

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.75	0.45	1.29	1.29	0.44
ORP	mV	-	274.5	-298.6	-284.1	-291.9	-239.2
pH	SU	8.14-9.14	8.49	8.48	8.33	8.54	8.44
Specific Conductance	uS/cm	-	382.5	385.1	377.6	390	353.2
Temperature	C	-	7.9	9.69	9.03	8.1	7.1
Turbidity	NTU	-	3.54	2.99	4.65	1.92	2.98
Water Elevation	ft MSL	-	1458.45	1512.15	-	1446.68	1467.56
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.18	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	745.21	-	-	621	-	-
Cadmium	ug/L	3.000	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	<0.10	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	1186.83	446	831	795	861	957
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	23.04	-	-	15.7	-	-
Manganese	ug/L	200	< 50	< 50	<1.1	<50.0	< 50.0
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20	< 20	0.17	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.8	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	40	< 10	< 10	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	109.06	80	80.3	81.6	82.9	79.1
Alkalinity, Carbonate	mg/L	7.8	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	57.2	44.8	44.5	44.4	42.2	41.5
Fluoride	mg/L	2.5	< 1.0	< 1.0	<0.032	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.1	< 0.025	< 0.025	<0.004	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.1	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	< 0.10	0.007	< 0.10	< 0.10
Sulfate	mg/L	33.01	25.4	27.3	25.1	27.7	30.0
Sulfide	mg/L	0.8	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	34.39	25.4	25.9	27.5	25.7	26.8
Magnesium	mg/L	14.63	10.4	10.8	11.1	11.4	11.2
Potassium	mg/L	6.17	1.8	1.8	1.8	1.8	1.8
Sodium	mg/L	28.01	21.9	22.9	22.6	23.0	22.9
General							
Hardness	mg/L	155.68	139	120	114	111	113
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HW-1U LLA

Parameter	Unit	Recommended Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.68	0.54	1.28	1.64	0.45
ORP	mV	-	-91.4	-183.4	-215.6	-238.1	-233.5
pH	SU	8.06-9.06	9.43	8.95	8.31	8.42	8.50
Specific Conductance	uS/cm	-	523.1	449.1	432.8	449.1	405.4
Temperature	C	-	6.4	10.24	9.34	6.8	7.6
Turbidity	NTU	-	893	126.4	4.52	6.98	7.75
Water Elevation	ft MSL	-	1521.55	1475.83	1490.34	1478.88	1518.617
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<2.0	-	-
Arsenic	ug/L	9.6	8.6	< 5.0	<0.10	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	<8.4	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.99	-	-
Cobalt	ug/L	80	-	-	<20.0	-	-
Copper	ug/L	8.56	7.7	< 4.0	<4.0	<4.0	< 4.0
Iron	ug/L	56769.6	45200	< 200	<13.0	262	344
Lead	ug/L	15.0	86.7	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	17.39	-	-	13.0	-	-
Manganese	ug/L	672.84	455	< 50.0	<1.1	<50.0	< 50.0
Mercury	ng/L	14.2	3.95	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.78	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.20	-	-
Thallium	ug/L	2.0	-	-	<2.0	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	44.15	33.8	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	156.67	48.5	93.6	111	116	100
Alkalinity, Carbonate	mg/L	64.24	82.8	21.7	<2.0	<2.0	< 2.0
Chloride	mg/L	61.2	90.1	21.4	20.8	17.6	17.7
Fluoride	mg/L	2.5	< 1.0	< 1.0	<0.032	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.299	0.567	0.266	0.177	0.156	0.158
Nitrogen, Nitrate	mg/L	0.57	0.129	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.78	< 0.1	0.115	0.006	< 0.10	< 0.10
Sulfate	mg/L	395.42	299	84.9	58.0	56.0	66.0
Sulfide	mg/L	0.80	< 5.0	< 1.0	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	61.29	64	6.5	25.1	25.0	26.3
Magnesium	mg/L	25.82	26.4	2	9.3	8.9	9.9
Potassium	mg/L	16.88	5.3	3.4	3.6	3.0	2.9
Sodium	mg/L	134.27	136	80.2	42.8	42.7	38.7
General							
Hardness	mg/L	170.91	30	28	101	99.0	106
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HW-1U UFB

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.48	0.52	1.2	1.17	1.23
ORP	mV	-	-281.4	-291.1	-364.5	-353.5	-362.3
pH	SU	8.4-9.4	8.94	8.67	8.77	8.7	8.96
Specific Conductance	uS/cm	-	182.8	158.5	202.2	243.7	237.9
Temperature	C	-	5.7	8.95	10.63	8.0	7.1
Turbidity	NTU	-	4.72	29.32	5.06	7.83	4.71
Water Elevation	ft MSL	-	1531.72	1532.65	1533.35	1534.85	1534.68
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	9.3	< 5.0	< 5.0	0.37	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	51.6	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.44	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	1364.17	<200	< 200	344	449	352
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	16.74	-	-	<4.6	-	-
Manganese	ug/L	80.14	<50.0	79	54.7	<50.0	51.4
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.31	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	40	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	121.72	81.0	141.0	70.6	102	87.9
Alkalinity, Carbonate	mg/L	17.08	< 2.0	< 2.0	8.0	<2.0	5.6
Chloride	mg/L	96.09	< 10.0	< 10.0	<0.72	<10.0	< 10.0
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.058	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.097	0.028	< 0.025	<0.004	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	0.005	< 0.10	< 0.10
Sulfate	mg/L	72.34	2.1	1.5	<0.86	1.4	5.4
Sulfide	mg/L	2.47	< 0.20	< 0.20	0.023	<0.20	< 0.20
Major Cations							
Calcium	mg/L	34.03	14.8	14.6	19.6	24.9	24.3
Magnesium	mg/L	15.63	5.5	4.3	5.4	6.8	7.2
Potassium	mg/L	20.91	3.4	2.9	3.1	3.6	4.4
Sodium	mg/L	67.74	7.7	6	5.8	5.5	6.8
General							
Hardness	mg/L	146.74	88.2	56	71.1	90.1	90.4
		-					
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Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.49	1.36	1.35	1.42	1.31
ORP	mV	-	-231.9	-227.1	-243.6	-256.2	-238.2
pH	SU	7.29-8.29	8.07	8.29	8.21	8.72	8.13
Specific Conductance	uS/cm	-	699.2	675.1	613.3	594.5	501.3
Temperature	C	-	10.1	10.41	9.43	8.5	7.1
Turbidity	NTU	-	356.1	29.15	19.91	80.4	66.7
Water Elevation	ft MSL	-	1533.17	1534.04	1534.96	1536.18	1531.54
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.25	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	99.5	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.42	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	2594.79	912	426	683	<200	662
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	333.37	304	282	284	136	264
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20	< 20.0	0.36	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	40	< 10	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	141.40	99	95.6	88.6	87.3	81.4
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	34.7	33.5	32.8	28.9	27.3	26.1
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.088	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.083	<0.025	< 0.025	<0.004	0.0376	0.0386
Nitrogen, Nitrate	mg/L	0.4	< 0.1	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	<0.1	< 0.10	<0.0037	< 0.10	< 0.10
Sulfate	mg/L	175.33	135	169	154	163	160
Sulfide	mg/L	0.52	< 0.20	< 0.20	<0.20	0.54	< 0.20
Major Cations							
Calcium	mg/L	71.88	57	56.3	54.6	48.1	38.1
Magnesium	mg/L	26.49	22.7	22.5	20.6	19.9	18.4
Potassium	mg/L	6.12	5.1	4.6	4.3	4.4	4.9
Sodium	mg/L	29.55	33.8	30.6	34.6	37.8	41.6
General							
Hardness	mg/L	296.9	161	246	221	202	171
		-					
		-					

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	2.87	2.05	1.59	1.50	1.32
ORP	mV	-	-86.4	-82.7	-96.6	-116.6	-105.2
pH	SU	6.4-7.4	6.84	6.8	6.6	6.75	6.65
Specific Conductance	uS/cm	-	454.6	430.1	474.8	486.2	445.3
Temperature	C	-	6.1	8.95	9.54	8.5	7.3
Turbidity	NTU	-	7.35	2.97	2.36	4.32	3.82
Water Elevation	ft MSL	-	1533.04	1534.72	1534.5	-	1533.32
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4	-	-	<0.80	-	-
Arsenic	ug/L	8.8	8.5	8.3	9.9	8.2	7.8
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	29.7	-	-
Cadmium	ug/L	3	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.59	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	22048.83	8810	9490	9740	9820	10200
Lead	ug/L	9	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	14.39	-	-	<4.6	-	-
Manganese	ug/L	6267.76	5820	6220	6040	5940	6110
Mercury	ng/L	4	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20	< 20.0	<0.10	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.8	-	-	<0.10	-	-
Thallium	ug/L	2	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	26.73	< 10	< 10.0	3.4	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	214.17	154	154	160	170	155
Alkalinity, Carbonate	mg/L	8	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	18.35	18.9	18.6	20.3	20.5	19.8
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.091	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.041	< 0.025	< 0.025	0.0417	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	<0.0037	< 0.10	< 0.10
Sulfate	mg/L	12.26	13.2	13	13.7	15.7	14.9
Sulfide	mg/L	0.8	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	45.93	40.2	43	45.1	46.8	45.6
Magnesium	mg/L	18.68	12.5	13.2	13.4	13.6	14.2
Potassium	mg/L	3.64	3.1	3.5	3.4	3.6	3.7
Sodium	mg/L	4.26	4.2	4.5	4.5	4.6	4.8
General							
Hardness	mg/L	203.47	157	188	168	173	172
		-					
		-					

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.66	0.51	1.29	0.27	1.37
ORP	mV	-	33.4	19.5	-30.6	91.6	11.3
pH	SU	6.29-7.29	6.81	6.76	6.79	6.72	6.98
Specific Conductance	uS/cm	-	761.3	714.1	567.4	621.4	610.3
Temperature	C	-	7.6	7.61	9.26	8.7	7.1
Turbidity	NTU	-	1.11	1.39	1.59	0.95	1.96
Water Elevation	ft MSL	-	1532.87	1533.26	1534.55	1531.03	1532.35
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	8.9	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.37	<5.0	< 5.0
Barium	ug/L	400	-	-	68.2	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	83.1	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.22	-	-
Cobalt	ug/L	80	-	-	0.98	-	-
Copper	ug/L	9.22	12.3	< 4.0	4.0	<4.0	< 4.0
Iron	ug/L	481.9	<200	< 200	<13.0	<200	< 200
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	627.41	671	653	587	647	711
Mercury	ng/L	37.3	7.99	22.1	36.0	39.3	10.4
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.55	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	0.044	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	25.31	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	372.91	259	253	177	189	155
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	21.5	11	12.9	15.5	17.3	16.5
Fluoride	mg/L	2.5	< 1.0	< 1.0	<0.032	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.56	0.333	0.306	0.266	0.215	0.233
Nitrogen, Nitrate	mg/L	0.08	< 0.10	< 0.10	0.239	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.40	< 0.10	< 0.10	0.005	< 0.10	< 0.10
Sulfate	mg/L	136.69	122	78.3	87.6	105	133
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	65.21	58.1	47.6	47.6	48.5	51.4
Magnesium	mg/L	34.32	28.1	23.8	22.8	25.6	25.6
Potassium	mg/L	12.96	11.1	10.6	9.8	10.3	10.4
Sodium	mg/L	80.47	49	54.6	28.5	30.3	25.7
General							
Hardness	mg/L	321.93	284	234	213	227	234
		-					
		-					

Parameter	Unit	Recommended Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	5.08	2.87	7.57	4.93	6.68
ORP	mV	-	14.0	84.7	131.6	184.3	233.0
pH	SU	6.67-7.67	7.15	6.98	6.99	7.02	6.96
Specific Conductance	uS/cm	-	868.5	906.3	848.1	897.5	812.9
Temperature	C	-	7.7	14.4	14.86	7.9	9.2
Turbidity	NTU	-	2076.5	761.66	89.6	254.79	1087.2
Water Elevation	ft MSL	-	1554.17	1557.56	1560.68	1562.48	1560.13
Metals							
Aluminum	ug/L	200	-	-	623	-	-
Antimony	ug/L	4	-	-	<0.80	-	-
Arsenic	ug/L	7.5	18.4	15.6	<0.10	<5.0	12.2
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<1.0	-	-
Boron	ug/L	1200	-	-	95.7	-	-
Cadmium	ug/L	3	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.86	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	28.32	51.8	43.6	<4.0	<4.0	37.3
Iron	ug/L	52956	91200	129000	3940	1560	128000
Lead	ug/L	9	6.4	6.1	0.31	<3.0	5.3
Lithium	ug/L	31.39	-	-	10.9	-	-
Manganese	ug/L	2789	2330	2070	1200	1010	1610
Mercury	ng/L	14.89	24.1	17.8	<1.0	<1.0	6.68
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	47.4	48.8	<20.0	<20.0	44.7
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.8	-	-	<0.10	-	-
Thallium	ug/L	2	-	-	<2.0	-	-
Vanadium	ug/L	-	-	-	<4.0	-	-
Zinc	ug/L	23.65	33.9	22.8	1.9	<10.0	21.4
Major Anions							
Alkalinity, Bicarbonate	mg/L	480.97	372	384	386	394	374
Alkalinity, Carbonate	mg/L	8	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	191.74	< 10	< 10.0	<0.72	<10.0	< 10.0
Fluoride	mg/L	2.5	<1.0	< 1.0	0.053	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.063	<0.025	<0.025	<0.004	<0.025	<0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	0.026	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	0.005	< 0.10	< 0.10
Sulfate	mg/L	138.86	86.9	91.4	84.5	75.2	75.6
Sulfide	mg/L	0.8	<0.62	< 1.0	<0.011	<0.20	< 1.0
Major Cations							
Calcium	mg/L	166.39	123	115	119	111	105
Magnesium	mg/L	65.48	55.4	63.3	44.0	40.4	60.3
Potassium	mg/L	8.30	7.8	8.2	7.1	7.2	8.2
Sodium	mg/L	7.71	8.5	8.2	8.9	9.3	9.9
General							
Hardness	mg/L	757.06	490	512	479	443	511
		-					
		-					

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	1.81	1.63	3.08	3.00	1.7
ORP	mV	-	215.7	161.4	170.6	136.4	33.6
pH	SU	5.4-6.4	5.89	6.11	5.87	6.04	6.03
Specific Conductance	uS/cm	-	364.3	238.9	435.2	405.1	329.3
Temperature	C	-	5.8	11.01	13.45	10.8	7.5
Turbidity	NTU	-	2.57	4.02	2.14	3.61	3.67
Water Elevation	ft MSL	-	1595.96	1597.1	1595.05	1596.77	1596.33
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	<0.10	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	76.4	-	-
Cadmium	ug/L	3.0	-	-	0.10	-	-
Chromium	ug/L	40	-	-	<0.10	-	-
Cobalt	ug/L	80	-	-	0.73	-	-
Copper	ug/L	38.92	5.4	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	4098.78	< 200	< 200	15.5	<200	3190
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	1376.02	124	< 50.0	66.0	53.4	99.2
Mercury	ng/L	10.07	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	185.91	116	76.1	66.0	86.9	90.7
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	38.14	37.1	30.5	18.1	20.5	14.1
Major Anions							
Alkalinity, Bicarbonate	mg/L	85.44	28.8	28.3	78.6	46.0	33.3
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	184.87	20	12.4	13.0	31.4	15.5
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.098	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.22	< 0.025	< 0.025	<0.004	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	3.8	0.949	0.355	0.279	0.683	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	<0.004	< 0.10	< 0.10
Sulfate	mg/L	334.5	135	46.6	97.9	96.2	75.3
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	116.03	35.9	18	47.1	42.1	27.1
Magnesium	mg/L	41.43	12.5	6.8	16.4	13.8	9.4
Potassium	mg/L	5.21	2.6	1.6	3.0	2.7	2.1
Sodium	mg/L	47.56	6.7	6.5	10.6	9.3	7.1
General							
Hardness	mg/L	479.44	161	76	185	162	106
		-					
		-					

MW-701 QAL

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	4.15	6.29	6.02	3.7	0.75
ORP	mV	-	179.8	271.5	207.6	155.8	226.1
pH	SU	5.46-6.46	6.11	5.92	5.58	5.53	5.78
Specific Conductance	uS/cm	-	222.4	131.4	883.5	1905.3	381.1
Temperature	C	-	4.24	8.61	10.68	7.0	5.1
Turbidity	NTU	-	2.57	1.49	1.79	1.75	1.30
Water Elevation	ft MSL	-	1531.67	1533.00	1533.69	1534.91	1532.35
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.32	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	17.3	-	-
Cadmium	ug/L	3	-	-	0.15	-	-
Chromium	ug/L	40	-	-	0.80	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	0.53	<4.0	< 4.0
Iron	ug/L	497.99	< 200	< 200	<13.0	<200	< 200
Lead	ug/L	9	< 3.0	< 3.0	<3.0	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	5262.51	50.4	< 50.0	<1.1	<50.0	102
Mercury	ng/L	8.44	1.34	< 1.0	<1.0	1.64	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	<0.10	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.8	-	-	<0.10	-	-
Thallium	ug/L	2	-	-	0.048	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	40	< 10.0	< 10.0	<10.0	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	117.82	58.6	36.1	34.5	33.8	50.5
Alkalinity, Carbonate	mg/L	8	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	22.96	13.2	< 10.0	243	602	63.3
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.071	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.402	< 0.025	< 0.025	<0.004	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	1.87	0.777	0.65	0.779	0.899	1.16
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	0.004	< 0.10	< 0.10
Sulfate	mg/L	85.65	20.2	14.8	11.0	12.4	21.3
Sulfide	mg/L	0.8	< 0.20	< 0.20	<0.20	<0.20	< 0.20
Major Cations							
Calcium	mg/L	43.04	18.9	8.9	69.4	90.7	29.6
Magnesium	mg/L	18.63	7.3	4	28.7	35.6	12.0
Potassium	mg/L	8.95	3.0	2.1	6.2	12.5	4.1
Sodium	mg/L	11.68	7.2	6.3	46.8	251	21.4
General							
Hardness	mg/L	199.04	106	40	292	373	123
		-					
		-					

MW-701 UFB

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.50	0.81	1.33	1.32	0.24
ORP	mV	-	-207.2	-212.1	-219.7	-220.7	223.4
pH	SU	6.71-7.71	7.48	7.41	7.41	7.52	7.55
Specific Conductance	uS/cm	-	387.5	413.7	402.3	410.3	365.6
Temperature	C	-	6.7	8.78	8.45	7.3	7.56
Turbidity	NTU	-	76.07	16.54	35.51	37.03	41.77
Water Elevation	ft MSL	-	1532.06	1533.38	1533.88	1534.72	1532.63
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.14	<5.0	< 5.0
Barium	ug/L	157.47	-	-	141	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	53.5	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.14	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	45.38	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	24957.73	15000	14800	14300	19400	17500
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	12.91	-	-	7.9	-	-
Manganese	ug/L	4677.42	2260	2170	2030	1880	1790
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	<0.10	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	13.83	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	161.71	145	147	157	150	147
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	48.85	< 10	11.1	11.2	14.5	14.0
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.087	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	1.75	< 0.025	< 0.025	0.0063	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	0.004	< 0.10	< 0.10
Sulfate	mg/L	52.19	19.6	13.9	11.3	7.1	2.9
Sulfide	mg/L	1.86	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	38.59	34.6	36.1	38.7	37.4	39.0
Magnesium	mg/L	16.16	14.8	14.8	15.0	13.9	13.8
Potassium	mg/L	8.53	2.7	3.4	3.3	3.7	4.3
Sodium	mg/L	33.46	4.5	5.1	5.1	5.6	6.1
General							
Hardness	mg/L	163.25	176	154	158	151	154
		-					
		-					

MW-702 QAL

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	1.3	1.89	1.75	0.58	0.65
ORP	mV	-	-47.1	112.1	-55.1	226.1	216.7
pH	SU	8.81-9.91	9.96	9.82	8.15	7.19	7.30
Specific Conductance	uS/cm	-	421.6	426.1	365.5	357.1	363.9
Temperature	C	-	6.8	7.41	7.81	6.7	6.5
Turbidity	NTU	-	1.78	4.15	34.37	1.21	1.84
Water Elevation	ft MSL	-	1530.82	1531.72	1532.62	1534.36	1534.49
Metals							
Aluminum	ug/L	122.72	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	5.3	<0.10	<5.0	< 5.0
Barium	ug/L	195.71	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	22.6	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.65	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	800	< 200	< 200	<13.0	<200	< 200
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	545.68	< 50	< 50.0	<1.1	<50.0	< 50.0
Mercury	ng/L	3.55	1.49	1.92	2.05	2.30	1.52
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.88	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	3.2	-	-
Zinc	ug/L	40	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	160.17	75.8	35.5	111	110	111
Alkalinity, Carbonate	mg/L	40.7	8.1	39.4	<2.0	<2.0	< 2.0
Chloride	mg/L	17.58	< 10	< 10.0	<10.0	<10.0	< 10.0
Fluoride	mg/L	2.5	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.042	<0.025	< 0.025	< 0.025	< 0.025	-
Nitrogen, Nitrate	mg/L	1.24	1.06	0.837	0.352	0.266	0.209
Nitrogen, Nitrite	mg/L	0.18	0.127	0.103	<0.10	<0.10	<0.10
Sulfate	mg/L	133.19	59.8	57.5	54.3	54.6	65.7
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.20	<0.20	< 0.20
Major Cations							
Calcium	mg/L	78.82	28.9	23.4	24.1	22.9	27.7
Magnesium	mg/L	14.06	6.2	3.9	6.5	8.0	10.4
Potassium	mg/L	22.00	13.9	14.9	10.2	7.8	7.5
Sodium	mg/L	60.14	40.4	57.5	34.7	31.3	28.0
General							
Hardness	mg/L	251.25	114	80	87.1	90.0	112
		-					
		-					

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	1.29	2.39	2.26	1.38	2.59
ORP	mV	-	-194.1	-176.1	185.6	-216.2	-147.3
pH	SU	7.11-8.11	8.06	8.06	7.69	7.97	7.91
Specific Conductance	uS/cm	-	260.3	269.1	180.8	279.6	278.5
Temperature	C	-	7	13.68	8.92	6.7	5.34
Turbidity	NTU	-	5.01	11.84	11.72	18.05	4.77
Water Elevation	ft MSL	-	1518.19	1522.42	1519.93	1512.39	1515.42
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.15	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	97.9	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	<0.10	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	1328.38	623	954	1240	791	669
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	12.91	-	-	4.9	-	-
Manganese	ug/L	118.08	89.1	90	98.0	83.7	92.0
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20	< 20.0	0.11	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	76.03	< 10	<10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	111.84	96.5	181	90.0	88.4	89.5
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	40	< 10	< 10.0	<0.72	<10.0	< 10.0
Fluoride	mg/L	2.5	< 1.0	< 1.0	<0.032	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.087	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	0.007	< 0.10	< 0.10
Sulfate	mg/L	36.1	33.1	30.9	28.7	29.2	37.4
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	38.98	27.9	29.2	28.7	28.8	30.8
Magnesium	mg/L	11.74	8.8	9.2	9.2	9.3	9.7
Potassium	mg/L	11.24	2.7	3	3.3	3.0	3.1
Sodium	mg/L	5.20	2.8	3	3.0	3.0	3.2
General							
Hardness	mg/L	139.94	139	116	110	110	117
		-					
		-					

MW-703 QAL

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	6.00	5.83	6.18	8.75	5.49
ORP	mV	-	229.1	260.1	110.6	353.1	311.6
pH	SU	6.3-7.3	6.19	6.29	6.1	5.68	5.69
Specific Conductance	uS/cm	-	199.1	203.1	206.3	180.3	175.9
Temperature	C	-	5.90	7.04	7.48	5.9	5.7
Turbidity	NTU	-	1.49	1.47	1.57	1.63	2.3
Water Elevation	ft MSL	-	1533.96	1533.42	1533.02	1533.14	1534.86
Metals							
Aluminum	ug/L	200	-	-	<50.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	<5.0	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	<300	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	<0.10	-	-
Cobalt	ug/L	80	-	-	<20.0	-	-
Copper	ug/L	16	< 4.0	< 4.0	0.37	<4.0	< 4.0
Iron	ug/L	286.57	< 200	< 200	<200	<200	< 200
Lead	ug/L	9.0	< 3.0	< 3.0	<3.0	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	106.54	< 50	< 50.0	<50.0	<50.0	< 50.0
Mercury	ng/L	4.0	< 1.0	< 1.0	1.41	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	0.23	-	-
Nickel	ug/L	80	< 20	< 20.0	<0.10	<20.0	< 20.0
Selenium	ug/L	20	-	-	1.1	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	40	< 10	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	92.34	54.5	54.7	54.0	53.3	50.8
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	40	< 10	< 10.0	<0.72	<10.0	< 10.0
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.059	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.082	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	1.81	1.82	1.31	2.02	1.68	1.76
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	<0.0037	< 0.10	< 0.10
Sulfate	mg/L	40.56	29	28.7	27.6	26.4	27.7
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	31.29	18.5	18.9	19.5	17.0	18.6
Magnesium	mg/L	9.83	7.9	7.9	8.4	8.0	8.0
Potassium	mg/L	2.57	1.6	1.5	1.5	1.4	1.6
Sodium	mg/L	7.74	2	1.9	2.0	1.9	2.0
General							
Hardness	mg/L	115.53	106	84	83.2	75.5	79.4
		-					
		-					

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	2.61	0.87	1.6	1.32	1.35
ORP	mV	-	-231.5	-234.1	-234.7	-289.3	-240.1
pH	SU	7.44-8.44	8.19	8.16	8.04	8.41	8.32
Specific Conductance	uS/cm	-	293.3	291.6	288.0	309.4	294.3
Temperature	C	-	5.1	11.11	8.72	6.1	5.4
Turbidity	NTU	-	2.32	2.58	2.03	0.92	3.38
Water Elevation	ft MSL	-	1532.09	1528.14	1512.14	1530.71	1532.03
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.29	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	41.9	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.15	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	1902.7	1630	1640	1420	1820	1290
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	199.79	189	157	116	165	187
Mercury	ng/L	4.0	< 1.0	< 1.0	2.28	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.16	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	40	< 10.0	< 10.0	2.8	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	111.44	83	82.2	80.0	81.4	76.6
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	40	< 10.0	< 10.0	<0.72	<10.0	< 10.0
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.084	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.75	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	0.004	< 0.10	< 0.10
Sulfate	mg/L	49.32	46.1	45.5	42.3	44.9	52.0
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	42.87	30.5	32	30.3	30.0	31.1
Magnesium	mg/L	13.90	10	10.7	10.5	10.4	10.4
Potassium	mg/L	4.23	2.3	2.4	2.2	2.2	2.3
Sodium	mg/L	17.31	2.8	3.0	3.0	3.0	2.9
General							
Hardness	mg/L	173.44	147	130	119	118	121
		-					
		-					

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.42	0.52	1.18	1.27	0.24
ORP	mV	-	-289.1	-298.1	-259.4	-275.9	-229.1
pH	SU	8.08-9.08	8.43	8.31	8.13	8.48	8.28
Specific Conductance	uS/cm	-	279.6	281.2	276.8	298.9	265.4
Temperature	C	-	6.3	8.75	9.2	6.4	5.9
Turbidity	NTU	-	2.94	17.63	3.68	5.82	4.06
Water Elevation	ft MSL	-	1530.84	*	1534.52	1535.74	1532.56
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.16	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	<8.4	-	-
Cadmium	ug/L	3	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.19	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	2081.98	817	699	715	597	467
Lead	ug/L	9	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	28.08	-	-	7.4	-	-
Manganese	ug/L	94.53	81.2	92.4	81.1	59.6	70.2
Mercury	ng/L	4	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.14	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.8	-	-	<0.10	-	-
Thallium	ug/L	2	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	40	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	92.11	81	79.2	80.5	79.4	75.6
Alkalinity, Carbonate	mg/L	10.41	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	96.57	10.8	10.2	11.6	10.8	11.1
Fluoride	mg/L	2.5	< 1.0	< 1.0	<0.032	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.076	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	< 0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	<0.0037	< 0.10	< 0.10
Sulfate	mg/L	43.42	33	32.4	32.9	32.1	36.9
Sulfide	mg/L	0.8	< 0.20	< 0.20	0.025	<0.20	< 0.20
Major Cations							
Calcium	mg/L	33.74	25.3	27.4	26.8	24.4	25.8
Magnesium	mg/L	12.29	10	10.3	10.4	10.5	10.6
Potassium	mg/L	7.73	3	2.9	2.7	2.9	3.2
Sodium	mg/L	51.07	6.3	5.9	6.4	7.5	7.6
General							
Hardness	mg/L	134.66	131	118	110	104	108
*- Diver failed on 3/22/18, replaced 5/1		-	-	-	-	-	-

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.89	0.9	1.46	1.5	1.38
ORP	mV	-	-255.7	-239.6	-270	-226.4	-303.1
pH	SU	8.89-9.89	8.98	8.38	8.81	8.41	10.18
Specific Conductance	uS/cm	-	300.4	308.4	293.8	316.3	292.5
Temperature	C	-	5.7	9.98	8.5	5.8	5.2
Turbidity	NTU	-	1.08	2.98	2.1	1.34	22.73
Water Elevation	ft MSL	-	1531.35	1532.32	1533.21	1534.4	1532.25
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.31	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	<8.4	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.27	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	861.32	< 200	< 200	257	<200	< 200
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	19.81	-	-	10.2	-	-
Manganese	ug/L	200	< 50	< 50.0	<1.1	<50.0	< 50.0
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.18	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	26.21	< 10	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	87.85	82	81.8	69.0	84.4	52.8
Alkalinity, Carbonate	mg/L	38.7	< 2.0	< 2.0	8.0	<2.0	21.4
Chloride	mg/L	20	15.3	15.5	15.8	15.7	15.2
Fluoride	mg/L	2.5	< 1.0	< 1.0	<0.032	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12	< 0.025	0.0352	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.86	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	72.78	99.8	34.3	31.0	30.5	29.5
Sulfide	mg/L	1.27	< 0.20	0.33	<0.20	0.62	0.29
Major Cations							
Calcium	mg/L	27.00	25	15	26.3	23.6	18.6
Magnesium	mg/L	17.28	11.1	6.2	10.3	11.3	7.8
Potassium	mg/L	29.63	7.6	24.9	8.1	7.4	20.1
Sodium	mg/L	16.16	7.5	13	7.9	7.2	11.5
General							
Hardness	mg/L	139.55	137	80	108	105	78.5
		-					
		-					

MW-704 QAL

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm		0.76	1.72	1.21	0.41	1.39
ORP	mV		147.6	137.7	153.5	-30.0	141.5
pH	SU	5.43-6.43	5.85	5.83	5.75	6.26	5.68
Specific Conductance	uS/cm		371.8	384.4	389.4	690.4	392.2
Temperature	C		5.2	10.52	11.21	8.7	6.2
Turbidity	NTU		17.89	5.22	8.46	1.54	5.42
Water Elevation	ft MSL		1533.29	1534.52	1534.57	1534.54	1532.48
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.27	8.5	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	25.7	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	<0.10	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	0.94	<4.0	< 4.0
Iron	ug/L	84519.23	< 200	3590	<13.0	78600	< 200
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	8782.76	689	1900	594	5000	622
Mercury	ng/L	34.7	< 1.0	2.85	1.20	4.58	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	<0.10	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	16	-	-	<1.4	-	-
Zinc	ug/L	37.8	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	264.36	78.8	94.1	61.7	199	60.4
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	23.77	16.9	14.3	19.6	<10.0	21.8
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.038	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.19	< 0.025	0.29	<0.004	2.47	<0.050
Nitrogen, Nitrate	mg/L	1.47	1.15	0.721	0.882	< 0.10	0.71
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	<0.0037	< 0.10	< 0.10
Sulfate	mg/L	44.8	54.7	51.8	83.9	28.6	96.8
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.011	<0.20	< 0.20
General							
Hardness	mg/L	191.15	167	130	139	158	152
		-	-	-	-	-	-

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm		0.97	0.81	1.39	0.29	1.38
ORP	mV		-108.1	-142.6	-138.1	-164.7	-148.1
pH	SU	6.4-7.4	6.81	7	6.82	7.23	6.79
Specific Conductance	uS/cm		599.1	646.7	575.6	610.2	562.1
Temperature	C		7.4	7.61	9.34	8.4	7.1
Turbidity	NTU		39.98	6.45	3.33	16.85	8.01
Water Elevation	ft MSL		1533.89	1535.11	1535.21	1535.07	1533.00
Metals							
Aluminum	ug/L	5824.36	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.18	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	27.7	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	<0.10	-	-
Cobalt	ug/L	80	-	-	0.59	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	44051.82	42900	47800	42300	36600	893
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	30.14	-	-	<4.6	-	-
Manganese	ug/L	1384.15	906	990	815	789	50.9
Mercury	ng/L	1.4	< 1.0	< 1.0	1.03	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.70	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	16	-	-	<1.4	-	-
Zinc	ug/L	40	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	198.18	158	154	131	144	119
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	2.2
Chloride	mg/L	24.46	21.6	24	26.0	26.2	< 10.0
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.040	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.78	< 0.025	< 0.025	<0.004	< 0.025	-
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.18	< 0.10	< 0.10	0.009	< 0.10	< 0.10
Sulfate	mg/L	45.37	44.1	47.4	71.2	72.9	< 1.0
Sulfide	mg/L	0.49	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	66.63	52.7	56.2	50.9	56.6	22.3
Magnesium	mg/L	14.04	13.1	14	14.9	15.5	11.3
Potassium	mg/L	5.28	2.7	2.8	2.8	3.3	2.6
Sodium	mg/L	43.16	10.7	12.5	14.1	17.4	10.4
General							
Hardness	mg/L	226.12	216	184	188	205	102
		-					
		-					

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.54	0.44	1.24	1.29	0.24
ORP	mV	-	-260.4	-318.4	-257.1	-320.6	-246.7
pH	SU	8.2-9.2	8.34	8.58	8.24	8.56	8.09
Specific Conductance	uS/cm	-	328.2	267.6	354.4	317.2	349
Temperature	C	-	4.1	10.13	9.72	8.6	7.1
Turbidity	NTU	-	3.58	22.86	37.12	11.98	15.68
Water Elevation	ft MSL	-	1533.36	1534.97	1531.72	1531.95	1533.45
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.76	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	47.8	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	<0.10	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	3308.59	1130	2070	925	771	1190
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	28.25	-	-	13.7	-	-
Manganese	ug/L	95.14	83.4	< 50.0	101	<50.0	136
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.11	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	16	-	-	<1.4	-	-
Zinc	ug/L	40	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	152.81	135	111	157	119	158
Alkalinity, Carbonate	mg/L	13.4	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	40	< 10	< 10.0	11.0	<10.0	13.1
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.083	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.1	< 0.025	< 0.025	0.0295	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	0.007	< 0.10	< 0.10
Sulfate	mg/L	20.79	10.3	8.3	9.9	7.3	12.2
Sulfide	mg/L	0.80	< 0.20	< 0.20	0.021	<0.20	< 0.20
Major Cations							
Calcium	mg/L	33.39	30.3	20.6	37.2	24.0	40.7
Magnesium	mg/L	15.62	13.7	13.9	15.6	14.6	17.1
Potassium	mg/L	12.01	5.9	6.8	5.4	6.1	5.7
Sodium	mg/L	15.49	4.5	4.8	4.7	4.6	4.9
General							
Hardness	mg/L	156.51	161	252	157	120	172
		-					
		-					

Parameter	Unit	Recommended Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.99	0.67	1.19	1.99	0.25
ORP	mV	-	-258.6	-251.1	-303.8	-224.5	-263.4
pH	SU	8.13-9.13	8.46	8.4	8.46	8.46	8.18
Specific Conductance	uS/cm	-	263.2	262.4	266.1	271.9	232.1
Temperature	C	-	6.5	9.06	9.71	8.0	7.3
Turbidity	NTU	-	1.95	122.6	49.88	5.88	80.33
Water Elevation	ft MSL	-	*	1529.82	1529.52	1529.94	1529.94
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	8.0	-	-	<0.80	-	-
Arsenic	ug/L	20.0	< 5.0	< 5.0	0.34	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	4.0	-	-	<0.10	-	-
Boron	ug/L	1480	-	-	<8.4	-	-
Cadmium	ug/L	4.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.15	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	9645	830	684	865	779	882
Lead	ug/L	12.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	40	-	-	11.7	-	-
Manganese	ug/L	58	< 50	< 50.0	<1.1	<50.0	50.9
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	<0.20	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.14	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	8.0	-	-	<0.040	-	-
Vanadium	ug/L	16	-	-	<1.4	-	-
Zinc	ug/L	11	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	129	132	132	127	142	119
Alkalinity, Carbonate	mg/L	32.0	< 2.0	< 2.0	<2.0	<2.0	2.6
Chloride	mg/L	40	< 10	< 10.0	<0.72	<10.0	< 10.0
Fluoride	mg/L	4.0	< 1.0	< 1.0	<0.032	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.04	< 0.025	< 0.025	<0.004	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	0.005	< 0.10	< 0.10
Sulfate	mg/L	6	< 1.0	< 1.0	<0.86	<1.0	< 1.0
Sulfide	mg/L	0.80	<0.20	< 0.20	0.017	<0.20	< 0.20
Major Cations							
Calcium	mg/L	27.00	21.8	21.3	22.4	22.7	22.5
Magnesium	mg/L	14.00	10.6	10.7	11.1	11.4	11.4
Potassium	mg/L	4.00	2.4	2.6	2.5	2.6	2.6
Sodium	mg/L	14.00	9.9	10	10	10.6	10.5
General							
Hardness	mg/L	111.00	125	110	102	103	103
* - Diver failed 9/6/17, replaced 3/15/:							
		-	-	-	-	-	-

MW-705 QAL

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.63	0.63	1.77	1.48	1.02
ORP	mV	-	-92.4	-10.3	-12.1	-30.2	-8.3
pH	SU	5.67-6.67	6.66	6.14	5.87	6.17	6.51
Specific Conductance	uS/cm	-	231.1	198.6	378.6	370.8	276.7
Temperature	C	-	5.1	5.61	11.88	7.8	4.2
Turbidity	NTU	-	7.48	2.46	2.18	1.11	2.01
Water Elevation	ft MSL	-	1533.76	1536.47	1535.61	1535.96	1536.78
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	<0.10	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	32.0	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.35	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	0.44	<4.0	< 4.0
Iron	ug/L	12956.53	7440	4870	10300	9710	10100
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	1535.09	651	523	<55.0	<2500	1000
Mercury	ng/L	1.8	< 1.0	1.04	<1.0	1.09	< 1.0
Molybdenum	ug/L	200	-	-	0.24	-	-
Nickel	ug/L	80	< 20.0	< 20.0	<0.10	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	16	-	-	<1.4	-	-
Zinc	ug/L	283.42	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	85.4	110	46	40.0	48.7	68.8
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	51.62	24.6	20.6	65.0	63.8	52.8
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.063	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.132	0.095	0.0735	0.148	0.118	0.138
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	0.006	< 0.10	< 0.10
Sulfate	mg/L	21.2	2.4	7.6	2.9	2.7	6.1
Sulfide	mg/L	0.80	< 0.20	< 0.20	0.023	<0.20	< 0.20
Major Cations							
Calcium	mg/L	23.88	12.1	11.9	19.5	18.2	17.5
Magnesium	mg/L	10.91	5.6	5.4	8.5	8.3	8.0
Potassium	mg/L	3.03	2.1	1.9	2.8	2.6	2.8
Sodium	mg/L	16.56	12.3	12.2	17.6	18.7	16.4
General							
Hardness	mg/L	109.66	74	54	83.5	79.8	76.6
		-					
		-					

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.91	0.62	1.32	1.40	0.77
ORP	mV	-	-117.1	-145.5	-127.6	-95.1	-70.2
pH	SU	6.59-7.59	6.96	7.01	6.88	7.04	7.19
Specific Conductance	uS/cm	-	387.6	337.8	344.8	366.0	303.4
Temperature	C	-	6.2	10.21	10.92	6.44	6.1
Turbidity	NTU	-	172.1	6.42	2.85	9.77	20.17
Water Elevation	ft MSL	-	1533.53	1536.76	1535.34	1537.91	1536.82
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	0.39	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	30.5	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.62	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	0.74	<4.0	< 4.0
Iron	ug/L	13309.31	3960	9340	12100	7310	7740
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	13.19	-	-	<4.6	-	-
Manganese	ug/L	972.64	1440	955	936	875	1060
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	0.45	-	-
Nickel	ug/L	80	< 20.0	< 20.0	0.76	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	16	-	-	<1.4	-	-
Zinc	ug/L	34.43	< 10.0	< 10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	117.78	101	84.2	79.6	88.3	77.3
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	35.98	30.9	32.3	36.1	35.4	36.2
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.079	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.1	0.03	< 0.025	<0.004	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	<0.0037	< 0.10	< 0.10
Sulfate	mg/L	14.23	4.7	3.9	2.5	3.8	2.4
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	26.00	28.6	24.7	27.4	26.5	25.9
Magnesium	mg/L	13.29	15.5	12.6	13.7	13.3	13.3
Potassium	mg/L	4.01	3.4	3.1	3.5	3.8	3.8
Sodium	mg/L	3.37	3.0	2.7	2.9	3.2	3.2
General							
Hardness	mg/L	127.17	172	120	125	121	119
		-					
		-					

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.94	1.81	2.61	1.72	1.92
ORP	mV	-	63.6	75.5	66.3	75.3	68.6
pH	SU	5.74-6.74	6.02	5.93	5.75	5.88	5.95
Specific Conductance	uS/cm	-	991.4	1002.1	863.4	838.5	874.1
Temperature	C	-	7.8	9.21	9.47	7.9	8.1
Turbidity	NTU	-	2.91	2.52	3.5	3.01	4.17
Water Elevation	ft MSL	-	1559.45	1558.81	1559.33	1561.11	1561.82
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	<0.10	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	<8.4	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.26	-	-
Cobalt	ug/L	31.38	-	-	22.6	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	8029.11	3490	3410	2970	2990	2760
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	17.21	-	-	<4.6	-	-
Manganese	ug/L	23484.14	15000	13600	14100	<25000	11600
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	0.57	-	-
Nickel	ug/L	27.04	23.2	< 20.0	<0.10	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	4.77	-	-	<1.4	-	-
Zinc	ug/L	77.08	< 10.0	< 10.0	5.6	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	131.77	145	75.8	70.6	73.6	73.0
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	165.11	126	117	105	100	123
Fluoride	mg/L	2.5	< 1.0	< 1.0	0.041	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.88	0.416	0.412	0.426	0.37	0.391
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	<0.0089	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	<0.0037	< 0.10	< 0.10
Sulfate	mg/L	433.53	186	192	179	175	189
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.011	<0.40	< 0.20
Major Cations							
Calcium	mg/L	132.61	79.9	75.8	69.3	67.9	68.4
Magnesium	mg/L	43.54	29.4	28.9	27.3	26.4	27.2
Potassium	mg/L	5.64	4.3	4.5	4.3	4.6	4.6
Sodium	mg/L	139.93	45.0	44.4	42.0	42.3	44.9
General							
Hardness	mg/L	619.10	29	168	285	278	283
		-					
		-					

MW-707 QAL

Parameter	Unit	Recommended					
		Benchmark 2018	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	0.61	4.21	1.68	2.03	1.64
ORP	mV	-	-131.5	-123.1	-122.6	-116.3	-123.4
pH	SU	6.43-7.43	7.26	7.16	6.93	7.1	6.9
Specific Conductance	uS/cm	-	342.9	349.6	332.4	333.9	360.2
Temperature	C	-	4.18	10.11	9.62	7.1	6.7
Turbidity	NTU	-	1.23	1.76	1.84	5.88	2.63
Water Elevation	ft MSL	-	1582.09	1582.94	1581.96	1582.69	1583.73
Metals							
Aluminum	ug/L	200	-	-	<31.0	-	-
Antimony	ug/L	4.0	-	-	<0.80	-	-
Arsenic	ug/L	7.5	< 5.0	< 5.0	<0.10	<5.0	< 5.0
Barium	ug/L	400	-	-	<0.10	-	-
Beryllium	ug/L	2.5	-	-	<0.10	-	-
Boron	ug/L	1200	-	-	20.2	-	-
Cadmium	ug/L	3.0	-	-	<0.10	-	-
Chromium	ug/L	40	-	-	0.19	-	-
Cobalt	ug/L	80	-	-	<0.40	-	-
Copper	ug/L	16	< 4.0	< 4.0	<0.20	<4.0	< 4.0
Iron	ug/L	7115.36	4800	3410	4440	3700	4350
Lead	ug/L	9.0	< 3.0	< 3.0	<0.10	<3.0	< 3.0
Lithium	ug/L	40	-	-	<4.6	-	-
Manganese	ug/L	1127.81	976	716	841	747	970
Mercury	ng/L	4.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0
Molybdenum	ug/L	200	-	-	0.89	-	-
Nickel	ug/L	80	<20.0	<20.0	<0.10	<20.0	< 20.0
Selenium	ug/L	20	-	-	<1.0	-	-
Silver	ug/L	0.80	-	-	<0.10	-	-
Thallium	ug/L	2.0	-	-	<0.040	-	-
Vanadium	ug/L	16	-	-	<1.4	-	-
Zinc	ug/L	29.27	<10.0	<10.0	<1.7	<10.0	< 10.0
Major Anions							
Alkalinity, Bicarbonate	mg/L	168.29	166	163	165	162	158
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	40	<10.0	< 10.0	<0.72	<10.0	< 10.0
Fluoride	mg/L	2.5	< 1.0	< 1.0	<0.032	<1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.32	0.259	0.174	0.028	0.28	0.259
Nitrogen, Nitrate	mg/L	0.4	< 0.10	< 0.10	0.017	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	< 0.10	<0.0037	< 0.10	< 0.10
Sulfate	mg/L	9.35	3.2	2.7	<0.86	<1.0	1.4
Sulfide	mg/L	0.80	< 0.20	< 0.20	<0.011	<0.20	< 0.20
Major Cations							
Calcium	mg/L	45.91	43.4	41.6	44.9	41.5	42.6
Magnesium	mg/L	13.49	11.3	11.5	11.7	11.3	11.7
Potassium	mg/L	2.93	2.1	2.2	2.3	2.4	2.2
Sodium	mg/L	3.62	3.0	2.8	2.9	3.0	3.0
General							
Hardness	mg/L	162.23	176	156	160	150	155
		-					
		-					

Parameter	Unit	Recommended Benchmark 2019					
		Q1	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	11.75	8.52	7.62	12.01	10.55
ORP	mV	-	67.8	230.6	143.7	93.6	239.2
pH	SU	5.4-6.4	6.91	6.66	6.78	7.60	6.87
Specific Conductance	uS/cm	-	99.6	71.9	114.3	100.0	76
Temperature	C	-	0.29	14.39	17.3	0.05	-0.04
Turbidity	NTU	-	2.9	1.2	5.26	1.54	1.88
Flow	cfs	-	-	-	-	-	-
Metals							
Aluminum	ug/L	-	-	-	60.5	-	-
Antimony	ug/L	-	-	-	<0.80	-	-
Arsenic	ug/L	3.6	1.1	< 1.0	1.5	<1.0	< 1.0
Barium	ug/L	-	-	-	9.1	-	-
Beryllium	ug/L	-	-	-	<0.10	-	-
Boron	ug/L	-	-	-	7.0	-	-
Cadmium	ug/L	-	-	-	-	-	-
Chromium	ug/L	-	-	-	0.30	-	-
Cobalt	ug/L	-	-	-	-	-	-
Copper	ug/L	0.62	0.39	0.73	-	-	0.56
Iron	ug/L	2412.94	1610	1070	1640	911	881
Lead	ug/L	0.21	0.145	0.136	-	-	0.122
Lithium	ug/L	-	-	-	<4.6	-	-
Manganese	ug/L	148.6	123	1900	90.2	40.4	51.4
Mercury	ng/L	5.77	2.29	3.62	-	3.04	2.70
Molybdenum	ug/L	-	-	-	0.23	-	-
Nickel	ug/L	1.06	0.52	0.7	-	0.62	0.45
Selenium	ug/L	-	-	-	-	-	-
Silver	ug/L	-	-	-	<0.10	-	-
Thallium	ug/L	-	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	39.22	1.88	2.4	-	2.62	2.59
Major Anions							
Alkalinity, Bicarbonate	mg/L	41.42	28.1	20.2	23.5	14.7	13.2
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	12.77	6.7	4.9	7.2	4.0	2.3
Fluoride	mg/L	0.4	< 0.10	< 0.10	0.085	<0.10	< 0.10
Nitrogen, Ammonia	mg/L	2.0	0.066	<0.025	<0.025	<0.025	<0.025
Nitrogen, Nitrate	mg/L	0.17	0.112	< 0.10	0.044	< 0.10	0.273
Nitrogen, Nitrite	mg/L	2.0	< 0.10	< 0.10	<0.0037	< 0.10	< 0.10
Sulfate	mg/L	9.0	1.6	< 1.0	<1.7	<2.0	2.4
Sulfide	mg/L	20	< 0.20	< 0.20	0.017	<0.20	< 0.20
Major Cations							
Calcium	mg/L	14.48	8.9	6.1	8.3	5.5	5.3
Magnesium	mg/L	3.84	2.5	1.9	2.2	1.6	1.6
Potassium	mg/L	0.93	0.68	0.68	0.74	0.50	0.78
Sodium	mg/L	6.67	3.6	3	4.1	2.4	1.7
General							
Hardness	mg/L	50.95	48	26	29	21	20
Total Dissolved Solids	mg/L	105.74	<50	116	110	<50.0	37
Total Suspended Solids	mg/L	3.35	< 3.3	< 3.3	3.6	<3.3	< 5.0

Parameter	Unit	Recommended Benchmark 2019					
		Q1	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	11.62	8.4	7.65	12.06	11.02
ORP	mV	-	42.5	147.1	172.1	259.7	265.6
pH	SU	5.3-6.3	7.06	6.67	7.11	6.00	6.93
Specific Conductance	uS/cm	-	115.6	90.7	132.7	64.9	95.3
Temperature	C	-	0.3	14.29	16.3	0.07	-0.06
Turbidity	NTU	-	3.47	1.83	5.39	1.34	2.21
Flow	cfs	-	-	-	-	-	-
Metals							
Aluminum	ug/L	-	-	-	62.8	-	-
Antimony	ug/L	-	-	-	<0.80	-	-
Arsenic	ug/L	2.82	1.4	1.3	1.8	<1.0	<1.0
Barium	ug/L	-	-	-	9.9	-	-
Beryllium	ug/L	-	-	-	<0.10	-	-
Boron	ug/L	-	-	-	23.4	-	-
Cadmium	ug/L	-	-	-	-	-	-
Chromium	ug/L	-	-	-	0.43	-	-
Cobalt	ug/L	-	-	-	-	-	-
Copper	ug/L	1.08	0.40	0.66	-	0.55	0.6
Iron	ug/L	3080.87	2010	1300	2030	998	1060
Lead	ug/L	0.34	0.131	0.133	-	0.139	0.136
Lithium	ug/L	-	-	-	<4.6	-	-
Manganese	ug/L	211.73	169	125	138	59.6	68.4
Mercury	ng/L	5.12	1.95	3.33	-	2.96	3.42
Molybdenum	ug/L	-	-	-	0.29	-	-
Nickel	ug/L	1.16	0.58	0.7	-	0.68	0.53
Selenium	ug/L	-	-	-	-	-	-
Silver	ug/L	-	-	-	<0.10	-	-
Thallium	ug/L	-	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	6.33	8.25	1.96	-	2.71	2.71
Major Anions							
Alkalinity, Bicarbonate	mg/L	45.83	31.8	22.9	25.0	16.2	14.8
Alkalinity, Carbonate	mg/L	8.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	14.13	7.8	6.5	6.6	4.9	5.7
Fluoride	mg/L	0.4	<0.10	<0.10	0.11	<0.10	<0.10
Nitrogen, Ammonia	mg/L	2.0	0.077	<0.025	<0.025	<0.025	<0.025
Nitrogen, Nitrate	mg/L	0.52	0.107	<0.10	0.034	<0.10	0.27
Nitrogen, Nitrite	mg/L	2.0	<0.10	<0.10	0.004	<0.10	<0.10
Sulfate	mg/L	13.82	5.1	3.3	6.0	<1.0	3.7
Sulfide	mg/L	20	<0.20	<0.20	0.016	<0.20	<0.20
Major Cations							
Calcium	mg/L	16.83	10.3	7.3	8.5	6.0	6.0
Magnesium	mg/L	4.59	2.9	2.3	2.4	1.7	1.8
Potassium	mg/L	1.25	0.75	0.77	0.83	0.56	0.83
Sodium	mg/L	8.52	4.7	4.2	5.8	3.2	3.4
General							
Hardness	mg/L	60.32	42	26	31	22	22
Total Dissolved Solids	mg/L	210.48	120	120	113	<50.0	45
Total Suspended Solids	mg/L	5.57	<3.3	<3.3	3.7	<3.3	<5.0

Parameter	Unit	Recommended Benchmark 2019					
		Q1	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	11.36	8.36	7.6	12.34	11.75
ORP	mV	-	11.6	114.8	134.6	89.7	254.9
pH	SU	5.4-6.4	7.42	6.78	7.22	7.35	7.24
Specific Conductance	uS/cm	-	124.7	121.3	152.1	130.3	104.3
Temperature	C	-	0.09	13.15	16.4	0.26	0.37
Turbidity	NTU	-	3.43	2.55	5.24	1.87	4.33
Flow	cfs	-	-	-	-	-	-
Metals							
Aluminum	ug/L	-	-	-	68.5	-	-
Antimony	ug/L	-	-	-	<0.80	-	-
Arsenic	ug/L	2.56	1.5	1.3	1.7	<1.0	<1.0
Barium	ug/L	-	-	-	9.8	-	-
Beryllium	ug/L	-	-	-	<0.10	-	-
Boron	ug/L	-	-	-	26.1	-	-
Cadmium	ug/L	-	-	-	-	-	-
Chromium	ug/L	-	-	-	0.31	-	-
Cobalt	ug/L	-	-	-	-	-	-
Copper	ug/L	2.85	0.37	0.66	-	0.55	0.58
Iron	ug/L	3007.1	2040	1450	2020	1070	1150
Lead	ug/L	0.35	0.127	0.151	-	0.134	0.135
Lithium	ug/L	-	-	-	<4.6	-	-
Manganese	ug/L	223.25	178	137	138	70.4	71.1
Mercury	ng/L	5.23	2.14	3.79	-	2.54	2.47
Molybdenum	ug/L	-	-	-	0.29	-	-
Nickel	ug/L	1.53	0.78	1.18	-	0.82	0.69
Selenium	ug/L	-	-	-	-	-	-
Silver	ug/L	-	-	-	<0.10	-	-
Thallium	ug/L	-	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	7.49	1.99	2.2	-	2.35	2.76
Major Anions							
Alkalinity, Bicarbonate	mg/L	49.72	32.2	24.9	105	17.8	15.2
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	15.25	8.7	8.7	8.6	6.9	6.2
Fluoride	mg/L	0.2	< 0.10	< 0.10	0.11	<0.10	< 0.10
Nitrogen, Ammonia	mg/L	2.0	0.087	< 0.025	<0.004	0.0286	-
Nitrogen, Nitrate	mg/L	0.18	0.107	< 0.10	0.032	< 0.10	0.259
Nitrogen, Nitrite	mg/L	2.0	< 0.10	< 0.10	0.004	< 0.10	< 0.10
Sulfate	mg/L	16.73	9.9	7.9	8.0	8.4	5.8
Sulfide	mg/L	20	< 0.20	< 0.20	0.019	<0.20	< 0.20
Major Cations							
Calcium	mg/L	16.98	10.8	7.5	8.5	6.3	6.2
Magnesium	mg/L	4.68	3.1	2.5	2.5	1.9	1.9
Potassium	mg/L	1.31	0.85	0.88	0.90	0.63	0.87
Sodium	mg/L	8.76	5.7	7	7.3	6.7	4.9
General							
Hardness	mg/L	62.63	42	22	31	23	23
Total Dissolved Solids	mg/L	133.98	62	86	<83.3	70.0	48
Total Suspended Solids	mg/L	4.01	< 3.3	< 3.3	3.7	<3.3	< 5.0

Parameter	Unit	Recommended Benchmark 2019					
		Q1	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	10.62	6.96	6.4	10.39	NM
ORP	mV	-	138.6	230.9	205.1	315.9	NM
pH	SU	-	6.55	5.49	6.42	5.29	NM
Specific Conductance	uS/cm	-	96.9	103.2	91.7	72.6	NM
Temperature	C	-	0.11	18.91	17.1	0.206	NM
Turbidity	NTU	-	43.96	0.38	1.67	1.55	NM
Flow	cfs	-	-	-	-	-	-
Metals							
Aluminum	ug/L	-	-	-	239	-	NM
Antimony	ug/L	-	-	-	<0.80	-	NM
Arsenic	ug/L	6.6	1.8	1.4	1.6	<1.0	NM
Barium	ug/L	-	-	-	10	-	NM
Beryllium	ug/L	-	-	-	<0.10	-	NM
Boron	ug/L	-	-	-	6.0	-	NM
Cadmium	ug/L	-	-	-	-	-	NM
Chromium	ug/L	-	-	-	0.67	-	NM
Cobalt	ug/L	-	-	-	-	-	NM
Copper	ug/L	3.28	0.97	0.77	-	1.13	NM
Iron	ug/L	11517.57	3460	1320	2010	1610	NM
Lead	ug/L	4.31	2.16	0.8	-	0.702	NM
Lithium	ug/L	-	-	-	<4.6	-	NM
Manganese	ug/L	363.23	277	135	94.7	111	NM
Mercury	ng/L	15.32	8.75	7.11	-	5.23	NM
Molybdenum	ug/L	-	-	-	<0.20	-	NM
Nickel	ug/L	3.08	0.94	0.93	-	0.65	NM
Selenium	ug/L	-	-	-	-	-	NM
Silver	ug/L	-	-	-	<0.10	-	NM
Thallium	ug/L	-	-	-	<0.040	-	NM
Vanadium	ug/L	-	-	-	<1.4	-	NM
Zinc	ug/L	16.13	7.78	5.93	-	5.38	NM
Major Anions							
Alkalinity, Bicarbonate	mg/L	9.12	10	5.5	7.0	4.0	NM
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	NM
Chloride	mg/L	24.46	19.4	21.5	9.2	14.5	NM
Fluoride	mg/L	0.4	< 0.10	< 0.10	0.082	<0.10	NM
Nitrogen, Ammonia	mg/L	2.0	0.259	< 0.025	<0.004	0.031	NM
Nitrogen, Nitrate	mg/L	0.24	<0.1	< 0.10	0.016	< 0.10	NM
Nitrogen, Nitrite	mg/L	2.0	< 0.1	< 0.10	0.006	< 0.10	NM
Sulfate	mg/L	11.08	< 10	< 2.0	<4.3	<5.0	NM
Sulfide	mg/L	20	< 0.20	< 0.2	<0.011	<0.20	NM
Major Cations							
Calcium	mg/L	7.55	4.9	3.7	4.4	3.7	NM
Magnesium	mg/L	3.02	2.0	1.6	1.7	1.4	NM
Potassium	mg/L	2.65	0.87	0.86	0.62	0.65	NM
Sodium	mg/L	10.69	8.4	9.7	4.5	6.8	NM
General							
Hardness	mg/L	37.48	60	12	17	15	NM
Total Dissolved Solids	mg/L	210.94	52	86	103	60.0	NM
Total Suspended Solids	mg/L	55.41	6.9	20.4	3.2	<3.3	NM

* - Lowest achievable Reporting Limit by laboratory due to matrix interference

Parameter	Unit	Recommended Benchmark 2019					
		Q1	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	1.45	8.53	7.14	10.2	6.78
ORP	mV	-	5.34	236.4	225.5	264.1	51.2
pH	SU	-	6.23	6.44	6.35	5.80	6.45
Specific Conductance	uS/cm	-	252.9	146.1	202.9	152.9	247.6
Temperature	C	-	0.74	20.34	19.2	1.98	0.79
Turbidity	NTU	-	42.11	56.1	29.1	62.2	19.65
Flow	cfs	-	-	-	-	-	-
Metals							
Aluminum	ug/L	-	-	-	<31.0	-	-
Antimony	ug/L	-	-	-	<0.80	-	-
Arsenic	ug/L	7.13	5.1	3.2	2.7	1.7	7.5
Barium	ug/L	-	-	-	8.5	-	-
Beryllium	ug/L	-	-	-	<0.10	-	-
Boron	ug/L	-	-	-	13.4	-	-
Cadmium	ug/L	-	-	-	<0.012	-	-
Chromium	ug/L	-	-	-	0.26	-	-
Cobalt	ug/L	-	-	-	0.245	-	-
Copper	ug/L	1.35	0.84	3.07	0.482	1.13	0.6
Iron	ug/L	16420.56	12600	6380	6930	3980	21800
Lead	ug/L	0.44	0.468	1.1	0.241	0.201	0.207
Lithium	ug/L	-	-	-	<4.6	-	-
Manganese	ug/L	1549.89	875	271	188	106	989
Mercury	ng/L	4.5	3.97	5.72	0.99	2.35	1.43
Molybdenum	ug/L	-	-	-	0.35	-	-
Nickel	ug/L	3.27	1.7	3.21	1.43	2.95	2.03
Selenium	ug/L	-	-	-	0.119	-	-
Silver	ug/L	-	-	-	<0.10	-	-
Thallium	ug/L	-	-	-	<0.040	-	-
Vanadium	ug/L	-	-	-	<1.4	-	-
Zinc	ug/L	19.81	4.03	9.7	0.45	2.9	2.67
Major Anions							
Alkalinity, Bicarbonate	mg/L	105.3	35.2	16.4	28	16.2	30.9
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	<2.0	<2.0	< 2.0
Chloride	mg/L	59.63	46.5	28.1	35.5	31.5	38.3
Fluoride	mg/L	0.29	< 0.10	< 0.10	0.096	< 0.10	< 0.10
Nitrogen, Ammonia	mg/L	2.0	0.437	0.0353	0.0046	0.0287	0.19
Nitrogen, Nitrate	mg/L	2.0	< 0.10	< 0.10	<0.0089	< 0.10	<0.050
Nitrogen, Nitrite	mg/L	2.0	< 0.10	< 0.10	0.007	< 0.10	0.01
Sulfate	mg/L	10.32	< 10	< 1.0	<0.86	<5.0	2.2
Sulfide	mg/L	20	< 0.20	< 0.20	0.018	< 0.20	< 0.20
Major Cations							
Calcium	mg/L	12.96	10.8	5.4	8.3	6.4	9.1
Magnesium	mg/L	5.87	5.2	2.9	4	2.9	4.4
Potassium	mg/L	2.57	1.8	2.1	1.2	1.4	1.8
Sodium	mg/L	27.52	22.5	14.6	17.9	16.3	20.0
General							
Hardness	mg/L	57.46	44	26	37.3	28.1	41
Total Dissolved Solids	mg/L	169.66	142	106	127	90	140
Total Suspended Solids	mg/L	12.9	14.4	12.2	4.4	3.7	43

* - Lowest achievable Reporting Limit by laboratory due to matrix interference

Parameter	Unit	Recommended Benchmark 2019					
		Q1	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm	-	3.52	4.39	3.46	6.9	NM
ORP	mV	-	32.9	188.2	56.1	284.2	NM
pH	SU	-	6.35	6.26	6.6	5.87	NM
Specific Conductance	uS/m	-	249.6	126.0	199.0	137.4	NM
Temperature	C	-	0.03	16.75	17.1	0.06	NM
Turbidity	NTU	-	27.83	10.44	53.7	6.79	NM
Flow	cfs	-	-	-	-	-	-
Metals							
Aluminum	ug/L	-	-	-	34.0	-	NM
Antimony	ug/L	-	-	-	<0.80	-	NM
Arsenic	ug/L	4.04	3.5	2.0	4.8	<1.0	NM
Barium	ug/L	-	-	-	19.2	-	NM
Beryllium	ug/L	-	-	-	<0.10	-	NM
Boron	ug/L	-	-	-	13.9	-	NM
Cadmium	ug/L	-	-	-	<0.012	-	NM
Chromium	ug/L	-	-	-	0.27	-	NM
Cobalt	ug/L	-	-	-	1.05	-	NM
Copper	ug/L	0.67	0.53	0.63	0.231	0.73	NM
Iron	ug/L	12988.41	10700	4430	13400	2780	NM
Lead	ug/L	0.4	0.258	0.173	0.105	0.151	NM
Lithium	ug/L	-	-	-	<4.6	-	NM
Manganese	ug/L	2260.79	1000	324	1030	44.8	NM
Mercury	ng/L	6.12	2.63	3.38	1.80	1.25	NM
Molybdenum	ug/L	-	-	-	0.22	-	NM
Nickel	ug/L	3.5	1.47	1.49	1.12	1.09	NM
Selenium	ug/L	-	-	-	0.106	-	NM
Silver	ug/L	-	-	-	<0.10	-	NM
Thallium	ug/L	-	-	-	<0.040	-	NM
Vanadium	ug/L	-	-	-	<1.4	-	NM
Zinc	ug/L	16.92	3.48	2.65	2.39	2.16	NM
Major Anions							
Alkalinity, Bicarbonate	mg/L	51.3	46	27.9	44.7	17.2	NM
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	< 2.0	< 2.0	NM
Chloride	mg/L	43.43	37.5	16.2	21.8	25.5	NM
Fluoride	mg/L	0.3	< 0.10	0.13	0.095	<0.10	NM
Nitrogen, Ammonia	mg/L	2.0	0.442	0.0585	0.0332	0.0258	NM
Nitrogen, Nitrate	mg/L	0.26	< 0.10	< 0.10	<0.0089	< 0.10	NM
Nitrogen, Nitrite	mg/L	2.0	< 0.10	< 0.10	0.006	< 0.10	NM
Sulfate	mg/L	17.39	< 10	< 1.0	<4.3	< 1.0	NM
Sulfide	mg/L	20	< 0.20	< 0.20	0.021	< 0.20	NM
Major Cations							
Calcium	mg/L	15.23	12.5	7.2	11.4	6.2	NM
Magnesium	mg/L	6.08	5.6	3.3	4.5	2.9	NM
Potassium	mg/L	2.22	1.6	1.3	1.4	1.1	NM
Sodium	mg/L	19.88	17.1	8	11.3	13.4	NM
General							
Hardness	mg/L	64.17	48	24	47.1	27.6	NM
Total Dissolved Solids	mg/L	177.46	175	130	153	72	NM
Total Suspended Solids	mg/L	18.78	11.8	8.3	26.8	<3.3	NM

* - Lowest achievable Reporting Limit by laboratory due to matrix interference

Parameter	Unit	Recommended						
		Benchmark 2014	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	
Field								
D.O.	ppm	-	NM	NM	NM	NM	NM	
ORP	mV	-	NM	NM	NM	NM	NM	
pH	SU	5.69-6.69	NM	NM	NM	NM	NM	
Specific Conductance	uS/m	-	NM	NM	NM	NM	NM	
Temperature	C	-	NM	NM	NM	NM	NM	
Turbidity	NTU	-	NM	NM	NM	NM	NM	
Flow	cfs	-	NM	NM	-	-	-	
Metals								
Aluminum	ug/L	200 (p)	NM	NM	NM	NM	NM	50
Antimony	ug/L	2.3	NM	NM	NM	NM	NM	1.0
Arsenic	ug/L	35	NM	NM	NM	NM	NM	1.0
Barium	ug/L	118	NM	NM	NM	NM	NM	1.0
Beryllium	ug/L	4.0 (p)	NM	NM	NM	NM	NM	1.0
Boron	ug/L	36	NM	NM	NM	NM	NM	1.0
Cadmium	ug/L	0.1	NM	NM	NM	NM	NM	0.02
Chromium	ug/L	14	NM	NM	NM	NM	NM	1.0
Cobalt	ug/L	3	NM	NM	NM	NM	NM	0.10
Copper	ug/L	11	NM	NM	NM	NM	NM	0.05
Iron	ug/L	73,409	NM	NM	NM	NM	NM	10.0
Lead	ug/L	2.1	NM	NM	NM	NM	NM	0.05
Lithium	ug/L	16	NM	NM	NM	NM	NM	8.0
Manganese	ug/L	2541	NM	NM	NM	NM	NM	1.0
Mercury	ng/L	43	NM	NM	NM	NM	NM	0.5
Molybdenum	ug/L	4.7	NM	NM	NM	NM	NM	1.0
Nickel	ug/L	5.6	NM	NM	NM	NM	NM	0.2
Selenium	ug/L	0.44	NM	NM	NM	NM	NM	0.07
Silver	ug/L	0.35	NM	NM	NM	NM	NM	0.2
Thallium	ug/L	4.0 (p)	NM	NM	NM	NM	NM	1.0
Vanadium	ug/L	39	NM	NM	NM	NM	NM	1.0
Zinc	ug/L	44	NM	NM	NM	NM	NM	0.5
Major Anions								
Alkalinity, Bicarbonate	mg/L	68	NM	NM	NM	NM	NM	2.0
Alkalinity, Carbonate	mg/L	8.0 (p)	NM	NM	NM	NM	NM	2.0
Chloride	mg/L	68	NM	NM	NM	NM	NM	1.0
Fluoride	mg/L	0.23	NM	NM	NM	NM	NM	0.1
Nitrogen, Ammonia	mg/L	1.9	NM	NM	NM	NM	NM	0.50
Nitrogen, Nitrate	mg/L	2.0 (p)	NM	NM	NM	NM	NM	0.5
Nitrogen, Nitrite	mg/L	2.0 (p)	NM	NM	NM	NM	NM	0.5
Sulfate	mg/L	4.0 (p)	NM	NM	NM	NM	NM	1.0
Sulfide	mg/L	20 (p)	NM	NM	NM	NM	NM	0.5
Major Cations								
Calcium	mg/L	21	NM	NM	NM	NM	NM	0.5
Magnesium	mg/L	8.1	NM	NM	NM	NM	NM	0.5
Potassium	mg/L	3.3	NM	NM	NM	NM	NM	0.5
Sodium	mg/L	49	NM	NM	NM	NM	NM	0.5
General								
Hardness	mg/L	88	NM	NM	NM	NM	NM	2.0
Total Dissolved Solids	mg/L	209	NM	NM	NM	NM	NM	50.0
Total Suspended Solids	mg/L	353	NM	NM	NM	NM	NM	3.3

Parameter	Unit	Recommended Benchmark 2019					
		Q1	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Field							
D.O.	ppm		NM	NM	NM	NM	NM
ORP	mV		NM	NM	NM	NM	NM
pH	SU		NM	NM	NM	NM	NM
Specific Conductance	uS/m		NM	NM	NM	NM	NM
Temperature	C		NM	NM	NM	NM	NM
Turbidity	NTU		NM	NM	NM	NM	NM
Flow	cfs		NM	NM	-	-	-
Metals							
Aluminum	ug/L	-	NM	NM	NM	NM	NM
Antimony	ug/L	-	NM	NM	NM	NM	NM
Arsenic	ug/L	6.0	NM	NM	NM	NM	NM
Barium	ug/L	-	NM	NM	NM	NM	NM
Beryllium	ug/L	-	NM	NM	NM	NM	NM
Boron	ug/L	-	NM	NM	NM	NM	NM
Cadmium	ug/L	-	NM	NM	NM	NM	NM
Chromium	ug/L	-	NM	NM	NM	NM	NM
Cobalt	ug/L	-	NM	NM	NM	NM	NM
Copper	ug/L	1300	NM	NM	NM	NM	NM
Iron	ug/L	1758.94	NM	NM	NM	NM	NM
Lead	ug/L	6.36	NM	NM	NM	NM	NM
Lithium	ug/L	-	NM	NM	NM	NM	NM
Manganese	ug/L	855.5	NM	NM	NM	NM	NM
Mercury	ng/L	1.24	NM	NM	NM	NM	NM
Molybdenum	ug/L	-	NM	NM	NM	NM	NM
Nickel	ug/L	172.08	NM	NM	NM	NM	NM
Selenium	ug/L	-	NM	NM	NM	NM	NM
Silver	ug/L	-	NM	NM	NM	NM	NM
Thallium	ug/L	-	NM	NM	NM	NM	NM
Vanadium	ug/L	-	NM	NM	NM	NM	NM
Zinc	ug/L	64.27	NM	NM	NM	NM	NM
Major Anions							
Alkalinity, Bicarbonate	mg/L	100.8	NM	NM	NM	NM	NM
Alkalinity, Carbonate	mg/L	8	NM	NM	NM	NM	NM
Chloride	mg/L	37.3	NM	NM	NM	NM	NM
Fluoride	mg/L	2.73	NM	NM	NM	NM	NM
Nitrogen, Ammonia	mg/L	2	NM	NM	NM	NM	NM
Nitrogen, Nitrate	mg/L	0.16	NM	NM	NM	NM	NM
Nitrogen, Nitrite	mg/L	2	NM	NM	NM	NM	NM
Sulfate	mg/L	207.45	NM	NM	NM	NM	NM
Sulfide	mg/L	20	NM	NM	NM	NM	NM
Major Cations							
Calcium	mg/L	77.48	NM	NM	NM	NM	NM
Magnesium	mg/L	66.48	NM	NM	NM	NM	NM
Potassium	mg/L	86.72	NM	NM	NM	NM	NM
Sodium	mg/L	37.45	NM	NM	NM	NM	NM
General							
Hardness	mg/L	342.27	NM	NM	NM	NM	NM
Total Dissolved Solids	mg/L	529.47	NM	NM	NM	NM	NM
Total Suspended Solids	mg/L	13.20	NM	NM	NM	NM	NM