

**Mine Permit Groundwater Quality Monitoring Data  
MW-707 QAL (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	4.21	1.68	2.03	1.64	0.37
ORP	mV	-	-123.1	-122.6	-116.3	-123.4	-131.5
pH	SU	6.43-7.43	7.16	6.93	7.1	6.9	7.13
Specific Conductance	uS/cm	-	349.6	332.4	333.9	360.2	303.7
Temperature	C	-	10.11	9.62	7.1	6.7	7.5
Turbidity	NTU	-	1.76	1.84	5.88	2.63	1.79
Water Elevation	ft MSL	-	1582.94	1581.96	1582.69	1583.73	1583.63
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<0.10	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>20.2</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.19</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	7115.36	<b>3410</b>	<b>4440</b>	<b>3700</b>	<b>4350</b>	<b>4290</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	40	-	<4.6	-	-	-
Manganese	ug/L	1127.81	<b>716</b>	<b>841</b>	<b>747</b>	<b>970</b>	<b>892</b>
Mercury	ng/L	4.0	< 1.0	<1.0	<1.0	< 1.0	<1.0
Molybdenum	ug/L	200	-	<b>0.89</b>	-	-	-
Nickel	ug/L	80	<20.0	<0.10	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	168.29	<b>163</b>	<b>165</b>	<b>162</b>	<b>158</b>	<b>163</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	40	<10.0	<0.72	<10.0	< 10.0	<10.0
Fluoride	mg/L	2.5	< 1.0	<0.032	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.32	<b>0.174</b>	<b>0.028</b>	<b>0.280</b>	<b>0.259</b>	<b>0.294</b>
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<b>0.017</b>	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<0.0037	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	9.35	<b>2.7</b>	<0.86	<1.0	<b>1.4</b>	<1.0
Sulfide	mg/L	0.80	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	45.91	<b>41.6</b>	<b>44.9</b>	<b>41.5</b>	<b>42.6</b>	<b>41.8</b>
Magnesium	mg/L	13.49	<b>11.5</b>	<b>11.7</b>	<b>11.3</b>	<b>11.7</b>	<b>11.6</b>
Potassium	mg/L	2.93	<b>2.2</b>	<b>2.3</b>	<b>2.4</b>	<b>2.2</b>	<b>2.2</b>
Sodium	mg/L	3.62	<b>2.8</b>	<b>2.9</b>	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>
<b>General</b>							
Hardness	mg/L	162.23	<b>156</b>	<b>160</b>	<b>150</b>	<b>155</b>	<b>152</b>
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**Mine Permit Groundwater Quality Monitoring Data  
HW-1L (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.45	1.29	1.29	0.44	0.3
ORP	mV	-	-298.6	-284.1	-291.9	-239.2	-299.5
pH	SU	8.14-9.14	8.48	8.33	8.54	8.44	8.55
Specific Conductance	uS/cm	-	385.1	377.6	390	353.2	294.1
Temperature	C	-	9.69	9.03	8.1	7.1	9.3
Turbidity	NTU	-	2.99	4.65	1.92	2.98	3.3
Water Elevation	ft MSL	-	1512.15	1445.54	1446.68	1467.56	1445.58
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.18</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	745.21	-	<b>621</b>	-	-	-
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	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	1186.83	<b>831</b>	<b>795</b>	<b>861</b>	<b>957</b>	<b>606</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	23.04	-	<b>15.7</b>	-	-	-
Manganese	ug/L	200	< 50.0	<1.1	<50.0	< 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	<b>0.17</b>	<20.0	< 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	< 10.0	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	109.06	<b>80.3</b>	<b>81.6</b>	<b>82.9</b>	<b>79.1</b>	<b>82.2</b>
Alkalinity, Carbonate	mg/L	7.8	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	57.2	<b>44.5</b>	<b>44.4</b>	<b>42.2</b>	<b>41.5</b>	<b>34.8</b>
Fluoride	mg/L	2.5	< 1.0	<0.032	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.1	< 0.025	<0.004	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	<b>0.007</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	33.01	<b>27.3</b>	<b>25.1</b>	<b>27.7</b>	<b>30.0</b>	<b>26.1</b>
Sulfide	mg/L	0.8	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	34.39	<b>25.9</b>	<b>27.5</b>	<b>25.7</b>	<b>26.8</b>	<b>24.9</b>
Magnesium	mg/L	14.63	<b>10.8</b>	<b>11.1</b>	<b>11.4</b>	<b>11.2</b>	<b>10</b>
Potassium	mg/L	6.17	<b>1.8</b>	<b>1.8</b>	<b>1.8</b>	<b>1.8</b>	<b>1.9</b>
Sodium	mg/L	28.01	<b>22.9</b>	<b>22.6</b>	<b>23.0</b>	<b>22.9</b>	<b>20.1</b>
<b>General</b>							
Hardness	mg/L	155.68	<b>120</b>	<b>114</b>	<b>111</b>	<b>113</b>	<b>103</b>
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**HW-1U LLA (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.54	1.28	1.64	0.45	2.04
ORP	mV	-	-183.4	-215.6	-238.1	-233.5	-217.2
pH	SU	8.06-9.06	8.95	8.31	8.42	8.50	8.44
Specific Conductance	uS/cm	-	449.1	432.8	449.1	405.4	345.6
Temperature	C	-	10.24	9.34	6.8	7.6	9.7
Turbidity	NTU	-	126.4	4.52	6.98	7.75	3.09
Water Elevation	ft MSL	-	1475.83	1490.34	1478.88	1518.62	1486.75
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<2.0	-	-	-
Arsenic	ug/L	9.6	< 5.0	<0.10	<5.0	< 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	-	<b>0.99</b>	-	-	-
Cobalt	ug/L	80	-	<20.0	-	-	-
Copper	ug/L	8.56	< 4.0	<4.0	<4.0	< 4.0	<4.0
Iron	ug/L	56769.6	< 200	<13.0	<b>262</b>	<b>344</b>	<b>595</b>
Lead	ug/L	15.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	17.39	-	<b>13.0</b>	-	-	-
Manganese	ug/L	672.84	< 50.0	<1.1	<50.0	< 50.0	<50.0
Mercury	ng/L	14.2	< 1.0	<1.0	<1.0	< 1.0	<1.0
Molybdenum	ug/L	200	-	<0.20	-	-	-
Nickel	ug/L	80	< 20.0	<b>0.78</b>	<20.0	< 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	< 10.0	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	156.67	<b>93.6</b>	<b>111</b>	<b>116</b>	<b>100</b>	<b>106</b>
Alkalinity, Carbonate	mg/L	64.24	<b>21.7</b>	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	61.2	<b>21.4</b>	<b>20.8</b>	<b>17.6</b>	<b>17.7</b>	<b>17.8</b>
Fluoride	mg/L	2.5	< 1.0	<0.032	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.299	<b>0.266</b>	<b>0.177</b>	<b>0.156</b>	<b>0.158</b>	<b>0.169</b>
Nitrogen, Nitrate	mg/L	0.57	< 0.10	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.78	<b>0.115</b>	<b>0.006</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	395.42	<b>84.9</b>	<b>58.0</b>	<b>56.0</b>	<b>66.0</b>	<b>58.3</b>
Sulfide	mg/L	0.80	< 1.0	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	61.29	<b>6.5</b>	<b>25.1</b>	<b>25.0</b>	<b>26.3</b>	<b>21.5</b>
Magnesium	mg/L	25.82	<b>2</b>	<b>9.3</b>	<b>8.9</b>	<b>9.9</b>	<b>7.9</b>
Potassium	mg/L	16.88	<b>3.4</b>	<b>3.6</b>	<b>3.0</b>	<b>2.9</b>	<b>3.1</b>
Sodium	mg/L	134.27	<b>80.2</b>	<b>42.8</b>	<b>42.7</b>	<b>38.7</b>	<b>43.0</b>
<b>General</b>							
Hardness	mg/L	170.91	<b>28</b>	<b>101</b>	<b>99.0</b>	<b>106</b>	<b>86.0</b>
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**Mine Permit Groundwater Quality Monitoring Data  
HW-1U UFB (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.52	1.2	1.17	1.23	1.15
ORP	mV	-	-291.1	-364.5	-353.5	-362.3	-243.8
pH	SU	8.4-9.4	8.67	8.77	8.7	8.96	8.63
Specific Conductance	uS/cm	-	158.5	202.2	243.7	237.9	139.1
Temperature	C	-	8.95	10.63	8.0	7.1	9.0
Turbidity	NTU	-	29.32	5.06	7.83	4.71	22.29
Water Elevation	ft MSL	-	1532.65	1533.35	1534.85	1534.68	1536.77
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	9.3	< 5.0	<b>0.37</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>51.6</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.44</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	1364.17	< 200	<b>344</b>	<b>449</b>	<b>352</b>	<b>234</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	16.74	-	<4.6	-	-	-
Manganese	ug/L	80.14	<b>79</b>	<b>54.7</b>	<50.0	<b>51.4</b>	<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	<b>0.31</b>	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	121.72	<b>141.0</b>	<b>70.6</b>	<b>102</b>	<b>87.9</b>	<b>68.0</b>
Alkalinity, Carbonate	mg/L	17.08	< 2.0	<b>8.0</b>	<2.0	<b>5.6</b>	<2.0
Chloride	mg/L	96.09	< 10.0	<0.72	<10.0	< 10.0	<10.0
Fluoride	mg/L	2.5	< 1.0	<b>0.058</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.097	< 0.025	<0.004	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<b>0.005</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	72.34	<b>1.5</b>	<0.86	<b>1.4</b>	<b>5.4</b>	<b>3.2</b>
Sulfide	mg/L	2.47	< 0.20	<b>0.023</b>	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	34.03	<b>14.6</b>	<b>19.6</b>	<b>24.9</b>	<b>24.3</b>	<b>17.6</b>
Magnesium	mg/L	15.63	<b>4.3</b>	<b>5.4</b>	<b>6.8</b>	<b>7.2</b>	<b>4.5</b>
Potassium	mg/L	20.91	<b>2.9</b>	<b>3.1</b>	<b>3.6</b>	<b>4.4</b>	<b>2.5</b>
Sodium	mg/L	67.74	<b>6</b>	<b>5.8</b>	<b>5.5</b>	<b>6.8</b>	<b>4.8</b>
<b>General</b>							
Hardness	mg/L	146.74	<b>56</b>	<b>71.1</b>	<b>90.1</b>	<b>90.4</b>	<b>62.5</b>
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**Mine Permit Groundwater Quality Monitoring Data  
HW-2 (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	1.36	1.35	1.42	1.31	0.28
ORP	mV	-	-227.1	-243.6	-256.2	-238.2	-229.3
pH	SU	7.29-8.29	8.29	8.21	<b>8.72</b>	8.13	7.54
Specific Conductance	uS/cm	-	675.1	613.3	594.5	501.3	377.4
Temperature	C	-	10.41	9.43	8.5	7.1	7.4
Turbidity	NTU	-	29.15	19.91	80.4	66.7	56.23
Water Elevation	ft MSL	-	1534.04	1534.96	1536.18	1531.54	1538.84
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.25</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>99.5</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.42</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	2594.79	<b>426</b>	<b>683</b>	<200	<b>662</b>	<b>2290</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	40	-	<4.6	-	-	-
Manganese	ug/L	333.37	<b>282</b>	<b>284</b>	<b>136</b>	<b>264</b>	<b>457</b>
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	<b>0.36</b>	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	141.40	<b>95.6</b>	<b>88.6</b>	<b>87.3</b>	<b>81.4</b>	<b>80.9</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	34.7	<b>32.8</b>	<b>28.9</b>	<b>27.3</b>	<b>26.1</b>	<b>20.5</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.088</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.083	< 0.025	<0.004	0.0376	0.0386	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.10	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	<0.0037	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	175.33	<b>169</b>	<b>154</b>	<b>163</b>	<b>160</b>	<b>173</b>
Sulfide	mg/L	0.52	< 0.20	<0.20	<b>0.54</b>	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	71.88	<b>56.3</b>	<b>54.6</b>	<b>48.1</b>	<b>38.1</b>	<b>33.6</b>
Magnesium	mg/L	26.49	<b>22.5</b>	<b>20.6</b>	<b>19.9</b>	<b>18.4</b>	<b>15.9</b>
Potassium	mg/L	6.12	<b>4.6</b>	<b>4.3</b>	<b>4.4</b>	<b>4.9</b>	<b>5.4</b>
Sodium	mg/L	29.55	<b>30.6</b>	<b>34.6</b>	<b>37.8</b>	<b>41.6</b>	<b>56.6</b>
<b>General</b>							
Hardness	mg/L	296.9	<b>246</b>	<b>221</b>	<b>202</b>	<b>171</b>	<b>149</b>
		-					

**Mine Permit Groundwater Quality Monitoring Data  
HW-8U (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	2.05	1.59	1.50	1.32	0.21
ORP	mV	-	-82.7	-96.6	-116.6	-105.2	-124.0
pH	SU	6.4-7.4	6.8	6.6	6.75	6.65	6.81
Specific Conductance	uS/cm	-	430.1	474.8	486.2	445.3	384.9
Temperature	C	-	8.95	9.54	8.5	7.3	9.1
Turbidity	NTU	-	2.97	2.36	4.32	3.82	3.12
Water Elevation	ft MSL	-	1534.72	1534.5	1534.52	1533.32	1537.62
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4	-	<0.80	-	-	-
Arsenic	ug/L	8.8	<b>8.3</b>	<b>9.9</b>	<b>8.2</b>	<b>7.8</b>	<b>7.0</b>
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>29.7</b>	-	-	-
Cadmium	ug/L	3	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.59</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	22048.83	<b>9490</b>	<b>9740</b>	<b>9820</b>	<b>10200</b>	<b>10300</b>
Lead	ug/L	9	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	14.39	-	<4.6	-	-	-
Manganese	ug/L	6267.76	<b>6220</b>	<b>6040</b>	<b>5940</b>	<b>6110</b>	<b>5530</b>
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	<0.10	<20.0	< 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	< 10.0	<b>3.4</b>	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	214.17	<b>154</b>	<b>160</b>	<b>170</b>	<b>155</b>	<b>153</b>
Alkalinity, Carbonate	mg/L	8	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	18.35	<b>18.6</b>	<b>20.3</b>	<b>20.5</b>	<b>19.8</b>	<b>18.0</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.091</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.041	< 0.025	<b>0.0417</b>	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<0.0037	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	12.26	<b>13</b>	<b>13.7</b>	<b>15.7</b>	<b>14.9</b>	<b>14.2</b>
Sulfide	mg/L	0.8	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	45.93	<b>43</b>	<b>45.1</b>	<b>46.8</b>	<b>45.6</b>	<b>43.6</b>
Magnesium	mg/L	18.68	<b>13.2</b>	<b>13.4</b>	<b>13.6</b>	<b>14.2</b>	<b>13.8</b>
Potassium	mg/L	3.64	<b>3.5</b>	<b>3.4</b>	<b>3.6</b>	<b>3.7</b>	<b>3.8</b>
Sodium	mg/L	4.26	<b>4.5</b>	<b>4.5</b>	<b>4.6</b>	<b>4.8</b>	<b>4.7</b>
<b>General</b>							
Hardness	mg/L	203.47	<b>188</b>	<b>168</b>	<b>173</b>	<b>172</b>	<b>166</b>
		-	-	-	-	-	-

**Mine Permit Groundwater Quality Monitoring Data  
HYG-1 (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.51	1.29	0.27	1.37	1.52
ORP	mV	-	19.5	-30.6	91.6	11.3	25.4
pH	SU	6.29-7.29	6.76	6.79	6.72	6.98	6.75
Specific Conductance	uS/cm	-	714.1	567.4	621.4	610.3	607.5
Temperature	C	-	7.61	9.26	8.7	7.1	10.4
Turbidity	NTU	-	1.39	1.59	0.95	1.96	2.54
Water Elevation	ft MSL	-	1533.26	1534.55	1531.03	1532.35	1535.31
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<b>8.9</b>	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.37</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<b>68.2</b>	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>83.1</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.22</b>	-	-	-
Cobalt	ug/L	80	-	<b>0.98</b>	-	-	-
Copper	ug/L	9.22	< 4.0	<b>4.0</b>	<4.0	< 4.0	<4.0
Iron	ug/L	481.9	< 200	<13.0	<200	< 200	<200
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	40	-	<4.6	-	-	-
Manganese	ug/L	627.41	<b>653</b>	<b>587</b>	<b>647</b>	<b>711</b>	<b>841</b>
Mercury	ng/L	37.3	<b>22.1</b>	<b>36.0</b>	<b>39.3</b>	<b>10.4</b>	<b>6.86</b>
Molybdenum	ug/L	200	-	<0.20	-	-	-
Nickel	ug/L	80	< 20.0	<b>0.55</b>	<20.0	< 20.0	<20.0
Selenium	ug/L	20	-	<1.0	-	-	-
Silver	ug/L	0.80	-	<0.10	-	-	-
Thallium	ug/L	2.0	-	<b>0.044</b>	-	-	-
Vanadium	ug/L	-	-	<1.4	-	-	-
Zinc	ug/L	25.31	< 10.0	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	372.91	<b>253</b>	<b>177</b>	<b>189</b>	<b>155</b>	<b>243</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	21.5	<b>12.9</b>	<b>15.5</b>	<b>17.3</b>	<b>16.5</b>	<b>13.1</b>
Fluoride	mg/L	2.5	< 1.0	<0.032	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.56	<b>0.306</b>	<b>0.266</b>	<b>0.215</b>	<b>0.233</b>	<b>0.215</b>
Nitrogen, Nitrate	mg/L	0.08	< 0.10	<b>0.239</b>	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.40	< 0.10	<b>0.005</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	136.69	<b>78.3</b>	<b>87.6</b>	<b>105</b>	<b>133</b>	<b>109</b>
Sulfide	mg/L	0.80	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	65.21	<b>47.6</b>	<b>47.6</b>	<b>48.5</b>	<b>51.4</b>	<b>59.9</b>
Magnesium	mg/L	34.32	<b>23.8</b>	<b>22.8</b>	<b>25.6</b>	<b>25.6</b>	<b>28.3</b>
Potassium	mg/L	12.96	<b>10.6</b>	<b>9.8</b>	<b>10.3</b>	<b>10.4</b>	<b>11.5</b>
Sodium	mg/L	80.47	<b>54.6</b>	<b>28.5</b>	<b>30.3</b>	<b>25.7</b>	<b>38.0</b>
<b>General</b>							
Hardness	mg/L	321.93	<b>234</b>	<b>213</b>	<b>227</b>	<b>234</b>	<b>266</b>
		-					
		-					

**Mine Permit Groundwater Quality Monitoring Data  
KMW-5R (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	2.87	7.57	4.93	6.68	2.71
ORP	mV	-	84.7	131.6	184.3	233.0	65.8
pH	SU	6.67-7.67	6.98	6.99	7.02	6.96	6.62
Specific Conductance	uS/cm	-	906.3	848.1	897.5	812.9	691.4
Temperature	C	-	14.4	14.86	7.9	9.2	11.0
Turbidity	NTU	-	761.66	89.6	254.79	1087.2	746.4
Water Elevation	ft MSL	-	1557.56	1560.68	1562.48	1560.13	1567.71
<b>Metals</b>							
Aluminum	ug/L	200	-	623	-	-	-
Antimony	ug/L	4	-	<0.80	-	-	-
Arsenic	ug/L	7.5	15.6	<0.10	<5.0	12.2	7.8
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	43.6	<4.0	<4.0	37.3	28.4
Iron	ug/L	52956	129000	3940	1560	128000	77000
Lead	ug/L	9	6.1	0.31	<3.0	5.3	3.1
Lithium	ug/L	31.39	-	10.9	-	-	-
Manganese	ug/L	2789	2070	1200	1010	1610	1980
Mercury	ng/L	14.89	17.8	<1.0	<1.0	6.68	<3.1
Molybdenum	ug/L	200	-	<0.20	-	-	-
Nickel	ug/L	80	48.8	<20.0	<20.0	44.7	38.1
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	22.8	1.9	<10.0	21.4	14.5
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	480.97	384	386	394	374	371
Alkalinity, Carbonate	mg/L	8	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	191.74	< 10.0	<0.72	<10.0	< 10.0	<50.0
Fluoride	mg/L	2.5	< 1.0	0.053	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.063	<0.025	<0.004	<0.025	<0.025	<0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.1	0.026	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	0.005	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	138.86	91.4	84.5	75.2	75.6	66.0
Sulfide	mg/L	0.8	< 1.0	<0.011	<0.20	< 1.0	<1.0
<b>Major Cations</b>							
Calcium	mg/L	166.39	115	119	111	105	105
Magnesium	mg/L	65.48	63.3	44.0	40.4	60.3	52.8
Potassium	mg/L	8.30	8.2	7.1	7.2	8.2	7.9
Sodium	mg/L	7.71	8.2	8.9	9.3	9.9	10.4
<b>General</b>							
Hardness	mg/L	757.06	512	479	443	511	479
		-					
		-					



**Mine Permit Groundwater Quality Monitoring Data  
MW-9R (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	1.63	3.08	3.00	1.7	3.05
ORP	mV	-	161.4	170.6	136.4	33.6	100.1
pH	SU	5.4-6.4	6.11	5.87	6.04	6.03	6.11
Specific Conductance	uS/cm	-	238.9	435.2	405.1	329.3	201.1
Temperature	C	-	11.01	13.45	10.8	7.5	8.3
Turbidity	NTU	-	4.02	2.14	3.61	3.67	272.87
Water Elevation	ft MSL	-	1597.1	1595.05	1596.77	1596.33	1595.5
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<0.10	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>76.4</b>	-	-	-
Cadmium	ug/L	3.0	-	<b>0.10</b>	-	-	-
Chromium	ug/L	40	-	<0.10	-	-	-
Cobalt	ug/L	80	-	<b>0.73</b>	-	-	-
Copper	ug/L	38.92	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	4098.78	< 200	<b>15.5</b>	<200	<b>3190</b>	<b>1510</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	40	-	<4.6	-	-	-
Manganese	ug/L	1376.02	< 50.0	<b>66.0</b>	<b>53.4</b>	<b>99.2</b>	<b>92.4</b>
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	<b>76.1</b>	<b>66.0</b>	<b>86.9</b>	<b>90.7</b>	<b>91.0</b>
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	<b>30.5</b>	<b>18.1</b>	<b>20.5</b>	<b>14.1</b>	<b>25.9</b>
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	85.44	<b>28.3</b>	<b>78.6</b>	<b>46.0</b>	<b>33.3</b>	<2.0
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	184.87	<b>12.4</b>	<b>13.0</b>	<b>31.4</b>	<b>15.5</b>	<b>19.2</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.098</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.22	< 0.025	<0.004	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	3.8	<b>0.355</b>	<b>0.279</b>	<b>0.683</b>	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.10	<0.004	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	334.5	<b>46.6</b>	<b>97.9</b>	<b>96.2</b>	<b>75.3</b>	<b>41.5</b>
Sulfide	mg/L	0.80	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	116.03	<b>18</b>	<b>47.1</b>	<b>42.1</b>	<b>27.1</b>	<b>17.3</b>
Magnesium	mg/L	41.43	<b>6.8</b>	<b>16.4</b>	<b>13.8</b>	<b>9.4</b>	<b>6.1</b>
Potassium	mg/L	5.21	<b>1.6</b>	<b>3.0</b>	<b>2.7</b>	<b>2.1</b>	<b>1.5</b>
Sodium	mg/L	47.56	<b>6.5</b>	<b>10.6</b>	<b>9.3</b>	<b>7.1</b>	<b>7.2</b>
<b>General</b>							
Hardness	mg/L	479.44	<b>76</b>	<b>185</b>	<b>162</b>	<b>106</b>	<b>68.3</b>
		-					
		-					

**Mine Permit Groundwater Quality Monitoring Data  
MW-701 QAL (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	6.29	6.02	3.7	0.75	2.41
ORP	mV	-	271.5	207.6	155.8	226.1	231.7
pH	SU	5.46-6.46	5.92	5.58	5.53	5.78	5.57
Specific Conductance	uS/cm	-	131.4	883.5	1905.3	381.1	1220.1
Temperature	C	-	8.61	10.68	7.0	5.1	7.7
Turbidity	NTU	-	1.49	1.79	1.75	1.30	1.7
Water Elevation	ft MSL	-	1533.00	1533.69	1534.91	1532.35	1537.7
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.32</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>17.3</b>	-	-	-
Cadmium	ug/L	3	-	<b>0.15</b>	-	-	-
Chromium	ug/L	40	-	<b>0.80</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<b>0.53</b>	<4.0	< 4.0	<4.0
Iron	ug/L	497.99	< 200	<13.0	<200	< 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	< 50.0	<1.1	<50.0	<b>102</b>	<b>236</b>
Mercury	ng/L	8.44	< 1.0	<1.0	<b>1.64</b>	< 1.0	<b>1.44</b>
Molybdenum	ug/L	200	-	<0.20	-	-	-
Nickel	ug/L	80	< 20.0	<0.10	<20.0	< 20.0	<20.0
Selenium	ug/L	20	-	<1.0	-	-	-
Silver	ug/L	0.8	-	<0.10	-	-	-
Thallium	ug/L	2	-	<b>0.048</b>	-	-	-
Vanadium	ug/L	-	-	<1.4	-	-	-
Zinc	ug/L	40	< 10.0	<10.0	<10.0	< 10.0	<b>16.4</b>
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	117.82	<b>36.1</b>	<b>34.5</b>	<b>33.8</b>	<b>50.5</b>	<b>64.5</b>
Alkalinity, Carbonate	mg/L	8	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	22.96	< 10.0	<b>243</b>	<b>602</b>	<b>63.3</b>	<b>345</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.071</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.402	< 0.025	<0.004	< 0.025	< 0.025	<0.050
Nitrogen, Nitrate	mg/L	1.87	<b>0.65</b>	<b>0.779</b>	<b>0.899</b>	<b>1.16</b>	<b>1.27</b>
Nitrogen, Nitrite	mg/L	0.4	< 0.10	0.004	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	85.65	<b>14.8</b>	<b>11.0</b>	<b>12.4</b>	<b>21.3</b>	<b>20.0</b>
Sulfide	mg/L	0.8	< 0.20	<0.20	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	43.04	<b>8.9</b>	<b>69.4</b>	<b>90.7</b>	<b>29.6</b>	<b>73.9</b>
Magnesium	mg/L	18.63	<b>4</b>	<b>28.7</b>	<b>35.6</b>	<b>12.0</b>	<b>25.6</b>
Potassium	mg/L	8.95	<b>2.1</b>	<b>6.2</b>	<b>12.5</b>	<b>4.1</b>	<b>8.9</b>
Sodium	mg/L	11.68	<b>6.3</b>	<b>46.8</b>	<b>251</b>	<b>21.4</b>	<b>111</b>
<b>General</b>							
Hardness	mg/L	199.04	<b>40</b>	<b>292</b>	<b>373</b>	<b>123</b>	<b>290</b>
		-					

**Mine Permit Groundwater Quality Monitoring Data  
MW-701 UFB (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.81	1.33	1.32	0.24	0.25
ORP	mV	-	-212.1	-219.7	-220.7	223.4	-113.8
pH	SU	6.71-7.71	7.41	7.41	7.52	7.55	6.57
Specific Conductance	uS/cm	-	413.7	402.3	410.3	365.6	1867.8
Temperature	C	-	8.78	8.45	7.3	7.56	7.4
Turbidity	NTU	-	16.54	35.51	37.03	41.77	41.11
Water Elevation	ft MSL	-	1533.38	1533.88	1534.72	1532.63	1537.95
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.14</b>	<5.0	< 5.0	<5.0
Barium	ug/L	157.47	-	<b>141</b>	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>53.5</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.14</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	45.38	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	24957.73	<b>14800</b>	<b>14300</b>	<b>19400</b>	<b>17500</b>	<b>48800</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	12.91	-	<b>7.9</b>	-	-	-
Manganese	ug/L	4677.42	<b>2170</b>	<b>2030</b>	<b>1880</b>	<b>1790</b>	<b>1870</b>
Mercury	ng/L	4.0	< 1.0	<1.0	<1.0	< 1.0	<b>3.37</b>
Molybdenum	ug/L	200	-	<0.20	-	-	-
Nickel	ug/L	80	< 20.0	<0.10	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	161.71	<b>147</b>	<b>157</b>	<b>150</b>	<b>147</b>	<b>112</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	48.85	<b>11.1</b>	<b>11.2</b>	<b>14.5</b>	<b>14.0</b>	<b>238</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.087</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	1.75	< 0.025	<b>0.0063</b>	< 0.025	< 0.025	0.089
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<b>0.004</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	52.19	<b>13.9</b>	<b>11.3</b>	<b>7.1</b>	<b>2.9</b>	<b>619</b>
Sulfide	mg/L	1.86	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	38.59	<b>36.1</b>	<b>38.7</b>	<b>37.4</b>	<b>39.0</b>	<b>181</b>
Magnesium	mg/L	16.16	<b>14.8</b>	<b>15.0</b>	<b>13.9</b>	<b>13.8</b>	<b>71.4</b>
Potassium	mg/L	8.53	<b>3.4</b>	<b>3.3</b>	<b>3.7</b>	<b>4.3</b>	<b>8.2</b>
Sodium	mg/L	33.46	<b>5.1</b>	<b>5.1</b>	<b>5.6</b>	<b>6.1</b>	<b>90.1</b>
<b>General</b>							
Hardness	mg/L	163.25	<b>154</b>	<b>158</b>	<b>151</b>	<b>154</b>	<b>747</b>
		-					
		-					

**Mine Permit Groundwater Quality Monitoring Data  
MW-702 QAL (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	1.89	1.75	0.58	0.65	1.14
ORP	mV	-	112.1	-55.1	226.1	216.7	221.4
pH	SU	8.81-9.91	9.82	<b>8.15</b>	<b>7.19</b>	<b>7.30</b>	<b>6.83</b>
Specific Conductance	uS/cm	-	426.1	365.5	357.1	363.9	380.1
Temperature	C	-	7.41	7.81	6.7	6.5	7.0
Turbidity	NTU	-	4.15	34.37	1.21	1.84	96.78
Water Elevation	ft MSL	-	1531.72	1532.62	1534.36	1534.49	1537.05
<b>Metals</b>							
Aluminum	ug/L	122.72	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	<b>5.3</b>	<0.10	<5.0	< 5.0	<5.0
Barium	ug/L	195.71	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>22.6</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.65</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	800	< 200	<13.0	<200	< 200	<200
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	40	-	<4.6	-	-	-
Manganese	ug/L	545.68	< 50.0	<1.1	<50.0	< 50.0	<50.0
Mercury	ng/L	3.55	<b>1.92</b>	<b>2.05</b>	<b>2.30</b>	<b>1.52</b>	<1.0
Molybdenum	ug/L	200	-	<0.20	-	-	-
Nickel	ug/L	80	< 20.0	<b>0.88</b>	<20.0	< 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	-	-	<b>3.2</b>	-	-	-
Zinc	ug/L	40	< 10.0	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	160.17	<b>35.5</b>	<b>111</b>	<b>110</b>	<b>111</b>	<b>112</b>
Alkalinity, Carbonate	mg/L	40.7	<b>39.4</b>	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	17.58	< 10.0	<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	< 0.025
Nitrogen, Nitrate	mg/L	1.24	<b>0.837</b>	<b>0.352</b>	<b>0.266</b>	<b>0.209</b>	<b>0.442</b>
Nitrogen, Nitrite	mg/L	0.18	<b>0.103</b>	<0.10	<0.10	<0.10	<0.10
Sulfate	mg/L	133.19	<b>57.5</b>	<b>54.3</b>	<b>54.6</b>	<b>65.7</b>	<b>91.4</b>
Sulfide	mg/L	0.80	< 0.20	<0.20	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	78.82	<b>23.4</b>	<b>24.1</b>	<b>22.9</b>	<b>27.7</b>	<b>28.5</b>
Magnesium	mg/L	14.06	<b>3.9</b>	<b>6.5</b>	<b>8.0</b>	<b>10.4</b>	<b>14.3</b>
Potassium	mg/L	22.00	<b>14.9</b>	<b>10.2</b>	<b>7.8</b>	<b>7.5</b>	<b>5.4</b>
Sodium	mg/L	60.14	<b>57.5</b>	<b>34.7</b>	<b>31.3</b>	<b>28.0</b>	<b>33.6</b>
<b>General</b>							
Hardness	mg/L	251.25	<b>80</b>	<b>87.1</b>	<b>90.0</b>	<b>112</b>	<b>130</b>
		-					
		-					

**Mine Permit Groundwater Quality Monitoring Data  
MW-702 UFB (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	2.39	2.26	1.38	2.59	0.26
ORP	mV	-	-176.1	185.6	-216.2	-147.3	-264.2
pH	SU	7.11-8.11	8.06	7.69	7.97	7.91	8.19
Specific Conductance	uS/cm	-	269.1	180.8	279.6	278.5	219.3
Temperature	C	-	13.68	8.92	6.7	5.34	8.5
Turbidity	NTU	-	11.84	11.72	18.05	4.77	3.21
Water Elevation	ft MSL	-	1522.42	1519.93	1512.39	1515.42	1509.57
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.15</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>97.9</b>	-	-	-
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	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	1328.38	<b>954</b>	<b>1240</b>	<b>791</b>	<b>669</b>	<b>1280</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	12.91	-	<b>4.9</b>	-	-	-
Manganese	ug/L	118.08	<b>90</b>	<b>98.0</b>	<b>83.7</b>	<b>92.0</b>	<b>97.0</b>
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	<b>0.11</b>	<20.0	< 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	<10.0	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	111.84	<b>181</b>	<b>90.0</b>	<b>88.4</b>	<b>89.5</b>	<b>87.2</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	40	< 10.0	<0.72	<10.0	< 10.0	<10.0
Fluoride	mg/L	2.5	< 1.0	<0.032	<1.0	< 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	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<b>0.007</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	36.1	<b>30.9</b>	<b>28.7</b>	<b>29.2</b>	<b>37.4</b>	<b>32.7</b>
Sulfide	mg/L	0.80	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	38.98	<b>29.2</b>	<b>28.7</b>	<b>28.8</b>	<b>30.8</b>	<b>28.5</b>
Magnesium	mg/L	11.74	<b>9.2</b>	<b>9.2</b>	<b>9.3</b>	<b>9.7</b>	<b>8.8</b>
Potassium	mg/L	11.24	<b>3</b>	<b>3.3</b>	<b>3.0</b>	<b>3.1</b>	<b>3.3</b>
Sodium	mg/L	5.20	<b>3</b>	<b>3.0</b>	<b>3.0</b>	<b>3.2</b>	<b>3.0</b>
<b>General</b>							
Hardness	mg/L	139.94	<b>116</b>	<b>110</b>	<b>110</b>	<b>117</b>	<b>107</b>
		-					
		-					

**Mine Permit Groundwater Quality Monitoring Data  
MW-703 QAL (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	5.83	6.18	8.75	5.49	6.01
ORP	mV	-	260.1	110.6	353.1	311.6	297.8
pH	SU	6.3-7.3	6.29	6.1	5.68	5.69	5.98
Specific Conductance	uS/cm	-	203.1	206.3	180.3	175.9	147.7
Temperature	C	-	7.04	7.48	5.9	5.7	6.9
Turbidity	NTU	-	1.47	1.57	1.63	2.3	2.42
Water Elevation	ft MSL	-	1533.42	1533.02	1533.14	1534.86	1536.49
<b>Metals</b>							
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	<b>0.37</b>	<4.0	< 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	< 50.0	<50.0	<50.0	< 50.0	<50.0
Mercury	ng/L	4.0	< 1.0	<b>1.41</b>	<1.0	< 1.0	<1.0
Molybdenum	ug/L	200	-	<b>0.23</b>	-	-	-
Nickel	ug/L	80	< 20.0	<0.10	<20.0	< 20.0	<20.0
Selenium	ug/L	20	-	<b>1.1</b>	-	-	-
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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	92.34	<b>54.7</b>	<b>54.0</b>	<b>53.3</b>	<b>50.8</b>	<b>47.7</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	40	< 10.0	<0.72	<10.0	< 10.0	<10.0
Fluoride	mg/L	2.5	< 1.0	<b>0.059</b>	<1.0	< 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	<b>1.31</b>	<b>2.02</b>	<b>1.68</b>	<b>1.76</b>	<b>1.92</b>
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<0.0037	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	40.56	<b>28.7</b>	<b>27.6</b>	<b>26.4</b>	<b>27.7</b>	<b>19.1</b>
Sulfide	mg/L	0.80	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	31.29	<b>18.9</b>	<b>19.5</b>	<b>17.0</b>	<b>18.6</b>	<b>16.7</b>
Magnesium	mg/L	9.83	<b>7.9</b>	<b>8.4</b>	<b>8.0</b>	<b>8.0</b>	<b>6.9</b>
Potassium	mg/L	2.57	<b>1.5</b>	<b>1.5</b>	<b>1.4</b>	<b>1.6</b>	<b>1.5</b>
Sodium	mg/L	7.74	<b>1.9</b>	<b>2.0</b>	<b>1.9</b>	<b>2.0</b>	<b>1.7</b>
<b>General</b>							
Hardness	mg/L	115.53	<b>84</b>	<b>83.2</b>	<b>75.5</b>	<b>79.4</b>	<b>70.0</b>
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**Mine Permit Groundwater Quality Monitoring Data  
MW-703 UFB (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.87	1.6	1.32	1.35	0.31
ORP	mV	-	-234.1	-234.7	-289.3	-240.1	-238.0
pH	SU	7.44-8.44	8.16	8.04	8.41	8.32	8.20
Specific Conductance	uS/cm	-	291.6	288.0	309.4	294.3	243.6
Temperature	C	-	11.11	8.72	6.1	5.4	7.1
Turbidity	NTU	-	2.58	2.03	0.92	3.38	1.91
Water Elevation	ft MSL	-	1528.14	1512.14	1530.71	1532.03	1536.57
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.29</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>41.9</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.15</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	1902.7	<b>1640</b>	<b>1420</b>	<b>1820</b>	<b>1290</b>	<b>1130</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	40	-	<4.6	-	-	-
Manganese	ug/L	199.79	<b>157</b>	<b>116</b>	<b>165</b>	<b>187</b>	<b>195</b>
Mercury	ng/L	4.0	< 1.0	<b>2.28</b>	<1.0	< 1.0	<1.0
Molybdenum	ug/L	200	-	<0.20	-	-	-
Nickel	ug/L	80	< 20.0	<b>0.16</b>	<20.0	< 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	<b>2.8</b>	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	111.44	<b>82.2</b>	<b>80.0</b>	<b>81.4</b>	<b>76.6</b>	<b>77.2</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	40	< 10.0	<0.72	<10.0	< 10.0	<10.0
Fluoride	mg/L	2.5	< 1.0	<b>0.084</b>	<1.0	< 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	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<b>0.004</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	49.32	<b>45.5</b>	<b>42.3</b>	<b>44.9</b>	<b>52.0</b>	<b>38.5</b>
Sulfide	mg/L	0.80	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	42.87	<b>32</b>	<b>30.3</b>	<b>30.0</b>	<b>31.1</b>	<b>32.0</b>
Magnesium	mg/L	13.90	<b>10.7</b>	<b>10.5</b>	<b>10.4</b>	<b>10.4</b>	<b>10.0</b>
Potassium	mg/L	4.23	<b>2.4</b>	<b>2.2</b>	<b>2.2</b>	<b>2.3</b>	<b>2.3</b>
Sodium	mg/L	17.31	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>	<b>2.9</b>	<b>2.8</b>
<b>General</b>							
Hardness	mg/L	173.44	<b>130</b>	<b>119</b>	<b>118</b>	<b>121</b>	<b>121</b>
		-					
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**Mine Permit Groundwater Quality Monitoring Data  
MW-703 LLA (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.52	1.18	1.27	0.24	1.26
ORP	mV	-	-298.1	-259.4	-275.9	-229.1	-236.6
pH	SU	8.08-9.08	8.31	8.13	8.48	8.28	8.83
Specific Conductance	uS/cm	-	281.2	276.8	298.9	265.4	245.2
Temperature	C	-	8.75	9.2	6.4	5.9	7.4
Turbidity	NTU	-	17.63	3.68	5.82	4.06	29.21
Water Elevation	ft MSL	-	*	1534.52	1535.74	1532.56	1538.59
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.16</b>	<5.0	< 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	-	<b>0.19</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	2081.98	<b>699</b>	<b>715</b>	<b>597</b>	<b>467</b>	<200
Lead	ug/L	9	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	28.08	-	<b>7.4</b>	-	-	-
Manganese	ug/L	94.53	<b>92.4</b>	<b>81.1</b>	<b>59.6</b>	<b>70.2</b>	<50.0
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	<b>0.14</b>	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	92.11	<b>79.2</b>	<b>80.5</b>	<b>79.4</b>	<b>75.6</b>	<b>80.7</b>
Alkalinity, Carbonate	mg/L	10.41	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	96.57	<b>10.2</b>	<b>11.6</b>	<b>10.8</b>	<b>11.1</b>	<b>25.8</b>
Fluoride	mg/L	2.5	< 1.0	<0.032	<1.0	< 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	< 0.1	< 0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<0.0037	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	43.42	<b>32.4</b>	<b>32.9</b>	<b>32.1</b>	<b>36.9</b>	<b>13.2</b>
Sulfide	mg/L	0.8	< 0.20	<b>0.025</b>	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	33.74	<b>27.4</b>	<b>26.8</b>	<b>24.4</b>	<b>25.8</b>	<b>16.0</b>
Magnesium	mg/L	12.29	<b>10.3</b>	<b>10.4</b>	<b>10.5</b>	<b>10.6</b>	<b>8.3</b>
Potassium	mg/L	7.73	<b>2.9</b>	<b>2.7</b>	<b>2.9</b>	<b>3.2</b>	<b>6.4</b>
Sodium	mg/L	51.07	<b>5.9</b>	<b>6.4</b>	<b>7.5</b>	<b>7.6</b>	<b>20.2</b>
<b>General</b>							
Hardness	mg/L	134.66	<b>118</b>	<b>110</b>	<b>104</b>	<b>108</b>	<b>74.2</b>
*- Diver failed on 3/22/18, replaced 5/1		-	-	-	-	-	-



**Mine Permit Groundwater Quality Monitoring Data  
MW-703 DBA (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.9	1.46	1.5	1.38	0.22
ORP	mV	-	-239.6	-270	-226.4	-303.1	-262.1
pH	SU	8.89-9.89	<b>8.38</b>	<b>8.81</b>	<b>8.41</b>	<b>10.18</b>	<b>8.43</b>
Specific Conductance	uS/cm	-	308.4	293.8	316.3	292.5	254.3
Temperature	C	-	9.98	8.5	5.8	5.2	7.00
Turbidity	NTU	-	2.98	2.1	1.34	22.73	1.74
Water Elevation	ft MSL	-	1532.32	1533.21	1534.4	1532.25	1535.23
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.31</b>	<5.0	< 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	-	<b>0.27</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	861.32	< 200	<b>257</b>	<200	< 200	<b>231</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	19.81	-	<b>10.2</b>	-	-	-
Manganese	ug/L	200	< 50.0	<1.1	<50.0	< 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	<b>0.18</b>	<20.0	< 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	< 10.0	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	87.85	<b>81.8</b>	<b>69.0</b>	<b>84.4</b>	<b>52.8</b>	<b>80.5</b>
Alkalinity, Carbonate	mg/L	38.7	< 2.0	<b>8.0</b>	<2.0	<b>21.4</b>	<2.0
Chloride	mg/L	20	<b>15.5</b>	<b>15.8</b>	<b>15.7</b>	<b>15.2</b>	<b>14.7</b>
Fluoride	mg/L	2.5	< 1.0	<0.032	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.12	<b>0.0352</b>	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.86	< 0.1	< 0.10	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	< 0.10	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	72.78	<b>34.3</b>	<b>31.0</b>	<b>30.5</b>	<b>29.5</b>	<b>38.3</b>
Sulfide	mg/L	1.27	<b>0.33</b>	<0.20	<b>0.62</b>	<b>0.29</b>	<0.20
<b>Major Cations</b>							
Calcium	mg/L	27.00	<b>15</b>	<b>26.3</b>	<b>23.6</b>	<b>18.6</b>	<b>28.0</b>
Magnesium	mg/L	17.28	<b>6.2</b>	<b>10.3</b>	<b>11.3</b>	<b>7.8</b>	<b>10.4</b>
Potassium	mg/L	29.63	<b>24.9</b>	<b>8.1</b>	<b>7.4</b>	<b>20.1</b>	<b>3.8</b>
Sodium	mg/L	16.16	<b>13</b>	<b>7.9</b>	<b>7.2</b>	<b>11.5</b>	<b>6.5</b>
<b>General</b>							
Hardness	mg/L	139.55	<b>80</b>	<b>108</b>	<b>105</b>	<b>78.5</b>	<b>113</b>
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**Mine Permit Groundwater Quality Monitoring Data  
MW-704 QAL**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm		1.72	1.21	0.41	1.39	1.3
ORP	mV		137.7	153.5	-30.0	141.5	-7.6
pH	SU	5.43-6.43	5.83	5.75	6.26	5.68	<b>6.51</b>
Specific Conductance	uS/cm		384.4	389.4	690.4	392.2	448.6
Temperature	C		10.52	11.21	8.7	6.2	7.5
Turbidity	NTU		5.22	8.46	1.54	5.42	4.71
Water Elevation	ft MSL		1534.52	1534.57	1534.54	1532.48	1535.35
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.27</b>	<b>8.5</b>	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>25.7</b>	-	-	-
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	<b>0.94</b>	<4.0	< 4.0	<4.0
Iron	ug/L	84519.23	<b>3590</b>	<13.0	<b>78600</b>	< 200	<b>21600</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	40	-	<4.6	-	-	-
Manganese	ug/L	8782.76	<b>1900</b>	<b>594</b>	<b>5000</b>	<b>622</b>	<b>2870</b>
Mercury	ng/L	34.7	<b>2.85</b>	<b>1.20</b>	<b>4.58</b>	< 1.0	<b>3.82</b>
Molybdenum	ug/L	200	-	<0.20	-	-	-
Nickel	ug/L	80	< 20.0	<0.10	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	264.36	<b>94.1</b>	<b>61.7</b>	<b>199</b>	<b>60.4</b>	<b>128</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	23.77	<b>14.3</b>	<b>19.6</b>	<10.0	<b>21.8</b>	<b>20.2</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.038</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.19	<b>0.29</b>	<0.004	<b>2.47</b>	<0.050	<b>0.70</b>
Nitrogen, Nitrate	mg/L	1.47	<b>0.721</b>	<b>0.882</b>	< 0.10	<b>0.71</b>	<b>0.328</b>
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<0.0037	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	44.8	<b>51.8</b>	<b>83.9</b>	<b>28.6</b>	<b>96.8</b>	<b>57.0</b>
Sulfide	mg/L	0.80	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Calcium</b>							
Calcium	mg/L	47.35	<b>33.6</b>	<b>35.1</b>	<b>40.9</b>	<b>37.6</b>	<b>44.8</b>
<b>Magnesium</b>							
Magnesium	mg/L	14.76	<b>11.9</b>	<b>12.4</b>	<b>13.7</b>	<b>14.2</b>	<b>15.8</b>
<b>Potassium</b>							
Potassium	mg/L	6.10	<b>3.2</b>	<b>2.5</b>	<b>7.4</b>	<b>2.6</b>	<b>3.7</b>
<b>Sodium</b>							
Sodium	mg/L	32.26	<b>14.2</b>	<b>13.0</b>	<b>22.3</b>	<b>16.3</b>	<b>19.3</b>
<b>General</b>							
Hardness	mg/L	191.15	<b>130</b>	<b>139</b>	<b>158</b>	<b>152</b>	<b>177</b>
		-					
		-					

**Mine Permit Groundwater Quality Monitoring Data  
MW-704 UFB (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm		0.81	1.39	0.29	1.38	1.32
ORP	mV		-142.6	-138.1	-164.7	-148.1	-166.7
pH	SU	6.4-7.4	7.00	6.82	7.23	6.79	6.87
Specific Conductance	uS/cm		646.7	575.6	610.2	562.1	582.9
Temperature	C		7.61	9.34	8.4	7.1	7.7
Turbidity	NTU		6.45	3.33	16.85	8.01	5.75
Water Elevation	ft MSL		1535.11	1535.21	1535.07	1533.00	1535.9
<b>Metals</b>							
Aluminum	ug/L	5824.36	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.18</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>27.7</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<0.10	-	-	-
Cobalt	ug/L	80	-	<b>0.59</b>	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	44051.82	<b>47800</b>	<b>42300</b>	<b>36600</b>	<b>893</b>	<b>44800</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	30.14	-	<4.6	-	-	-
Manganese	ug/L	1384.15	<b>990</b>	<b>815</b>	<b>789</b>	<b>50.9</b>	<b>1200</b>
Mercury	ng/L	1.4	< 1.0	<b>1.03</b>	<1.0	< 1.0	<1.0
Molybdenum	ug/L	200	-	<0.20	-	-	-
Nickel	ug/L	80	< 20.0	<b>0.70</b>	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	198.18	<b>154</b>	<b>131</b>	<b>144</b>	<b>119</b>	<b>187</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	<b>2.2</b>	<2.0
Chloride	mg/L	24.46	<b>24</b>	<b>26.0</b>	<b>26.2</b>	< 10.0	<b>32.3</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.040</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.78	< 0.025	<0.004	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.18	< 0.1	<b>0.009</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	45.37	<b>47.4</b>	<b>71.2</b>	<b>72.9</b>	< 1.0	<b>46.3</b>
Sulfide	mg/L	0.49	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	66.63	<b>56.2</b>	<b>50.9</b>	<b>56.6</b>	<b>22.3</b>	<b>68.0</b>
Magnesium	mg/L	14.04	<b>14</b>	<b>14.9</b>	<b>15.5</b>	<b>11.3</b>	<b>18.0</b>
Potassium	mg/L	5.28	<b>2.8</b>	<b>2.8</b>	<b>3.3</b>	<b>2.6</b>	<b>3.5</b>
Sodium	mg/L	43.16	<b>12.5</b>	<b>14.1</b>	<b>17.4</b>	<b>10.4</b>	<b>18.7</b>
<b>General</b>							
Hardness	mg/L	226.12	<b>184</b>	<b>188</b>	<b>205</b>	<b>102</b>	<b>244</b>
		-					
		-					

**Mine Permit Groundwater Quality Monitoring Data  
MW-704 LLA (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.44	1.24	1.29	0.24	1.4
ORP	mV	-	-318.4	-257.1	-320.6	-246.7	-258.1
pH	SU	8.2-9.2	8.58	8.24	8.56	8.09	8.28
Specific Conductance	uS/cm	-	267.6	354.4	317.2	349	253.8
Temperature	C	-	10.13	9.72	8.6	7.1	10.00
Turbidity	NTU	-	22.86	37.12	11.98	15.68	14.22
Water Elevation	ft MSL	-	1534.97	1531.72	1531.95	1533.45	1532.96
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.76</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>47.8</b>	-	-	-
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	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	3308.59	<b>2070</b>	<b>925</b>	<b>771</b>	<b>1190</b>	<b>943</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	28.25	-	<b>13.7</b>	-	-	-
Manganese	ug/L	95.14	< 50.0	<b>101</b>	<50.0	<b>136</b>	<b>72.5</b>
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	<b>0.11</b>	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	152.81	<b>111</b>	<b>157</b>	<b>119</b>	<b>158</b>	<b>110</b>
Alkalinity, Carbonate	mg/L	13.4	< 2.0	<2.0	<2.0	< 2.0	<b>2.6</b>
Chloride	mg/L	40	< 10.0	<b>11.0</b>	<10.0	<b>13.1</b>	<b>10.4</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.083</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.1	< 0.025	<b>0.0295</b>	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<b>0.007</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	20.79	<b>8.3</b>	<b>9.9</b>	<b>7.3</b>	<b>12.2</b>	<b>9.2</b>
Sulfide	mg/L	0.80	< 0.20	<b>0.021</b>	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	33.39	<b>20.6</b>	<b>37.2</b>	<b>24.0</b>	<b>40.7</b>	<b>23.5</b>
Magnesium	mg/L	15.62	<b>13.9</b>	<b>15.6</b>	<b>14.6</b>	<b>17.1</b>	<b>15.1</b>
Potassium	mg/L	12.01	<b>6.8</b>	<b>5.4</b>	<b>6.1</b>	<b>5.7</b>	<b>6.4</b>
Sodium	mg/L	15.49	<b>4.8</b>	<b>4.7</b>	<b>4.6</b>	<b>4.9</b>	<b>4.8</b>
<b>General</b>							
Hardness	mg/L	156.51	<b>252</b>	<b>157</b>	<b>120</b>	<b>172</b>	<b>121</b>
		-					
		-					

**Mine Permit Groundwater Quality Monitoring Data  
MW-704 DBA (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.67	1.19	1.99	0.25	1.68
ORP	mV	-	-251.1	-303.8	-224.5	-263.4	-216.6
pH	SU	8.13-9.13	8.4	8.46	8.46	8.18	8.00
Specific Conductance	uS/cm	-	262.4	266.1	271.9	232.1	246.3
Temperature	C	-	9.06	9.71	8.0	7.3	9.2
Turbidity	NTU	-	122.6	49.88	5.88	80.33	82.93
Water Elevation	ft MSL	-	1529.82	1529.52	1529.94	1529.94	1529.62
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	8.0	-	<0.80	-	-	-
Arsenic	ug/L	20.0	< 5.0	<b>0.34</b>	<5.0	< 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	-	<b>0.15</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	9645	<b>684</b>	<b>865</b>	<b>779</b>	<b>882</b>	<b>930</b>
Lead	ug/L	12.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	40	-	<b>11.7</b>	-	-	-
Manganese	ug/L	58	< 50.0	<1.1	<50.0	<b>50.9</b>	<b>58.6</b>
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	<b>0.14</b>	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	129	<b>132</b>	<b>127</b>	<b>142</b>	<b>119</b>	<b>126</b>
Alkalinity, Carbonate	mg/L	32.0	< 2.0	<2.0	<2.0	<b>2.6</b>	<2.0
Chloride	mg/L	40	< 10.0	<0.72	<10.0	< 10.0	<10.0
Fluoride	mg/L	4.0	< 1.0	<0.032	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.04	< 0.025	<0.004	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<b>0.005</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	6	< 1.0	<0.86	<1.0	< 1.0	<1.0
Sulfide	mg/L	0.80	< 0.20	<b>0.017</b>	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	27.00	<b>21.3</b>	<b>22.4</b>	<b>22.7</b>	<b>22.5</b>	<b>22.8</b>
Magnesium	mg/L	14.00	<b>10.7</b>	<b>11.1</b>	<b>11.4</b>	<b>11.4</b>	<b>11.3</b>
Potassium	mg/L	4.00	<b>2.6</b>	<b>2.5</b>	<b>2.6</b>	<b>2.6</b>	<b>2.6</b>
Sodium	mg/L	14.00	<b>10</b>	<b>10</b>	<b>10.6</b>	<b>10.5</b>	<b>10.6</b>
<b>General</b>							
Hardness	mg/L	111.00	<b>110</b>	<b>102</b>	<b>103</b>	<b>103</b>	<b>104</b>
* - Diver failed 9/6/17, replaced 3/15/1		-	-	-	-	-	-

**Mine Permit Groundwater Quality Monitoring Data  
MW-705 QAL (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.63	1.77	1.48	1.02	0.47
ORP	mV	-	-10.3	-12.1	-30.2	-8.3	-64.4
pH	SU	5.67-6.67	6.14	5.87	6.17	6.51	6.29
Specific Conductance	uS/cm	-	198.6	378.6	370.8	276.7	369.8
Temperature	C	-	5.61	11.88	7.8	4.2	8.9
Turbidity	NTU	-	2.46	2.18	1.11	2.01	2.3
Water Elevation	ft MSL	-	1536.47	1535.61	1535.96	1536.78	1537.96
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<0.10	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>32.0</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.35</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<b>0.44</b>	<4.0	< 4.0	<4.0
Iron	ug/L	12956.53	<b>4870</b>	<b>10300</b>	<b>9710</b>	<b>10100</b>	<b>13600</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	40	-	<4.6	-	-	-
Manganese	ug/L	1535.09	<b>523</b>	<55.0	<b>&lt;2500</b>	<b>1000</b>	<b>1470</b>
Mercury	ng/L	1.8	<b>1.04</b>	<1.0	<b>1.09</b>	< 1.0	<1.0
Molybdenum	ug/L	200	-	<b>0.24</b>	-	-	-
Nickel	ug/L	80	< 20.0	<0.10	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	85.4	<b>46</b>	<b>40.0</b>	<b>48.7</b>	<b>68.8</b>	<b>31.1</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	51.62	<b>20.6</b>	<b>65.0</b>	<b>63.8</b>	<b>52.8</b>	<b>72.1</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.063</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.132	<b>0.0735</b>	<b>0.148</b>	<b>0.118</b>	<b>0.138</b>	<b>0.189</b>
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<b>0.006</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	21.2	<b>7.6</b>	<b>2.9</b>	<b>2.7</b>	<b>6.1</b>	<b>23.8</b>
Sulfide	mg/L	0.80	< 0.20	<b>0.023</b>	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	23.88	<b>11.9</b>	<b>19.5</b>	<b>18.2</b>	<b>17.5</b>	<b>22.7</b>
Magnesium	mg/L	10.91	<b>5.4</b>	<b>8.5</b>	<b>8.3</b>	<b>8.0</b>	<b>9.6</b>
Potassium	mg/L	3.03	<b>1.9</b>	<b>2.8</b>	<b>2.6</b>	<b>2.8</b>	<b>2.7</b>
Sodium	mg/L	16.56	<b>12.2</b>	<b>17.6</b>	<b>18.7</b>	<b>16.4</b>	<b>25.1</b>
<b>General</b>							
Hardness	mg/L	109.66	<b>54</b>	<b>83.5</b>	<b>79.8</b>	<b>76.6</b>	<b>96.5</b>
		-	-	-	-	-	-

**Mine Permit Groundwater Quality Monitoring Data  
MW-705 UFB (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	0.62	1.32	1.40	0.77	0.29
ORP	mV	-	-145.5	-127.6	-95.1	-70.2	-179.9
pH	SU	6.59-7.59	7.01	6.88	7.04	7.19	7.2
Specific Conductance	uS/cm	-	337.8	344.8	366.0	303.4	287.0
Temperature	C	-	10.21	10.92	6.44	6.1	9.1
Turbidity	NTU	-	6.42	2.85	9.77	20.17	5.35
Water Elevation	ft MSL	-	1536.76	1535.34	1537.91	1536.82	1540.24
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<b>0.39</b>	<5.0	< 5.0	<5.0
Barium	ug/L	400	-	<0.10	-	-	-
Beryllium	ug/L	2.5	-	<0.10	-	-	-
Boron	ug/L	1200	-	<b>30.5</b>	-	-	-
Cadmium	ug/L	3.0	-	<0.10	-	-	-
Chromium	ug/L	40	-	<b>0.62</b>	-	-	-
Cobalt	ug/L	80	-	<0.40	-	-	-
Copper	ug/L	16	< 4.0	<b>0.74</b>	<4.0	< 4.0	<4.0
Iron	ug/L	13309.31	<b>9340</b>	<b>12100</b>	<b>7310</b>	<b>7740</b>	<b>10400</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	13.19	-	<4.6	-	-	-
Manganese	ug/L	972.64	<b>955</b>	<b>936</b>	<b>875</b>	<b>1060</b>	<b>989</b>
Mercury	ng/L	4.0	< 1.0	<1.0	<1.0	< 1.0	<1.0
Molybdenum	ug/L	200	-	<b>0.45</b>	-	-	-
Nickel	ug/L	80	< 20.0	<b>0.76</b>	<20.0	< 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	<1.7	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	117.78	<b>84.2</b>	<b>79.6</b>	<b>88.3</b>	<b>77.3</b>	<b>90.3</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	35.98	<b>32.3</b>	<b>36.1</b>	<b>35.4</b>	<b>36.2</b>	<b>33.0</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.079</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.1	< 0.025	<0.004	< 0.025	< 0.025	0.030
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<0.0037	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	14.23	<b>3.9</b>	<b>2.5</b>	<b>3.8</b>	<b>2.4</b>	<b>3.3</b>
Sulfide	mg/L	0.80	< 0.20	<0.011	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	26.00	<b>24.7</b>	<b>27.4</b>	<b>26.5</b>	<b>25.9</b>	<b>26.6</b>
Magnesium	mg/L	13.29	<b>12.6</b>	<b>13.7</b>	<b>13.3</b>	<b>13.3</b>	<b>14.2</b>
Potassium	mg/L	4.01	<b>3.1</b>	<b>3.5</b>	<b>3.8</b>	<b>3.8</b>	<b>3.3</b>
Sodium	mg/L	3.37	<b>2.7</b>	<b>2.9</b>	<b>3.2</b>	<b>3.2</b>	<b>3.0</b>
<b>General</b>							
Hardness	mg/L	127.17	<b>120</b>	<b>125</b>	<b>121</b>	<b>119</b>	<b>125</b>
		-					
		-					

**Mine Permit Groundwater Quality Monitoring Data  
MW-706 QAL (Monitoring)**

Parameter	Unit	Recommended					
		Benchmark 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	1.81	2.61	1.72	1.92	0.5
ORP	mV	-	75.5	66.3	75.3	68.6	79.8
pH	SU	5.74-6.74	5.93	5.75	5.88	5.95	5.80
Specific Conductance	uS/cm	-	1002.1	863.4	838.5	874.1	831.3
Temperature	C	-	9.21	9.47	7.9	8.1	9.5
Turbidity	NTU	-	2.52	3.5	3.01	4.17	3.43
Water Elevation	ft MSL	-	1558.81	1559.33	1561.11	1561.82	1566.96
<b>Metals</b>							
Aluminum	ug/L	200	-	<31.0	-	-	-
Antimony	ug/L	4.0	-	<0.80	-	-	-
Arsenic	ug/L	7.5	< 5.0	<0.10	<5.0	< 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	-	<b>0.26</b>	-	-	-
Cobalt	ug/L	31.38	-	<b>22.6</b>	-	-	-
Copper	ug/L	16	< 4.0	<0.20	<4.0	< 4.0	<4.0
Iron	ug/L	8029.11	<b>3410</b>	<b>2970</b>	<b>2990</b>	<b>2760</b>	<b>3280</b>
Lead	ug/L	9.0	< 3.0	<0.10	<3.0	< 3.0	<3.0
Lithium	ug/L	17.21	-	<4.6	-	-	-
Manganese	ug/L	23484.14	<b>13600</b>	<b>14100</b>	<b>&lt;25000</b>	<b>11600</b>	<b>11000</b>
Mercury	ng/L	4.0	< 1.0	<1.0	<1.0	< 1.0	<1.0
Molybdenum	ug/L	200	-	<b>0.57</b>	-	-	-
Nickel	ug/L	27.04	< 20.0	<0.10	<20.0	< 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	<b>5.6</b>	<10.0	< 10.0	<10.0
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	131.77	<b>75.8</b>	<b>70.6</b>	<b>73.6</b>	<b>73.0</b>	<b>78.5</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	165.11	<b>117</b>	<b>105</b>	<b>100</b>	<b>123</b>	<b>118</b>
Fluoride	mg/L	2.5	< 1.0	<b>0.041</b>	<1.0	< 1.0	<1.0
Nitrogen, Ammonia	mg/L	0.88	<b>0.412</b>	<b>0.426</b>	<b>0.370</b>	<b>0.391</b>	<b>0.512</b>
Nitrogen, Nitrate	mg/L	0.4	< 0.1	<0.0089	< 0.10	< 0.10	< 0.10
Nitrogen, Nitrite	mg/L	0.4	< 0.1	<0.0037	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	433.53	<b>192</b>	<b>179</b>	<b>175</b>	<b>189</b>	<b>176</b>
Sulfide	mg/L	0.80	< 0.20	<0.011	<0.40	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	132.61	<b>75.8</b>	<b>69.3</b>	<b>67.9</b>	<b>68.4</b>	<b>60.8</b>
Magnesium	mg/L	43.54	<b>28.9</b>	<b>27.3</b>	<b>26.4</b>	<b>27.2</b>	<b>24.6</b>
Potassium	mg/L	5.64	<b>4.5</b>	<b>4.3</b>	<b>4.6</b>	<b>4.6</b>	<b>4.0</b>
Sodium	mg/L	139.93	<b>44.4</b>	<b>42.0</b>	<b>42.3</b>	<b>44.9</b>	<b>42.7</b>
<b>General</b>							
Hardness	mg/L	619.10	<b>168</b>	<b>285</b>	<b>278</b>	<b>283</b>	<b>253</b>
		-					
		-					



**Mine Permit Groundwater Quality Monitoring Data  
MER-001 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018					
		Q2	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	8.52	7.62	12.01	10.55	8.85
ORP	mV	-	230.6	143.7	93.6	239.2	173.4
pH	SU	5.7-6.7	6.66	6.78	7.60	6.87	6.72
Specific Conductance	uS/cm	-	71.9	114.3	100.0	76	87.4
Temperature	C	-	14.39	17.3	0.05	-0.04	11.01
Turbidity	NTU	-	1.2	5.26	1.54	1.88	2.35
Flow	cfs	-	-	-	-	-	-
<b>Metals</b>							
Aluminum	ug/L	-	-	60.5	-	-	-
Antimony	ug/L	-	-	<0.80	-	-	-
Arsenic	ug/L	3.6	< 1.0	1.5	<1.0	< 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	0.73	-	-	0.56	0.59
Iron	ug/L	2412.94	1070	1640	911	881	823
Lead	ug/L	0.21	0.136	-	-	0.122	0.123
Lithium	ug/L	-	-	<4.6	-	-	-
Manganese	ug/L	148.6	1900	90.2	40.4	51.4	74.9
Mercury	ng/L	5.77	3.62	-	3.04	2.70	1.73
Molybdenum	ug/L	-	-	0.23	-	-	-
Nickel	ug/L	1.06	0.7	-	0.62	0.45	0.63
Selenium	ug/L	-	-	-	-	-	-
Silver	ug/L	-	-	<0.10	-	-	-
Thallium	ug/L	-	-	<0.040	-	-	-
Vanadium	ug/L	-	-	<1.4	-	-	-
Zinc	ug/L	39.22	2.4	-	2.62	2.59	2.43
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	41.42	20.2	23.5	14.7	13.2	15.0
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	12.77	4.9	7.2	4.0	2.3	5.4
Fluoride	mg/L	0.4	< 0.10	0.085	<0.10	< 0.10	<0.10
Nitrogen, Ammonia	mg/L	2.0	<0.025	<0.025	<0.025	<0.025	<0.025
Nitrogen, Nitrate	mg/L	0.17	< 0.1	0.044	< 0.10	0.273	< 0.10
Nitrogen, Nitrite	mg/L	2.0	< 0.1	<0.0037	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	9.0	< 1.0	<1.7	<2.0	2.4	3.3
Sulfide	mg/L	20	< 0.20	0.017	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	14.48	6.1	8.3	5.5	5.3	5.9
Magnesium	mg/L	3.84	1.9	2.2	1.6	1.6	1.8
Potassium	mg/L	0.93	0.68	0.74	0.50	0.78	0.50
Sodium	mg/L	6.67	3	4.1	2.4	1.7	3.3
<b>General</b>							
Hardness	mg/L	50.95	26	29.9	20.5	19.6	22.3
Total Dissolved Solids	mg/L	105.74	116	110	<50.0	37	27
Total Suspended Solids	mg/L	3.35	< 3.3	3.6	<3.3	< 5.0	<5.0

Mine Permit Groundwater Quality Monitoring Data  
MER-002 (Monitoring)

Parameter	Unit	Recommended Benchmark					
		2018 Q2	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	8.4	7.65	12.06	11.02	8.88
ORP	mV	-	147.1	172.1	259.7	265.6	172.1
pH	SU	5.7-6.7	6.67	7.11	6.00	6.93	6.58
Specific Conductance	uS/cm	-	90.7	132.7	64.9	95.3	84.7
Temperature	C	-	14.29	16.3	0.07	-0.06	10.86
Turbidity	NTU	-	1.83	5.39	1.34	2.21	1.86
Flow	cfs	-	-	-	-	-	85.2
<b>Metals</b>							
Aluminum	ug/L	-	-	62.8	-	-	-
Antimony	ug/L	-	-	<0.80	-	-	-
Arsenic	ug/L	2.82	1.3	1.8	<1.0	<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	0.66	-	0.55	0.6	0.61
Iron	ug/L	3080.87	1300	2030	998	1060	1160
Lead	ug/L	0.34	0.133	-	0.139	0.136	0.142
Lithium	ug/L	-	-	<4.6	-	-	-
Manganese	ug/L	211.73	125	138	59.6	68.4	115
Mercury	ng/L	5.12	3.33	-	2.96	3.42	1.34
Molybdenum	ug/L	-	-	0.29	-	-	-
Nickel	ug/L	1.16	0.7	-	0.68	0.53	0.81
Selenium	ug/L	-	-	-	-	-	-
Silver	ug/L	-	-	<0.10	-	-	-
Thallium	ug/L	-	-	<0.040	-	-	-
Vanadium	ug/L	-	-	<1.4	-	-	-
Zinc	ug/L	6.33	1.96	-	2.71	2.71	2.73
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	45.83	22.9	25.0	16.2	14.8	16.0
Alkalinity, Carbonate	mg/L	8.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	14.13	6.5	6.6	4.9	5.7	5.7
Fluoride	mg/L	0.4	<0.10	0.11	<0.10	<0.10	<0.10
Nitrogen, Ammonia	mg/L	2.0	<0.025	<0.025	<0.025	<0.025	<0.025
Nitrogen, Nitrate	mg/L	0.52	<0.10	0.034	<0.10	0.27	<0.10
Nitrogen, Nitrite	mg/L	2.0	<0.10	0.004	<0.10	<0.10	<0.10
Sulfate	mg/L	13.82	3.3	6.0	<1.0	3.7	4.7
Sulfide	mg/L	20	<0.20	0.016	<0.20	<0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	16.83	7.3	8.5	6.0	6.0	6.5
Magnesium	mg/L	4.59	2.3	2.4	1.7	1.8	2.0
Potassium	mg/L	1.25	0.77	0.83	0.56	0.83	0.60
Sodium	mg/L	8.52	4.2	5.8	3.2	3.4	3.9
<b>General</b>							
Hardness	mg/L	60.32	26	31	22.1	22.6	24.6
Total Dissolved Solids	mg/L	210.48	120	113	<50.0	45	32
Total Suspended Solids	mg/L	5.57	<3.3	3.7	<3.3	<5.0	<5.0

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**Mine Permit Groundwater Quality Monitoring Data  
MER-003 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018					
		Q2	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	8.36	7.6	12.34	11.75	8.88
ORP	mV	-	114.8	134.6	89.7	254.9	175.7
pH	SU	5.6-6.6	6.78	<b>7.22</b>	<b>7.35</b>	<b>7.24</b>	<b>6.99</b>
Specific Conductance	uS/cm	-	121.3	152.1	130.3	104.3	96.0
Temperature	C	-	13.15	16.4	0.26	0.37	11.67
Turbidity	NTU	-	2.55	5.24	1.87	4.33	45.33
Flow	cfs	-	-	-	-	-	-
<b>Metals</b>							
Aluminum	ug/L	-	-	<b>68.5</b>	-	-	-
Antimony	ug/L	-	-	<0.80	-	-	-
Arsenic	ug/L	2.56	<b>1.3</b>	<b>1.7</b>	<1.0	< 1.0	<1.0
Barium	ug/L	-	-	<b>9.8</b>	-	-	-
Beryllium	ug/L	-	-	<0.10	-	-	-
Boron	ug/L	-	-	<b>26.1</b>	-	-	-
Cadmium	ug/L	-	-	-	-	-	-
Chromium	ug/L	-	-	<b>0.31</b>	-	-	-
Cobalt	ug/L	-	-	-	-	-	-
Copper	ug/L	2.85	<b>0.66</b>	-	<b>0.55</b>	<b>0.58</b>	<b>0.72</b>
Iron	ug/L	3007.1	<b>1450</b>	<b>2020</b>	<b>1070</b>	<b>1150</b>	<b>1130</b>
Lead	ug/L	0.35	<b>0.151</b>	-	<b>0.134</b>	<b>0.135</b>	<b>0.137</b>
Lithium	ug/L	-	-	<4.6	-	-	-
Manganese	ug/L	223.25	<b>137</b>	<b>138</b>	<b>70.4</b>	<b>71.1</b>	<b>123</b>
Mercury	ng/L	5.23	<b>3.79</b>	-	<b>2.54</b>	<b>2.47</b>	<b>1.55</b>
Molybdenum	ug/L	-	-	<b>0.29</b>	-	-	-
Nickel	ug/L	1.53	<b>1.18</b>	-	<b>0.82</b>	<b>0.69</b>	<b>0.98</b>
Selenium	ug/L	-	-	-	-	-	-
Silver	ug/L	-	-	<0.10	-	-	-
Thallium	ug/L	-	-	<0.040	-	-	-
Vanadium	ug/L	-	-	<1.4	-	-	-
Zinc	ug/L	7.49	<b>2.2</b>	-	<b>2.35</b>	<b>2.76</b>	<b>3.3</b>
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	49.72	<b>24.9</b>	<b>105</b>	<b>17.8</b>	<b>15.2</b>	<b>17.8</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	15.25	<b>8.7</b>	<b>8.6</b>	<b>6.9</b>	<b>6.2</b>	<b>8.2</b>
Fluoride	mg/L	0.2	< 0.10	<b>0.11</b>	<0.10	< 0.10	<0.10
Nitrogen, Ammonia	mg/L	2.0	< 0.025	<0.004	<b>0.0286</b>	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.18	< 0.10	<b>0.032</b>	< 0.10	<b>0.259</b>	< 0.10
Nitrogen, Nitrite	mg/L	2.0	< 0.10	<b>0.004</b>	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	16.73	<b>7.9</b>	<b>8.0</b>	<b>8.4</b>	<b>5.8</b>	<b>13.3</b>
Sulfide	mg/L	20	< 0.20	<b>0.019</b>	<0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	16.98	<b>7.5</b>	<b>8.5</b>	<b>6.3</b>	<b>6.2</b>	<b>6.6</b>
Magnesium	mg/L	4.68	<b>2.5</b>	<b>2.5</b>	<b>1.9</b>	<b>1.9</b>	<b>2.2</b>
Potassium	mg/L	1.31	<b>0.88</b>	<b>0.90</b>	<b>0.63</b>	<b>0.87</b>	<b>0.73</b>
Sodium	mg/L	8.76	<b>7</b>	<b>7.3</b>	<b>6.7</b>	<b>4.9</b>	<b>9.2</b>
<b>General</b>							
Hardness	mg/L	62.63	<b>22</b>	<b>31.3</b>	<b>23.3</b>	<b>23.4</b>	<b>25.5</b>
Total Dissolved Solids	mg/L	133.98	<b>86</b>	<83.3	<b>70.0</b>	<b>48</b>	<b>47</b>
Total Suspended Solids	mg/L	4.01	< 3.3	<b>3.7</b>	<3.3	< 5.0	<5.0

**Mine Permit Groundwater Quality Monitoring Data  
WBR-001 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018					
		Q2	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	6.96	6.4	10.39	NM	7.14
ORP	mV	-	230.9	205.1	315.9	NM	254.7
pH	SU	4.7-5.7	5.49	6.42	5.29	NM	5.29
Specific Conductance	uS/cm	-	103.2	91.7	72.6	NM	60.0
Temperature	C	-	18.91	17.1	0.206	NM	12.4
Turbidity	NTU	-	0.38	1.67	1.55	NM	0.77
Flow	cfs	-	-	-	-	-	-
<b>Metals</b>							
Aluminum	ug/L	-	-	<b>239</b>	-	NM	-
Antimony	ug/L	-	-	<0.80	-	NM	-
Arsenic	ug/L	6.6	<b>1.4</b>	<b>1.6</b>	<1.0	NM	<b>1.2</b>
Barium	ug/L	-	-	<b>10</b>	-	NM	-
Beryllium	ug/L	-	-	<0.10	-	NM	-
Boron	ug/L	-	-	<b>6.0</b>	-	NM	-
Cadmium	ug/L	-	-	-	-	NM	-
Chromium	ug/L	-	-	<b>0.67</b>	-	NM	-
Cobalt	ug/L	-	-	-	-	NM	-
Copper	ug/L	3.28	<b>0.77</b>	-	<b>1.13</b>	NM	<b>0.82</b>
Iron	ug/L	11517.57	<b>1320</b>	<b>2010</b>	<b>1610</b>	NM	<b>1220</b>
Lead	ug/L	4.31	<b>0.8</b>	-	<b>0.702</b>	NM	<b>0.666</b>
Lithium	ug/L	-	-	<4.6	-	NM	-
Manganese	ug/L	363.23	<b>135</b>	<b>94.7</b>	<b>111</b>	NM	<b>73.6</b>
Mercury	ng/L	15.32	<b>7.11</b>	-	<b>5.23</b>	NM	<1.3
Molybdenum	ug/L	-	-	<0.20	-	NM	-
Nickel	ug/L	3.08	<b>0.93</b>	-	<b>0.65</b>	NM	<b>0.79</b>
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	<b>5.93</b>	-	<b>5.38</b>	NM	<b>8.08</b>
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	9.12	<b>5.5</b>	<b>7.0</b>	<b>4.0</b>	NM	<2.0
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	NM	<2.0
Chloride	mg/L	24.46	<b>21.5</b>	<b>9.2</b>	<b>14.5</b>	NM	<b>25.3</b>
Fluoride	mg/L	0.4	< 0.10	<b>0.082</b>	<0.10	NM	<0.10
Nitrogen, Ammonia	mg/L	2.0	< 0.025	<0.004	<b>0.031</b>	NM	< 0.025
Nitrogen, Nitrate	mg/L	0.24	< 0.10	<b>0.016</b>	< 0.10	NM	< 0.10
Nitrogen, Nitrite	mg/L	2.0	< 0.10	<b>0.006</b>	< 0.10	NM	< 0.10
Sulfate	mg/L	11.08	< 2.0	<4.3	<5.0	NM	<b>2.6</b>
Sulfide	mg/L	20	< 0.2	<0.011	<0.20	NM	<0.20
<b>Major Cations</b>							
Calcium	mg/L	7.55	<b>3.7</b>	<b>4.4</b>	<b>3.7</b>	NM	<b>2.7</b>
Magnesium	mg/L	3.02	<b>1.6</b>	<b>1.7</b>	<b>1.4</b>	NM	<b>1.1</b>
Potassium	mg/L	2.65	<b>0.86</b>	<b>0.62</b>	<b>0.65</b>	NM	<b>0.63</b>
Sodium	mg/L	10.69	<b>9.7</b>	<b>4.5</b>	<b>6.8</b>	NM	<b>7.8</b>
<b>General</b>							
Hardness	mg/L	37.48	<b>12</b>	<b>17.9</b>	<b>15.1</b>	NM	<b>11.2</b>
Total Dissolved Solids	mg/L	210.94	<b>86</b>	<b>103</b>	<b>60.0</b>	NM	<b>49</b>
Total Suspended Solids	mg/L	55.41	<b>20.4</b>	<b>3.2</b>	<3.3	NM	<5.0

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

**Mine Permit Groundwater Quality Monitoring Data  
WBR-002 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018					
		Q2	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	8.53	7.14	10.2	6.78	6.68
ORP	mV	-	236.4	225.5	264.1	51.2	167.5
pH	SU	6.04-6.94	6.44	6.35	5.80	6.45	6.03
Specific Conductance	uS/cm	-	146.1	202.9	152.9	247.6	105.7
Temperature	C	-	20.34	19.2	1.98	0.79	12.8
Turbidity	NTU	-	56.1	29.1	62.2	19.65	8.24
Flow	cfs	-	-	-	-	-	0.28
<b>Metals</b>							
Aluminum	ug/L	-	-	<31.0	-	-	-
Antimony	ug/L	-	-	<0.80	-	-	-
Arsenic	ug/L	7.13	3.2	2.7	1.7	7.5	1.9
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	3.07	0.482	1.13	0.6	1.22
Iron	ug/L	16420.56	6380	6930	3980	21800	2570
Lead	ug/L	0.44	1.1	0.241	0.201	0.207	0.092
Lithium	ug/L	-	-	<4.6	-	-	-
Manganese	ug/L	1549.89	271	188	106	989	96.6
Mercury	ng/L	4.5	5.72	0.99	2.35	1.43	<1.3
Molybdenum	ug/L	-	-	0.35	-	-	-
Nickel	ug/L	3.27	3.21	1.43	2.95	2.03	1.36
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	9.7	0.45	2.9	2.67	3.37
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	105.3	16.4	28	16.2	30.9	11.8
Alkalinity, Carbonate	mg/L	8.0	< 2.0	<2.0	<2.0	< 2.0	<2.0
Chloride	mg/L	59.63	28.1	35.5	31.5	38.3	25.3
Fluoride	mg/L	0.29	< 0.10	0.096	< 0.10	< 0.10	<0.10
Nitrogen, Ammonia	mg/L	2.0	0.0353	0.0046	0.0287	0.19	<0.025
Nitrogen, Nitrate	mg/L	2.0	< 0.10	<0.0089	< 0.10	<0.050	<0.10
Nitrogen, Nitrite	mg/L	2.0	< 0.10	0.007	< 0.10	0.01	<0.10
Sulfate	mg/L	10.32	< 1.0	<0.86	<5.0	2.2	2.6
Sulfide	mg/L	20	< 0.20	0.018	< 0.20	< 0.20	<0.20
<b>Major Cations</b>							
Calcium	mg/L	12.96	5.4	8.3	6.4	9.1	4.9
Magnesium	mg/L	5.87	2.9	4	2.9	4.4	2.3
Potassium	mg/L	2.57	2.1	1.2	1.4	1.8	1.4
Sodium	mg/L	27.52	14.6	17.9	16.3	20.0	16.0
<b>General</b>							
Hardness	mg/L	57.46	26	37.3	28.1	41	21.6
Total Dissolved Solids	mg/L	169.66	106	127	90	140	67
Total Suspended Solids	mg/L	12.9	12.2	4.4	3.7	43	<5.0

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

**Mine Permit Groundwater Quality Monitoring Data  
WBR-003 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2018					
		Q2	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm	-	4.39	3.46	6.9	NM	4.05
ORP	mV	-	188.2	56.1	284.2	NM	149.5
pH	SU	5.8-6.8	6.26	6.6	5.87	NM	6.19
Specific Conductance	uS/m	-	126.0	199.0	137.4	NM	119.0
Temperature	C	-	16.75	17.1	0.06	NM	13.0
Turbidity	NTU	-	10.44	53.7	6.79	NM	6.67
Flow	cfs	-	-	-	-	-	-
<b>Metals</b>							
Aluminum	ug/L	-	-	<b>34.0</b>	-	NM	-
Antimony	ug/L	-	-	<0.80	-	NM	-
Arsenic	ug/L	4.04	<b>2.0</b>	<b>4.8</b>	<1.0	NM	<b>1.8</b>
Barium	ug/L	-	-	<b>19.2</b>	-	NM	-
Beryllium	ug/L	-	-	<0.10	-	NM	-
Boron	ug/L	-	-	13.9	-	NM	-
Cadmium	ug/L	-	-	<0.012	-	NM	-
Chromium	ug/L	-	-	<b>0.27</b>	-	NM	-
Cobalt	ug/L	-	-	<b>1.05</b>	-	NM	-
Copper	ug/L	0.67	<b>0.63</b>	<b>0.231</b>	<b>0.73</b>	NM	<b>0.66</b>
Iron	ug/L	12988.41	<b>4430</b>	<b>13400</b>	<b>2780</b>	NM	<b>3100</b>
Lead	ug/L	0.4	<b>0.173</b>	<b>0.105</b>	<b>0.151</b>	NM	<b>0.101</b>
Lithium	ug/L	-	-	<4.6	-	NM	-
Manganese	ug/L	2260.79	<b>324</b>	<b>1030</b>	<b>44.8</b>	NM	-
Mercury	ng/L	6.12	<b>3.38</b>	<b>1.80</b>	<b>1.25</b>	NM	-
Molybdenum	ug/L	-	-	<b>0.22</b>	-	NM	-
Nickel	ug/L	3.5	<b>1.49</b>	<b>1.12</b>	<b>1.09</b>	NM	<b>1.48</b>
Selenium	ug/L	-	-	<b>0.106</b>	-	NM	-
Silver	ug/L	-	-	<0.10	-	NM	-
Thallium	ug/L	-	-	<0.040	-	NM	-
Vanadium	ug/L	-	-	<1.4	-	NM	-
Zinc	ug/L	16.92	<b>2.65</b>	<b>2.39</b>	<b>2.16</b>	NM	<b>2.36</b>
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	51.3	<b>27.9</b>	<b>44.7</b>	<b>17.2</b>	NM	<b>25.0</b>
Alkalinity, Carbonate	mg/L	8.0	< 2.0	< 2.0	< 2.0	NM	<2.0
Chloride	mg/L	43.43	<b>16.2</b>	<b>21.8</b>	<b>25.5</b>	NM	<b>20.1</b>
Fluoride	mg/L	0.3	<b>0.13</b>	<b>0.095</b>	<0.10	NM	<0.10
Nitrogen, Ammonia	mg/L	2.0	<b>0.0585</b>	<b>0.0332</b>	<b>0.0258</b>	NM	<0.025
Nitrogen, Nitrate	mg/L	0.26	< 0.10	<0.0089	< 0.10	NM	< 0.10
Nitrogen, Nitrite	mg/L	2.0	< 0.10	<b>0.006</b>	< 0.10	NM	< 0.10
Sulfate	mg/L	17.39	< 1.0	<4.3	< 1.0	NM	<b>1.8</b>
Sulfide	mg/L	20	< 0.20	<b>0.021</b>	< 0.20	NM	<0.20
<b>Major Cations</b>							
Calcium	mg/L	15.23	<b>7.2</b>	<b>11.4</b>	<b>6.2</b>	NM	<b>7.2</b>
Magnesium	mg/L	6.08	<b>3.3</b>	<b>4.5</b>	<b>2.9</b>	NM	<b>3.2</b>
Potassium	mg/L	2.22	<b>1.3</b>	<b>1.4</b>	<b>1.1</b>	NM	<b>1.1</b>
Sodium	mg/L	19.88	<b>8</b>	<b>11.3</b>	<b>13.4</b>	NM	<b>12.9</b>
<b>General</b>							
Hardness	mg/L	64.17	<b>24</b>	<b>47.1</b>	<b>27.6</b>	NM	<b>31.3</b>
Total Dissolved Solids	mg/L	177.46	<b>130</b>	<b>153</b>	<b>72</b>	NM	<b>59</b>
Total Suspended Solids	mg/L	18.78	<b>8.3</b>	<b>26.8</b>	<3.3	NM	<5.0

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

**Mine Permit Groundwater Quality Monitoring Data  
WBR-003 (Monitoring)**

Parameter	Unit	Recommended						
		Benchmark 2014	Q1 2018	2 20:	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>								
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		-	-	-	-
<b>Metals</b>								
Aluminum	ug/L	200 (p)	NM		NM	NM	NM	NM
Antimony	ug/L	2.3	NM		NM	NM	NM	NM
Arsenic	ug/L	35	NM		NM	NM	NM	NM
Barium	ug/L	118	NM		NM	NM	NM	NM
Beryllium	ug/L	4.0 (p)	NM		NM	NM	NM	NM
Boron	ug/L	36	NM		NM	NM	NM	NM
Cadmium	ug/L	0.1	NM		NM	NM	NM	NM
Chromium	ug/L	14	NM		NM	NM	NM	NM
Cobalt	ug/L	3	NM		NM	NM	NM	NM
Copper	ug/L	11	NM		NM	NM	NM	NM
Iron	ug/L	73,409	NM		NM	NM	NM	NM
Lead	ug/L	2.1	NM		NM	NM	NM	NM
Lithium	ug/L	16	NM		NM	NM	NM	NM
Manganese	ug/L	2541	NM		NM	NM	NM	NM
Mercury	ng/L	43	NM		NM	NM	NM	NM
Molybdenum	ug/L	4.7	NM		NM	NM	NM	NM
Nickel	ug/L	5.6	NM		NM	NM	NM	NM
Selenium	ug/L	0.44	NM		NM	NM	NM	NM
Silver	ug/L	0.35	NM		NM	NM	NM	NM
Thallium	ug/L	4.0 (p)	NM		NM	NM	NM	NM
Vanadium	ug/L	39	NM		NM	NM	NM	NM
Zinc	ug/L	44	NM		NM	NM	NM	NM
<b>Major Anions</b>								
Alkalinity, Bicarbonate	mg/L	68	NM		NM	NM	NM	NM
Alkalinity, Carbonate	mg/L	8.0 (p)	NM		NM	NM	NM	NM
Chloride	mg/L	68	NM		NM	NM	NM	NM
Fluoride	mg/L	0.23	NM		NM	NM	NM	NM
Nitrogen, Ammonia	mg/L	1.9	NM		NM	NM	NM	NM
Nitrogen, Nitrate	mg/L	2.0 (p)	NM		NM	NM	NM	NM
Nitrogen, Nitrite	mg/L	2.0 (p)	NM		NM	NM	NM	NM
Sulfate	mg/L	4.0 (p)	NM		NM	NM	NM	NM
Sulfide	mg/L	20 (p)	NM		NM	NM	NM	NM
<b>Major Cations</b>								
Calcium	mg/L	21	NM		NM	NM	NM	NM
Magnesium	mg/L	8.1	NM		NM	NM	NM	NM
Potassium	mg/L	3.3	NM		NM	NM	NM	NM
Sodium	mg/L	49	NM		NM	NM	NM	NM
<b>General</b>								
Hardness	mg/L	88	NM		NM	NM	NM	NM
Total Dissolved Solids	mg/L	209	NM		NM	NM	NM	NM
Total Suspended Solids	mg/L	353	NM		NM	NM	NM	NM

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**WBR-003 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
<b>Field</b>							
D.O.	ppm		NM	NM	NM	NM	5.84
ORP	mV		NM	NM	NM	NM	324.1
pH	SU	6.6-7.6	NM	NM	NM	NM	6.78
Specific Conductance	uS/m		NM	NM	NM	NM	654.95
Temperature	C		NM	NM	NM	NM	11.24
Turbidity	NTU		NM	NM	NM	NM	2.97
Flow	cfs		-	-	-	-	-
<b>Metals</b>							
Aluminum	ug/L	-	NM	NM	NM	NM	-
Antimony	ug/L	-	NM	NM	NM	NM	-
Arsenic	ug/L	6.0	NM	NM	NM	NM	<1.0
Barium	ug/L	-	NM	NM	NM	NM	-
Beryllium	ug/L	-	NM	NM	NM	NM	-
Boron	ug/L	-	NM	NM	NM	NM	-
Cadmium	ug/L	-	NM	NM	NM	NM	-
Chromium	ug/L	-	NM	NM	NM	NM	-
Cobalt	ug/L	-	NM	NM	NM	NM	-
Copper	ug/L	1300	NM	NM	NM	NM	<b>1.77</b>
Iron	ug/L	1758.94	NM	NM	NM	NM	<b>859.0</b>
Lead	ug/L	6.36	NM	NM	NM	NM	<b>0.131</b>
Lithium	ug/L	-	NM	NM	NM	NM	-
Manganese	ug/L	855.5	NM	NM	NM	NM	<b>26.8</b>
Mercury	ng/L	1.24	NM	NM	NM	NM	<b>1.63</b>
Molybdenum	ug/L	-	NM	NM	NM	NM	-
Nickel	ug/L	172.08	NM	NM	NM	NM	<b>3.13</b>
Selenium	ug/L	-	NM	NM	NM	NM	-
Silver	ug/L	-	NM	NM	NM	NM	-
Thallium	ug/L	-	NM	NM	NM	NM	-
Vanadium	ug/L	-	NM	NM	NM	NM	-
Zinc	ug/L	64.27	NM	NM	NM	NM	<b>2.88</b>
<b>Major Anions</b>							
Alkalinity, Bicarbonate	mg/L	100.8	NM	NM	NM	NM	<b>21.3</b>
Alkalinity, Carbonate	mg/L	8	NM	NM	NM	NM	<2.0
Chloride	mg/L	37.3	NM	NM	NM	NM	<b>6.0</b>
Fluoride	mg/L	2.73	NM	NM	NM	NM	<0.10
Nitrogen, Ammonia	mg/L	2	NM	NM	NM	NM	<0.025
Nitrogen, Nitrate	mg/L	0.16	NM	NM	NM	NM	<0.10
Nitrogen, Nitrite	mg/L	2	NM	NM	NM	NM	<0.10
Sulfate	mg/L	207.45	NM	NM	NM	NM	<b>5.5</b>
Sulfide	mg/L	20	NM	NM	NM	NM	<0.20
<b>Major Cations</b>							
Calcium	mg/L	77.48	NM	NM	NM	NM	<b>6.7</b>
Magnesium	mg/L	66.48	NM	NM	NM	NM	<b>2.2</b>
Potassium	mg/L	86.72	NM	NM	NM	NM	<b>0.7</b>
Sodium	mg/L	37.45	NM	NM	NM	NM	<b>4.1</b>
<b>General</b>							
Hardness	mg/L	342.27	NM	NM	NM	NM	<b>25.8</b>
Total Dissolved Solids	mg/L	529.47	NM	NM	NM	NM	<b>27.0</b>
Total Suspended Solids	mg/L	13.20	NM	NM	NM	NM	<5.0