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.47
Pyrene	NA	µg/l	<0.47	<0.48	<0.48	NT	NT	< 0.2	< 0.47
Metals									
Calcium	NA	mg/l	134	84.6	154	NT	NT	76.7	151
Iron	NA	mg/l	26.7	5.3	18.7	NT	NT	4.8	6.79
Magnesium	NA	mg/l	68.4	64.4	68.5	NT	NT	37.2	50.3
Manganese	NA	mg/l	2.57	1.25	1.72	NT	NT	0.718	1.43
Potassium	NA	mg/l	6.43	6.22	5.99	NT	NT	< 10	2.95
Selenium	NA	mg/l	<0.05	<0.05	<0.05	NT	NT	< 0.01	< 0.05
Sodium	NA	mg/l	120.0	106.0	98.2	NT	NT	56.1	61.4
General Chemistry									
Alkalinity, Bicarbonate	NA	mg/l	414	512	509	NT	NT	384	462
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	NT	NT	< 5.0	< 5.0
Alkalinity, Total as CaCO3	NA	mg/l	414	512	509	NT	NT	386	462
Biological Oxygen Demand, 5 Day	NA	mg/l	1.0	15.8	3.1	NT	NT	11.1	< 10
Bromide	NA	mg/l	<0.10	<0.10	<0.10 ^a	NT	NT	< 0.50	< 0.20
Chemical Oxygen Demand	NA	mg/l	14.7	23.7	14.6	NT	NT	21	< 10
Chloride	1.25 x bkgd	mg/l	109	53	20.7	NT	NT	16.7	14.5
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	< 5.0	NT
Nitrogen, Nitrate	NA	mg/l	0.081	0.079	0.042	NT	NT	0.58	< 0.23
Nitrogen, Nitrite	NA	mg/l	<0.0080 ^a	0.049	<0.0080 ^a	NT	NT	0.67	< 0.061
Phosphate, Ortho	NA	mg/l	<0.13 ^a	<0.10	<0.10 ^a	NT	NT	NT	NT
Phosphorus, Total	NA	mg/l	0.74	0.38	0.85	NT	NT	0.45	1.7
Plate Count, Total	NA	CFU/ml	NT	110000	NT	NT	NT	120000	8500
Total Dissolved Solids	NA	mg/l	772	740	692	NT	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	110	69.7	78.8	NT	NT	10.9	24
Total Organic Carbon	NA	mg/l	5	11.4	4.3	NT	NT	4.5	4.3
pH	NA	su	7.63	7.42	7.58	NT	NT	7.1	7.64
Field Readings									
Temperature	NA	deg. C	10.10	5.70	9.90	NT	NT	14.8	7.46
Specific Conductivity	NA	mS/cm	1.209	1.252	1.144	NT	NT	0.663	0.763
Dissolved Oxygen	NA	mg/l	0.40	0.41	0.3	NT	NT	0.14	2.43
pH	NA	su	8.90	NT	7.59	NT	NT	7.41	7.26
Solids, Total Dissolved	NA	mg/l	0.7865	0.8125	741.0	NT	NT	0.4	0.5
Turbidity	NA	NTU	NT	NT	NT	NT	NT	568	2000

µg/l -micrograms per liter a - Dilution required due to matrix interfere

mg/l -milligrams per liter b - Elevated detection limit due to matrix ir

J - indicates an estimated value c - Elevated detection limit due to dilution i

µmhos/cm - micromhos per centimeter

mS/cm - millisiemens per centimeter Over allowable limit

su - standard units

NA - not applicable

NTU - nephelometric turbidity units

CFU/ml - colony forming units per milliliter

a -Elevated detection limit due to matrix interference

Water Analytical Data

Sample ID	COGCC Table 910-1 Standards	UNITS	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4
Sampling Period			3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
Depth to Water (feet)			11.31	11.64	10.77	10.7	11.9	11.27	10.49
Sample Date			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	<0.050
TPH Diesel Range Organics	NA	mg/l	<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
Toluene	560 to 1000	µg/l	<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
Xylene (total)	1400 to 10000	µg/l	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PAHs									
Acenaphthene	NA	µg/l	<0.48	<0.48	NT	NT	<0.48	<0.48	<0.50
Acenaphthylene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Anthracene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(a)anthracene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(a)pyrene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(b)fluoranthene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(g,h,i)perylene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Benzo(k)fluoranthene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Chrysene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Dibenzo(a,h)anthracene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Fluoranthene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Fluorene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.48	<0.48	NT	NT	<0.54	<0.54	<0.55
1-Methylnaphthalene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
2-Methylnaphthalene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Naphthalene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Phenanthrene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Pyrene	NA	µg/l	<0.48	<0.48	NT	NT	<0.47	<0.47	<0.49
Metals									
Calcium	NA	mg/l	121	238	60.4	74.3	119.0	171.0	96.7
Iron	NA	mg/l	19.7	47.5	2.63	7.26	9.34	2.88	0.86
Magnesium	NA	mg/l	71.5	104	64.5	64.9	84.1	55.9	53.1
Manganese	NA	mg/l	4.4	2.16	0.316	0.533	0.48	0.29	0.198
Potassium	NA	mg/l	8.73	12.2	5	5.6	6.78	5.76	3.55
Selenium	NA	mg/l	<0.050	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050
Sodium	NA	mg/l	99.1	110.0	99.2	85.0	118.0	109.0	83.6
General Chemistry									
Alkalinity, Bicarbonate	NA	mg/l	616	618	489	482	309	399	332
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	<5.0	346	203	85.8
Alkalinity, Total as CaCO3	NA	mg/l	616	618	489	482	665	602	418
Biological Oxygen Demand, 5 Day	NA	mg/l	10.7	<10	<10	2.4	<1.0	<1.0	<1.0
Bromide	NA	mg/l	0.19	0.26	<0.10 ^a	<0.10 ^a	<0.25 ^a	0.34	0.09
Chemical Oxygen Demand	NA	mg/l	57	20.3	23.7	12.4	245	45.5	30.1
Chloride	1.25 x bkgd	mg/l	13.1	16.4	8	12	12.1	8.5	6.5
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	<0.020	<0.050	<0.020 ^a	1.7	0.056	0.55	1.3
Nitrogen, Nitrite	NA	mg/l	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	0.77	1.1
Phosphorus, Total	NA	mg/l	NT	1.2	0.10	0.16	80.30	134	12
Plate Count, Total	NA	CFU/ml	3800	13000	NT	NT	NT	NT	5600
Total Dissolved Solids	NA	mg/l	NT	NT	NT	NT	NT	464	504
Sulfate	1.25 x bkgd	mg/l	13	110	113	74.9	70.7	108	91.2
Total Organic Carbon	NA	mg/l	8.5	10.3	3.8	4.4	25.3	8.1	6.2
pH	NA	su	7.64	7.69	7.81	7.81	11.4	11.31	9.02
Field Readings									
Temperature	NA	deg. C	19.42	14.68	6.83	12.20	19.20	11.00	5.70
Specific Conductivity	NA	mS/cm	1.02	1.371	1.15	0.983	1.736	0.920	0.799
Dissolved Oxygen	NA	mg/l	1.67	1.96	1.24	1.01	18.24	4.59	4.99
pH	NA	su	7.6	7.85	7.42	7.82	12.23	9.54	NT
Solids, Total Dissolved	NA	mg/l	0.7	NT	NT	0.6	1.1	0.8045	0.5200
Turbidity	NA	NTU	1572	554	26.5	Nt	NT	NT	NT
<p>µg/l -micrograms per liter</p> <p>mg/l -milligrams per liter</p> <p>J - indicates an estimated value</p> <p>µmhos/cm - micromhos per centimeter</p> <p>mS/cm - millisiemens per centimeter</p> <p>su - standard units</p> <p>NA - not applicable</p> <p>NTU - nephelometric turbidity units</p> <p>CFU/ml - colony forming units per milliliter</p> <p>a -Elevated detection limit due to matrix interference</p> <p>a - Dilution required due to matrix interfere</p> <p>b - Elevated detection limit due to matrix in</p> <p>c - Elevated detection limit due to dilution i</p>									

Water Analytical Data

Sample ID	COGCC Table 910-1 Standards	UNITS	MW-4	MW-4	MW-4	MW-5	MW-5	MW-5	MW-5
Sampling Period			2nd Quarter	3rd Quarter	1st Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
Depth to Water (feet)			10.32	11.04	11.06	5.63	6.06	6.11	6.12
Sample Date			5/5/2014	10/9/2014	2/16/2015	11/18/2011	2/14/2012	5/8/2012	8/29/2012
Analytical Parameters									
TPH									
TPH Gasoline Range Organics	NA	mg/l	<0.050	NT	NT	< 0.050	< 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
BTEX									
Benzene	5	µg/l	<0.20	NT	NT	< 1.0	< 0.20	<0.20	<0.20
Toluene	560 to 1000	µg/l	<1.0	NT	NT	< 1.0	< 1.0	<1.0	<1.0
Ethylbenzene	700	µg/l	<1.0	NT	NT	< 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
PAHs									
Acenaphthene	NA	µg/l	<0.49	NT	NT	< 0.2	< 0.60	<0.48	<0.48
Acenaphthylene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.60	<0.48	<0.48
Anthracene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48
Benzo(a)anthracene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48
Benzo(a)pyrene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48
Benzo(b)fluoranthene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48
Benzo(g,h,i)perylene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.54	<0.48	<0.48
Benzo(k)fluoranthene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48
Chrysene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48
Dibenzo(a,h)anthracene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.78	<0.48	<0.48
Fluoranthene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.71	<0.48	<0.48
Fluorene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.55	<0.48	<0.48
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.48	NT	NT	< 0.2	< 1.5	<0.48	<0.48
1-Methylnaphthalene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.68	<0.48	<0.48
2-Methylnaphthalene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.68	<0.48	<0.48
Naphthalene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.73	<0.48	<0.48
Phenanthrene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48
Pyrene	NA	µg/l	<0.48	NT	NT	< 0.2	< 0.47	<0.48	<0.48
Metals									
Calcium	NA	mg/l	139.0	NT	NT	119	198	157	99.9
Iron	NA	mg/l	1.38	NT	NT	18.9	18.2	33.3	11.4
Magnesium	NA	mg/l	59.7	NT	NT	45.6	62.2	60.8	56.0
Manganese	NA	mg/l	0.327	NT	NT	0.977	1.56	1.33	0.808
Potassium	NA	mg/l	4.01	NT	NT	< 10	3.22	6.71	5.69
Selenium	NA	mg/l	<0.050	NT	NT	< 0.01	< 0.05	<0.050	<0.050
Sodium	NA	mg/l	69.5	NT	NT	55.8	56.4	58.9	8.0
General Chemistry									
Alkalinity, Bicarbonate	NA	mg/l	458	NT	NT	364	540	481	429
Alkalinity, Carbonate	NA	mg/l	43.1	NT	NT	< 5.0	< 5.0	<5.0	<5.0
Alkalinity, Total as CaCO3	NA	mg/l	501	NT	NT	366	540	481	429
Biological Oxygen Demand, 5 Day	NA	mg/l	<1.0	NT	NT	< 15	< 10	<10	<10
Bromide	NA	mg/l	<0.10 ^a	NT	NT	< 0.50	< 4.0	<0.40	<0.10
Chemical Oxygen Demand	NA	mg/l	16	NT	NT	40.4	18.1	<10	75.5
Chloride	1.25 x bkgd	mg/l	5.7	NT	NT	18.1	20	10.6	133
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	< 5.0	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	0.18	NT	NT	0.51	< 0.45	<0.090	0.039
Nitrogen, Nitrite	NA	mg/l	0.015	NT	NT	< 0.50	< 0.061	<0.010	0.052
Phosphate, Ortho	NA	mg/l	0.41	NT	NT	NT	NT	NT	NT
Phosphorus, Total	NA	mg/l	12	NT	NT	1.2	2	1.6	NT
Plate Count, Total	NA	CFU/ml	NT	NT	NT	180000	3300	1900	63000
Total Dissolved Solids	NA	mg/l	538	NT	NT	NT	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	55.8	NT	NT	16.2	19	27.8	101
Total Organic Carbon	NA	mg/l	4.8	NT	NT	6.1	10.9	5.0	6.4
pH	NA	su	8.56	NT	NT	7.22	7.62	7.65	7.47
Field Readings									
Temperature	NA	deg. C	10.50	NT	NT	12.7	5.77	13.89	20.67
Specific Conductivity	NA	mS/cm	0.912	NT	NT	0.667	0.798	0.727	1.116
Dissolved Oxygen	NA	mg/l	5.23	NT	NT	0.13	1.75	2.24	1.15
pH	NA	su	8.65	NT	NT	7.47	7.22	7.85	7.51
Solids, Total Dissolved	NA	mg/l	591.5	NT	NT	0.4	0.5	0.5	0.7
Turbidity	NA	NTU	NT	NT	NT	896	2000	2000	2000
<p>µg/l - micrograms per liter</p> <p>mg/l - milligrams per liter</p> <p>J - indicates an estimated value</p> <p>µmhos/cm - micromhos per centimeter</p> <p>mS/cm - millisiemens per centimeter</p> <p>su - standard units</p> <p>NA - not applicable</p> <p>NTU - nephelometric turbidity units</p> <p>CFU/ml - colony forming units per milliliter</p> <p>a - Elevated detection limit due to matrix interference</p> <p>b - Elevated detection limit due to matrix interference</p> <p>c - Elevated detection limit due to dilution</p>									

Water Analytical Data

Sample ID	COGCC Table 910-1 Standards	UNITS	MW-5	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	2nd Quarter
Depth to Water (feet)			6.8	6.6	5.81	6.38	6.59	5.99	5.85
Sample Date			11/26/2012	3/6/2013	5/30/2013	9/19/2013	12/17/2013	2/20/2014	5/5/2014
Analytical Parameters									
TPH									
TPH Gasoline Range Organics	NA	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.050	<0.050
TPH Diesel Range Organics	NA	mg/l	<0.17	<0.17	<0.17	<0.17	<0.17	0.42	<0.17
BTEX									
Benzene	5	µg/l	<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
Ethylbenzene	700	µg/l	<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
PAHs									
Acenaphthene	NA	µg/l	<0.47	NT	NT	<0.49	<0.48	<0.51	<0.49
Acenaphthylene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Anthracene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Benzo(a)anthracene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Benzo(a)pyrene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Benzo(b)fluoranthene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Benzo(g,h,i)perylene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Benzo(k)fluoranthene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Chrysene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Dibenzo(a,h)anthracene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Fluoranthene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Fluorene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Indeno(1,2,3-cd)pyrene	NA	µg/l	<0.47	NT	NT	<0.54	<0.54	<0.57	<0.48
1-Methylnaphthalene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
2-Methylnaphthalene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Naphthalene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Phenanthrene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Pyrene	NA	µg/l	<0.47	NT	NT	<0.48	<0.47	<0.50	<0.48
Metals									
Calcium	NA	mg/l	333	103	84	107	99.6	90.1	112.0
Iron	NA	mg/l	83.1	15.6	10.8	6.1	13.7	17.9	12.6
Magnesium	NA	mg/l	108	71.4	52.2	57.6	62.8	56.5	50.5
Manganese	NA	mg/l	2.81	0.849	0.587	0.67	0.721	0.692	0.754
Potassium	NA	mg/l	12.6	4.34	4.2	5.2	4.85	3.73	4.12
Selenium	NA	mg/l	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Sodium	NA	mg/l	85.1	97.9	88.4	116.0	122.0	92.7	89.4
General Chemistry									
Alkalinity, Bicarbonate	NA	mg/l	452	512	495	390	474	439	457
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	63.1
Alkalinity, Total as CaCO3	NA	mg/l	452	512	496	390	474	439	457
Biological Oxygen Demand, 5 Day	NA	mg/l	<10	<10	1.8	<1.0	1.3	38.6	4.5
Bromide	NA	mg/l	0.1	0.16	0.25	<0.10 ^a	0.12	<0.10	<0.10 ^a
Chemical Oxygen Demand	NA	mg/l	10.8	20	12.7	18.3	17.0	74.0	11.8
Chloride	1.25 x bkgd	mg/l	198	78	15	150	72.2	41.4	12.6
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	<0.050	0.022	<0.020 ^a	<0.020 ^a	<0.020 ^a	0.14	<0.020 ^a
Nitrogen, Nitrite	NA	mg/l	0.011	<0.0080 ^a	<0.0080 ^a	<0.0080 ^a	0.0099	<0.0080 ^a	0.023 ^a
Phosphate, Ortho	NA	mg/l	NT	NT	NT	NT	<0.13	<0.10	<0.10
Phosphorus, Total	NA	mg/l	1.8	0.53	0.15	0.093	0.33	0.27	0.37
Plate Count, Total	NA	CFU/ml	16000	NT	NT	NT	NT	16000	NT
Total Dissolved Solids	NA	mg/l	NT	NT	NT	NT	776	677	612
Sulfate	1.25 x bkgd	mg/l	142	109	64.9	119	118	86.1	71.8
Total Organic Carbon	NA	mg/l	5.2	5.6	5.1	4.9	5.5	27.6	5.6
pH	NA	su	7.54	7.6	7.68	7.51	7.75	7.56	7.64
Field Readings									
Temperature	NA	deg. C	13.05	6.3	11.6	19.3	9.2	4.8	9.3
Specific Conductivity	NA	mS/cm	1.46	1.369	1.024	1.397	1.231	1.064	1.05
Dissolved Oxygen	NA	mg/l	1.2	0.85	0.23	0.09	0.08	0.25	0.12
pH	NA	su	7.76	7.3	7.67	7.71	8.13	NT	7.71
Solids, Total Dissolved	NA	mg/l	NT	NT	0.67	0.91	0.7930	0.6890	682.5
Turbidity	NA	NTU	465	227	NT	NT	NT	NT	NT
<p>µg/l - micrograms per liter</p> <p>mg/l - milligrams per liter</p> <p>J - indicates an estimated value</p> <p>µmhos/cm - micromhos per centimeter</p> <p>mS/cm - millisiemens per centimeter</p> <p>su - standard units</p> <p>NA - not applicable</p> <p>NTU - nephelometric turbidity units</p> <p>CFU/ml - colony forming units per milliliter</p> <p>^a - Elevated detection limit due to matrix interference</p> <p>^b - Elevated detection limit due to matrix interference</p> <p>^c - Elevated detection limit due to dilution</p>									

Water Analytical Data

Sample ID	COGCC Table 910-1 Standards	UNITS	MW-5	MW-5	MW-6	MW-6	MW-6	MW-6	MW-6
Sampling Period			3rd Quarter	1st Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Depth to Water (feet)			6.09	6.4	6.69	6.70	6.78	6.84	7.35
Sample Date			10/9/2014	2/16/2015	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	NT	NT	< 0.050	< 0.10	<0.10	<0.10	<0.10
TPH Diesel Range Organics	NA	mg/l	NT	NT	0.213	< 0.30	0.261	0.445	0.347
BTEX									
Benzene	5	µg/l	NT	NT	< 1.0	< 0.20	<0.20	<0.20	<0.20
Toluene	560 to 1000	µg/l	NT	NT	< 1.0	< 1.0	<1.0	<1.0	<1.0
Ethylbenzene	700	µg/l	NT	NT	< 1.0	< 1.0	<1.0	<1.0	<1.0
Xylene (total)	1400 to 10000	µg/l	NT	NT	< 3.0	< 2.0	<2.0	<2.0	<2.0
PAHs									
Acenaphthene	NA	µg/l	NT	NT	< 0.2	< 0.60	<0.48	<0.48	<0.48
Acenaphthylene	NA	µg/l	NT	NT	< 0.2	< 0.60	<0.48	<0.48	<0.48
Anthracene	NA	µg/l	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Benzo(a)anthracene	NA	µg/l	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Benzo(a)pyrene	NA	µg/l	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Benzo(b)fluoranthene	NA	µg/l	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Benzo(g,h,i)perylene	NA	µg/l	NT	NT	< 0.2	< 0.54	<0.48	<0.48	<0.48
Benzo(k)fluoranthene	NA	µg/l	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Chrysene	NA	µg/l	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Dibenzo(a,h)anthracene	NA	µg/l	NT	NT	< 0.2	< 0.78	<0.48	<0.48	<0.48
Fluoranthene	NA	µg/l	NT	NT	< 0.2	< 0.71	<0.48	<0.48	<0.48
Fluorene	NA	µg/l	NT	NT	< 0.2	< 0.55	<0.48	<0.48	<0.48
Indeno(1,2,3-cd)pyrene	NA	µg/l	NT	NT	< 0.2	< 1.5	<0.48	<0.48	<0.48
1-Methylnaphthalene	NA	µg/l	NT	NT	< 0.2	< 0.68	<0.48	<0.48	<0.48
2-Methylnaphthalene	NA	µg/l	NT	NT	< 0.2	< 0.68	<0.48	<0.48	<0.48
Naphthalene	NA	µg/l	NT	NT	< 0.2	< 0.73	<0.48	<0.48	<0.48
Phenanthrene	NA	µg/l	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Pyrene	NA	µg/l	NT	NT	< 0.2	< 0.47	<0.48	<0.48	<0.48
Metals									
Calcium	NA	mg/l	NT	NT	80.8	72.8	78.8	114	229
Iron	NA	mg/l	NT	NT	16.7	4.98	13.2	6.90	46.60
Magnesium	NA	mg/l	NT	NT	51	57.9	53.8	57.4	92.7
Manganese	NA	mg/l	NT	NT	3.25	1.59	1.17	0.817	3.950
Potassium	NA	mg/l	NT	NT	< 10	2.17	4.43	6.43	9.82
Selenium	NA	mg/l	NT	NT	< 0.01	< 0.05	<0.050	<0.050	<0.05
Sodium	NA	mg/l	NT	NT	53.7	59.0	63.9	82.0	82.0
General Chemistry									
Alkalinity, Bicarbonate	NA	mg/l	NT	NT	388	435	438	352	356
Alkalinity, Carbonate	NA	mg/l	NT	NT	< 5.0	< 5.0	<5.0		<5.0
Alkalinity, Total as CaCO3	NA	mg/l	NT	NT	390	435	438	352	356
Biological Oxygen Demand, 5 Day	NA	mg/l	NT	NT	6.8	< 10	<10	<10	<10
Bromide	NA	mg/l	NT	NT	< 0.50	< 4.0	1.0	0.063	0.100
Chemical Oxygen Demand	NA	mg/l	NT	NT	96.8	35.3	<10	47.4	10.8
Chloride	1.25 x bkgd	mg/l	NT	NT	21.1	31	11.8	136	198
Hydroxide Alkalinity	NA	mg/l	NT	NT	< 5.0	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	NT	NT	0.56	< 0.45	<0.23	<0.010	0.056
Nitrogen, Nitrite	NA	mg/l	NT	NT	< 0.50	< 0.061	<0.010	0.04	<0.0080
Phosphate, Ortho	NA	mg/l	NT	NT	NT	NT	NT	NT	NT
Phosphorus, Total	NA	mg/l	NT	NT	0.46	0.29	0.83	NT	1.6
Plate Count, Total	NA	CFU/ml	NT	NT	2210000	81000	64000	820000	420000
Total Dissolved Solids	NA	mg/l	NT	NT	NT	NT	NT	NT	NT
Sulfate	1.25 x bkgd	mg/l	NT	NT	45.1	21.7	13.2	114	114
Total Organic Carbon	NA	mg/l	NT	NT	34.6	11.5	7.3	5.2	5.2
pH	NA	su	NT	NT	7.2	7.59	7.65	7.39	5.57
Field Readings									
Temperature	NA	deg. C	NT	NT	12.7	5.44	14.02	21.30	12.89
Specific Conductivity	NA	mS/cm	NT	NT	0.749	0.866	0.790	1.145	1.395
Dissolved Oxygen	NA	mg/l	NT	NT	0.27	1.4	2.40	2.30	1.35
pH	NA	su	NT	NT	7.52	7.17	NT	7.49	7.72
Solids, Total Dissolved	NA	mg/l	NT	NT	0.5	0.6	0.5	0.7	0.6
Turbidity	NA	NTU	NT	NT	478	248	576	201	384
<p>µg/l - micrograms per liter</p> <p>mg/l - milligrams per liter</p> <p>J - indicates an estimated value</p> <p>µmhos/cm - micromhos per centimeter</p> <p>mS/cm - millisiemens per centimeter</p> <p>su - standard units</p> <p>NA - not applicable</p> <p>NTU - nephelometric turbidity units</p> <p>CFU/ml - colony forming units per milliliter</p> <p>a - Elevated detection limit due to matrix interference</p> <p>b - Elevated detection limit due to matrix interference</p> <p>c - Elevated detection limit due to dilution</p> <p style="background-color: yellow;">Over allowable limit</p>									

Water Analytical Data

Sample ID	COGCC Table 910-1 Standards	UNITS	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6
Sampling Period			1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
Depth to Water (feet)			7.00	6.51	7.09	6.97	6.70	6.57	6.75
Sample Date			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	<0.050	<0.050	NT
TPH Diesel Range Organics	NA	mg/l	0.175 J	<0.17	<0.17	0.17	<0.17	<0.17	NT
BTEX									
Benzene	5	µg/l	<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	NT
Ethylbenzene	700	µg/l	<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	NT
PAHs									
Acenaphthene	NA	µg/l	NT	NT	<0.49	<0.48	<0.49	<0.49	NT
Acenaphthylene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Anthracene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Benzo(a)anthracene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Benzo(a)pyrene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Benzo(b)fluoranthene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Benzo(g,h,i)perylene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Benzo(k)fluoranthene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Chrysene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Dibenzo(a,h)anthracene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Fluoranthene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Fluorene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Indeno(1,2,3-cd)pyrene	NA	µg/l	NT	NT	<0.54	<0.54	<0.54	<0.54	NT
1-Methylnaphthalene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
2-Methylnaphthalene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Naphthalene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Phenanthrene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Pyrene	NA	µg/l	NT	NT	<0.48	<0.47	<0.48	<0.48	NT
Metals									
Calcium	NA	mg/l	103	66	111	82.8	76.7	94.0	NT
Iron	NA	mg/l	14.50	8.70	5.01	6.49	9.12	14.50	NT
Magnesium	NA	mg/l	86.7	55.7	58.3	69.9	65.1	56.0	NT
Manganese	NA	mg/l	1.07	0.56	0.55	0.838	0.550	0.795	NT
Potassium	NA	mg/l	5.24	4.01	6.08	4.11	3.07	4.01	NT
Selenium	NA	mg/l	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	NT
Sodium	NA	mg/l	96.5	87.1	111.0	118.0	88.0	85.5	NT
General Chemistry									
Alkalinity, Bicarbonate	NA	mg/l	574	466	394	558	488	478	NT
Alkalinity, Carbonate	NA	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NT
Alkalinity, Total as CaCO3	NA	mg/l	574	466	394	558	488	478	NT
Biological Oxygen Demand, 5 Day	NA	mg/l	<10	2	<1.0	1.8	1.2	1.9	NT
Bromide	NA	mg/l	0.270	<0.10a	0.100	<0.10 ^a	0.120	<0.10 ^a	NT
Chemical Oxygen Demand	NA	mg/l	21.3	11.5	13.2	36.6	21.9	18.5	NT
Chloride	1.25 x bkgd	mg/l	57.8	13	129	37.7	16.6	9.6	NT
Hydroxide Alkalinity	NA	mg/l	NT	NT	NT	NT	NT	NT	NT
Nitrogen, Nitrate	NA	mg/l	<0.020 ^a	0.021	<0.020 ^a	0.045	0.1	0.024	NT
Nitrogen, Nitrite	NA	mg/l	<0.0080 ^a	<0.0080a	<0.0080 ^a	<0.0080 ^a	<0.0080 ^a	<0.0080 ^a	NT
Phosphate, Ortho	NA	mg/l	NT	NT	NT	<0.13	<0.10	<0.10 ^a	NT
Phosphorus, Total	NA	mg/l	0.32	0.22	2.5	0.59	0.33	0.22	NT
Plate Count, Total	NA	CFU/ml	NT	NT	NT	NT	370000	NT	NT
Total Dissolved Solids	NA	mg/l	NT	NT	NT	708	648	568	NT
Sulfate	1.25 x bkgd	mg/l	95.9	62.5	120	73.6	56.8	36.2	NT
Total Organic Carbon	NA	mg/l	7	5.1	4.7	5.5	5.3	4.3	NT
pH	NA	su	7.61	7.65	7.57	7.7	7.61	7.65	NT
Field Readings									
Temperature	NA	deg. C	5.30	12.20	21.16	7.60	2.90	9.60	NT
Specific Conductivity	NA	mS/cm	1.368	0.956	1.364	1.160	1.067	0.983	NT
Dissolved Oxygen	NA	mg/l	2.59	5.00	1.45	0.71	2.78	0.87	NT
pH	NA	su	7.35	7.78	7.71	8.25	NT	7.7	NT
Solids, Total Dissolved	NA	mg/l	NT	0.6	0.9	0.7540	0.6890	637	NT
Turbidity	NA	NTU	NT	NT	NT	NT	NT	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
su - standard units
NA - not applicable
NTU - nephelometric turbidity units
CFU/ml - colony forming units per milliliter
a - Elevated detection limit due to matrix interference
b - Elevated detection limit due to matrix interference
c - Elevated detection limit due to dilution

Technical Report for

WPX Energy Rocky Mountain, LLC

CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Accutest Job Number: D67783

Sampling Date: 02/16/15

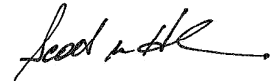
Report to:

**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: 40



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



**Scott Heideman
Laboratory Director**

Client Service contact: Renea Jackson 303-425-6021

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

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Sample Summary

WPX Energy Rocky Mountain, LLC

Job No: D67783

CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D67783-1	02/16/15	16:30 JD	02/18/15	AQ	Ground Water	MW-1

Summary of Hits

Job Number: D67783
Account: WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)
Collected: 02/16/15

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D67783-1	MW-1					
TPH-GRO (C6-C10)		2.77	0.25	0.25	mg/l	SW846 8015B
Benzene		7.0	5.0	1.0	ug/l	SW846 8021B
Ethylbenzene		47.6	10	5.0	ug/l	SW846 8021B
Xylenes (total)		818	10	10	ug/l	SW846 8021B
Iron		5750	70		ug/l	SW846 6010C
Magnesium		61000	200		ug/l	SW846 6010C
Manganese		800	5.0		ug/l	SW846 6010C
Alkalinity, Bicarbonate as CaCO3		490	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		490	5.0		mg/l	SM 2320B-2011
Phosphorus, Total		4.6	0.25		mg/l	HACH8190/SM4500P-B/E
Solids, Total Dissolved		572	10		mg/l	SM 2540C-2011
Sulfate		11.8	1.0		mg/l	EPA 300.0/SW846 9056

Sample Results

Report of Analysis

Report of Analysis

3.1
3

Client Sample ID: MW-1		Date Sampled: 02/16/15
Lab Sample ID: D67783-1		Date Received: 02/18/15
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	GA25702.D	5	02/19/15	KN	n/a	n/a	GGA1409
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	2.77	0.25	0.25	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	93%		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: D67783-1		Date Sampled: 02/16/15
Matrix: AQ - Ground Water		Date Received: 02/18/15
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	TA25702.D	5	02/19/15	KN	n/a	n/a	GTA1409
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	7.0	5.0	1.0	ug/l	
108-88-3	Toluene	ND	10	5.0	ug/l	
100-41-4	Ethylbenzene	47.6	10	5.0	ug/l	
1330-20-7	Xylenes (total)	818	10	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	99%		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	
Lab Sample ID: D67783-1	Date Sampled: 02/16/15
Matrix: AQ - Ground Water	Date Received: 02/18/15
Method: SW846-8015B SW846 3510C	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	FI21939.D	1	02/20/15	JJ	02/19/15	OP11338	GFI1138
Run #2							

	Initial Volume	Final Volume
Run #1	650 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.31	0.28	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	78%		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: 02/16/15
Lab Sample ID: D67783-1	Date Received: 02/18/15
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	5750	70	ug/l	1	02/20/15	02/25/15 KV	SW846 6010C ¹	SW846 3010A ²
Magnesium	61000	200	ug/l	1	02/20/15	02/25/15 KV	SW846 6010C ¹	SW846 3010A ²
Manganese	800	5.0	ug/l	1	02/20/15	02/25/15 KV	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA5819

(2) Prep QC Batch: MP15285

RL = Reporting Limit

Report of Analysis

31
3

Client Sample ID: MW-1		Date Sampled: 02/16/15
Lab Sample ID: D67783-1		Date Received: 02/18/15
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	490	5.0	mg/l	1	02/20/15	TJ	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	02/20/15	TJ	SM 2320B-2011
Alkalinity, Total as CaCO3	490	5.0	mg/l	1	02/20/15	TJ	SM 2320B-2011
Nitrogen, Nitrate ^a	< 0.020	0.020	mg/l	2	02/18/15 14:45	JB	EPA 300.0/SW846 9056
Nitrogen, Nitrite ^a	< 0.0080	0.0080	mg/l	2	02/18/15 14:45	JB	EPA 300.0/SW846 9056
Phosphate, Ortho ^a	< 0.10	0.10	mg/l	2	02/18/15 14:45	JB	EPA 300.0/SW846 9056
Phosphorus, Total	4.6	0.25	mg/l	25	02/19/15 08:00	JD	HACH8190/SM4500P-B/E
Solids, Total Dissolved	572	10	mg/l	1	02/19/15	JD	SM 2540C-2011
Sulfate	11.8	1.0	mg/l	2	02/18/15 14:45	JB	EPA 300.0/SW846 9056

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

D67783

Company Name/Address: WPX Energy 1058 County Road 215 Parachute, CO 81635		Billing Information: WPX Energy 1058 County Road 215 Parachute, CO 81635 Quote # WILPC001231552		Analysis / Container / Preservative										Chain of Custody Page <u>1</u> of <u>1</u>	
Report to: Karolina Blaney		Email To: karolina.blaney@wpxenergy.com		GRO/DRO (8015) X BTEX (8021B) X Anions (E300.0) NO2, NO3, PO4, SO4 X Alkalinity Series (SM2320) X Total Metals (SW846) Fe, Mg, Mn X TDS (SM4500) X OPO4 X TPO4 X										 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859	
Project Description: Knight Property Quarterly Sampling		City/State Collected:												L #	
Phone: 970-683-2295	Client Project #	Lab Project #		L #		Table #									
Fax:				Acctnum:		Template:									
Collected by (print): Jessica Dilka	Site/Facility ID #	P.O. #		Prelogin:		TSR:									
Collected by (signature): 	Rush? (Lab MUST Be Notified)	Date Results Needed		Cooler:		Shipped Via:									
Immediately Packed on Ice N <u> </u> Y <u>X</u>	Same Day 200% Next Day 100% Two Day 50% Three Day 25%	Email? <u> </u> No <u> </u> Yes FAX? <u> </u> No <u> </u> Yes		No. of Cntrs		Rem./Contaminant									
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Sample # (lab only)									
MW-1	Grab	GW	—	2/16/15	16:30	C1									
* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other										pH _____ Temp _____					
Remarks: Quote # WILPC001231552, PLEASE SEND COPY OF REPT TO: TIM DOBRANSKY tdobransky@ofsonassociates.com										Flow _____ Other _____					
Relinquished by: (Signature) 		Date: 2/16/15	Time: 1700	Received by: (Signature) 		Samples returned via: <input type="checkbox"/> UPS		Condition: (lab use only)							
Relinquished by: (Signature)		Date: 2/17/2015	Time: 5 pm	Received by: (Signature) RIE Service Center		<input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____		Temp: _____ °C Bottles Received: _____							
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature) 		Date: _____ Time: _____		COC Seal Intact: 302-780 Y <u> </u> N <u> </u> NA							
		Date:	Time:	Received for lab by: (Signature)		Date: _____ Time: _____		pH Checked: _____ NCF: _____							

4.1
4

D67783: Chain of Custody
Page 1 of 2

Accutest Job Number: D67783 **Client:** WPX ENERGY **Project:** KNIGHT PROPERTY QUARTERLY SAMPLING
Date / Time Received: 2/18/2015 12:40:00 PM **Delivery Method:** _____ **Airbill #'s:** CO
Cooler Temps (Initial/Adjusted): #1: (3.2/3.2):

Cooler Security

	<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"/>

Cooler Temperature

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

Quality Control Preservation

	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" 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

Sample Integrity - Documentation

	<u>Y or 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"/>

Sample Integrity - Condition

	<u>Y or 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>	

Sample Integrity - Instructions

	<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"/>

4.1
4

GC Volatiles

5

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: D67783
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
GGA1409-MB	GA25689.D	1	02/19/15	KN	n/a	n/a	GGA1409

The QC reported here applies to the following samples:

Method: SW846 8015B

D67783-1

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	88% 60-140%

5.1.1
5

Method Blank Summary

Job Number: D67783
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
GTA1409-MB	TA25689.D	1	02/19/15	KN	n/a	n/a	GTA1409

The QC reported here applies to the following samples:

Method: SW846 8021B

D67783-1

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	95% 60-140%

Blank Spike Summary

Job Number: D67783
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
GGA1409-BS	GA25690.D	1	02/19/15	KN	n/a	n/a	GGA1409

The QC reported here applies to the following samples:

Method: SW846 8015B

D67783-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.31	105	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	100%	60-140%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D67783
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
GTA1409-BS	TA25690.D	1	02/19/15	KN	n/a	n/a	GTA1409

The QC reported here applies to the following samples:

Method: SW846 8021B

D67783-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	27.2	26.4	97	70-130
100-41-4	Ethylbenzene	45.6	45.3	99	70-130
108-88-3	Toluene	212	199	94	70-130
1330-20-7	Xylenes (total)	216	230	107	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	60-140%

* = Outside of Control Limits.

5.2.2
 5

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D67783
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
D67628-4MS	GA25692.D	1	02/19/15	KN	n/a	n/a	GGA1409
D67628-4MSD	GA25693.D	1	02/19/15	KN	n/a	n/a	GGA1409
D67628-4	GA25691.D	1	02/19/15	KN	n/a	n/a	GGA1409

The QC reported here applies to the following samples:

Method: SW846 8015B

D67783-1

CAS No.	Compound	D67628-4 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)	ND	2.2	2.26	103	2.2	2.23	101	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D67628-4	Limits
120-82-1	1,2,4-Trichlorobenzene	101%	101%	92%	60-140%

* = Outside of Control Limits.

5.3.1
 5

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D67783
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
D67782-1MS	TA25692.D	1	02/19/15	KN	n/a	n/a	GTA1409
D67782-1MSD	TA25693.D	1	02/19/15	KN	n/a	n/a	GTA1409
D67782-1	TA25691.D	1	02/19/15	KN	n/a	n/a	GTA1409

The QC reported here applies to the following samples:

Method: SW846 8021B

D67783-1

CAS No.	Compound	D67782-1 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	6.2	27.2	30.1	88	27.2	29.9	87	1	64-130/30
100-41-4	Ethylbenzene	ND	45.6	44.0	96	45.6	43.2	95	2	46-144/30
108-88-3	Toluene	ND	212	192	91	212	189	89	2	70-130/30
1330-20-7	Xylenes (total)	ND	216	226	105	216	222	103	2	59-143/30

CAS No.	Surrogate Recoveries	MS	MSD	D67782-1	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	105%	99%	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: D67783
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
OP11338-MB	FI21863.D	1	02/19/15	JJ	02/19/15	OP11338	GFI1136

The QC reported here applies to the following samples:

Method: SW846-8015B

D67783-1

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	58% 10-130%

Blank Spike Summary

Job Number: D67783
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
OP11338-BS	FI21865.D	1	02/19/15	JJ	02/19/15	OP11338	GFI1136

The QC reported here applies to the following samples:

Method: SW846-8015B

D67783-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	2.06	41	33-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	72%	10-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D67783
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
OP11338-MS	FI21867.D	1	02/19/15	JJ	02/19/15	OP11338	GFI1136
OP11338-MSD	FI21869.D	1	02/19/15	JJ	02/19/15	OP11338	GFI1136
D67627-9	FI21871.D	1	02/19/15	JJ	02/19/15	OP11338	GFI1136

The QC reported here applies to the following samples:

Method: SW846-8015B

D67783-1

CAS No.	Compound	D67627-9 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	2.49	50	5	2.69	54	8	33-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D67627-9	Limits
84-15-1	o-Terphenyl	89%	93%	85%	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: D67783
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP15285
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/20/15

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	319	* (a)
Lead	50	2.1	21		
Lithium	5.0	.4	2.7		
Magnesium	200	6.8	19	18.7	<200
Manganese	5.0	.5	.46	4.0	* (a)
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		
Uranium	50	2.9	5.5		
Vanadium	10	.4	.4		
Zinc	30	.4	3.2		

Associated samples MP15285: D67783-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D67783
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP15285
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/20/15

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

(anr) Analyte not requested

(a) All sample results < RL or > 10x MB concentration.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D67783
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP15285
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 02/20/15

Metal	D67782-1F Original MS	Spikelot ICPAL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	125	5570	5000	108.9 75-125
Lead	anr			
Lithium				
Magnesium	275000	302000	25000	108.0 75-125
Manganese	253	755	500	100.4 75-125
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon				
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP15285: D67783-1

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

7.1.2
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D67783

Account: WILLCOP - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP15285

Methods: SW846 6010C

Matrix Type: AQUEOUS

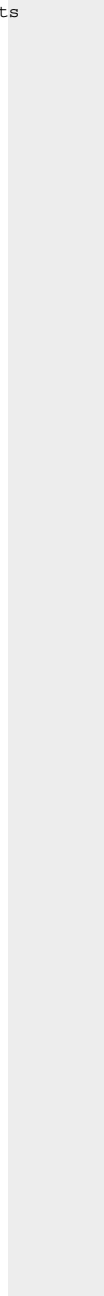
Units: ug/l

Prep Date:

02/20/15

Metal	D67782-1F Original MS	SpikeLot ICPALL2	% Rec	QC Limits
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(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D67783
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP15285
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 02/20/15

Metal	D67782-1F Original MSD	SpikeLot ICPAL2	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron	125	5810	5000	113.7	4.2	20
Lead	anr					
Lithium						
Magnesium	275000	306000	25000	124.0	1.3	20
Manganese	253	761	500	101.6	0.8	20
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silicon						
Silver						
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP15285: D67783-1

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

7.1.2
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D67783

Account: WILLCOP - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP15285

Methods: SW846 6010C

Matrix Type: AQUEOUS

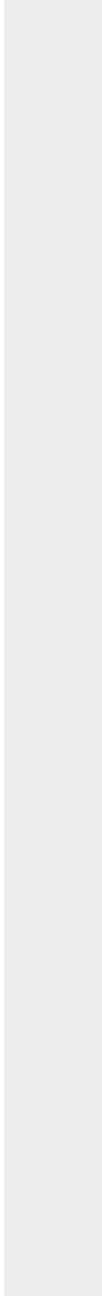
Units: ug/l

Prep Date:

02/20/15

Metal	D67782-1F Original MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
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(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D67783

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

QC Batch ID: MP15285
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 02/20/15

Metal	BSP Result	SpikeLot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	5750	5000	115.0	80-120
Lead	anr			
Lithium				
Magnesium	27800	25000	111.2	80-120
Manganese	541	500	108.2	80-120
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon				
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP15285: D67783-1

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

7.1.3
7

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D67783

Account: WILLCOP - WPX Energy Rocky Mountain, LLC

Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP15285

Methods: SW846 6010C

Matrix Type: AQUEOUS

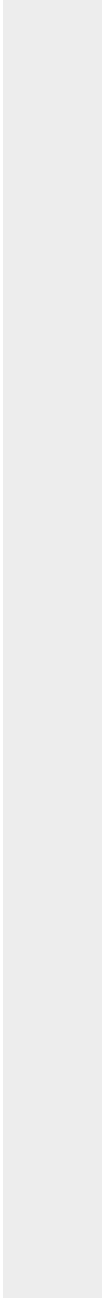
Units: ug/l

Prep Date:

02/20/15

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



SERIAL DILUTION RESULTS SUMMARY

Login Number: D67783
 Account: WILLCOP - WPX Energy Rocky Mountain, LLC
 Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP15285
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 02/20/15

Metal	D67782-1F Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	125	81.5	34.7*(a)	0-10
Lead	anr			
Lithium				
Magnesium	275000	272000	1.3	0-10
Manganese	253	259	2.1	0-10
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon				
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP15285: D67783-1

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

7.1.4
7

SERIAL DILUTION RESULTS SUMMARY

Login Number: D67783
Account: WILLCOP - WPX Energy Rocky Mountain, LLC
Project: CORCCOGJ: Knight Property Quarterly Sampling (011.1712)

QC Batch ID: MP15285
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/20/15

Metal	D67782-1F	QC
	Original SDL 1:5 %DIF	Limits

(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

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: D67783
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	GN28761	5.0	0.0	mg/l	100	96.9	96.9	90-110%
Alkalinity, Carbonate	GN28762	5.0	0.0	mg/l	100	96.9	96.9	80-120%
Alkalinity, Total as CaCO3	GN28760	5.0	0.0	mg/l	100	96.9	96.9	90-110%
Bromide	GP14666/GN28735	0.050	0.0	mg/l	0.5	0.517	103.4	90-110%
Chloride	GP14666/GN28735	0.50	0.0	mg/l	5	4.98	99.6	90-110%
Fluoride	GP14666/GN28735	0.10	0.0	mg/l	1	1.03	103.0	90-110%
Nitrogen, Nitrate	GP14666/GN28735	0.010	0.0	mg/l	0.1	0.0986	98.6	90-110%
Nitrogen, Nitrite	GP14666/GN28735	0.0040	0.0	mg/l	0.05	0.0501	100.2	90-110%
Phosphate, Ortho	GP14666/GN28735	0.050	0.0	mg/l	0.5	0.502	100.4	90-110%
Phosphorus, Total	GP14673/GN28747	0.010	0.0	mg/l	0.38	0.36	94.0	80-120%
Solids, Total Dissolved	GN28734	10	0.0	mg/l	400	404	101.0	90-110%
Sulfate	GP14666/GN28735	0.50	0.0	mg/l	5	4.93	98.6	90-110%

Associated Samples:

Batch GN28734: D67783-1
Batch GN28760: D67783-1
Batch GN28761: D67783-1
Batch GN28762: D67783-1
Batch GP14666: D67783-1
Batch GP14673: D67783-1
(*) Outside of QC limits

8.1

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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D67783
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	GN28760	D67799-1	mg/l	119	120	0.2	0-20%
Phosphorus, Total	GP14673/GN28747	D67796-1	mg/l	0.0	0.0	0.0	0-20%
Solids, Total Dissolved	GN28734	D67745-1	mg/l	3570	3600	0.8	0-20%

Associated Samples:
Batch GN28734: D67783-1
Batch GN28760: D67783-1
Batch GP14673: D67783-1
(*) Outside of QC limits

8.2
8

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D67783
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	GN28760	D67799-1	mg/l	119	100	210	90.9	80-120%
Bromide	GP14666/GN28735	D67761-1	mg/l	0.53	1	1.5	97.0	80-120%
Chloride	GP14666/GN28735	D67761-1	mg/l	49.7	10	59.9	102.0	80-120%
Fluoride	GP14666/GN28735	D67761-1	mg/l	1.9	2	3.9	100.0	80-120%
Nitrogen, Nitrate	GP14666/GN28735	D67761-1	mg/l	0.0	0.2	0.20	100.0	80-120%
Nitrogen, Nitrite	GP14666/GN28735	D67761-1	mg/l	0.0	0.1	0.12	120.0	80-120%
Phosphate, Ortho	GP14666/GN28735	D67761-1	mg/l	0.12	1	1.1	98.0	80-120%
Phosphorus, Total	GP14673/GN28747	D67796-1	mg/l	0.0	0.4	0.41	103.0	80-120%
Sulfate	GP14666/GN28735	D67761-1	mg/l	0.43	10	10	95.7	80-120%

Associated Samples:

Batch GN28760: D67783-1

Batch GP14666: D67783-1

Batch GP14673: D67783-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D67783
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	GN28760	D67799-1	mg/l	119	100	211	0.4	20%
Bromide	GP14666/GN28735	D67761-1	mg/l	0.53	1	1.5	0.0	20%
Chloride	GP14666/GN28735	D67761-1	mg/l	49.7	10	60.8	1.5	20%
Fluoride	GP14666/GN28735	D67761-1	mg/l	1.9	2	3.9	0.0	20%
Nitrogen, Nitrate	GP14666/GN28735	D67761-1	mg/l	0.0	0.2	0.20	0.0	20%
Nitrogen, Nitrite	GP14666/GN28735	D67761-1	mg/l	0.0	0.1	0.12	0.0	20%
Phosphate, Ortho	GP14666/GN28735	D67761-1	mg/l	0.12	1	1.1	0.0	20%
Phosphorus, Total	GP14673/GN28747	D67796-1	mg/l	0.0	0.4	0.40	2.5	20%
Sulfate	GP14666/GN28735	D67761-1	mg/l	0.43	10	10.1	1.0	20%

Associated Samples:

Batch GN28760: D67783-1

Batch GP14666: D67783-1

Batch GP14673: D67783-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

8.4

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