

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**

**HW-1L (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.45	2.76	1.76
ORP	mV	-	-232	-31.8	-192.6
pH	SU	9.0-10.0	<b>8.38</b>	<b>8.56</b>	<b>8.37</b>
Specific Conductance	uS/cm	-	361	247.4	355.6
Temperature	C	-	7.5	8.2	11.29
Turbidity	NTU	-	29.4	10.69	4.6
Water Elevation	ft MSL	-	1465.85	1448.78	1463.67
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	<b>632</b>
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	1134	<b>670</b>	<b>610</b>	<b>622</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	<b>18.7</b>
Manganese	ug/L	23	< 50	< 50	< 50
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	11	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	117	<b>84</b>	<b>82</b>	<b>81.3</b>
Alkalinity, Carbonate	mg/L	14	< 2.0	< 2.0	< 2.0
Chloride	mg/L	52	<b>46</b>	<b>45</b>	<b>46</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.04	< .025	< .025	< .025
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	< .1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< .1
Sulfate	mg/L	24	<b>25</b>	<b>25</b>	<b>24</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	35	<b>26</b>	<b>24</b>	<b>25.7</b>
Magnesium	mg/L	17	<b>11</b>	<b>11</b>	<b>11.2</b>
Potassium	mg/L	11	<b>2.1</b>	<b>1.8</b>	<b>1.9</b>
Sodium	mg/L	27	<b>25</b>	<b>25</b>	<b>24.3</b>
<b>General</b>					
Hardness	mg/L	157	<b>114</b>	<b>111</b>	<b>114</b>

Explanations of abbreviations are included on the final page of this table.

HW-1L (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**HW-1U LLA (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	1.05	2.01	2.06
ORP	mV	-	-143	-50.4	-91.8
pH	SU	8.6-9.6	8.82	9.04	8.99
Specific Conductance	uS/cm	-	4.69	324.5	435.2
Temperature	C	-	7.03	8.18	10.5
Turbidity	NTU	-	978	855.47	777
Water Elevation	ft MSL	-	1489.96	1494.49	1492.02
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	<b>11</b>	<b>7.4</b>	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	<b>7.1</b>	<b>4.1</b>	< 4.0
Iron	ug/L	800 (p)	<b>35000</b>	<b>35000</b>	< 200
Lead	ug/L	12 (p)	<b>110</b>	<b>59</b>	< 3.0
Lithium	ug/L	40 (p)	-	-	<b>16</b>
Manganese	ug/L	200 (p)	<b>490</b>	<b>290</b>	< 50.0
Mercury	ng/L	4.0 (p)	<b>9.8</b>	<b>&lt; 10.0</b>	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	<b>&lt; 20</b>	<b>&lt; 20</b>	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	40 (p)	<b>35</b>	<b>20</b>	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	125	<b>170</b>	<b>120</b>	<b>82.8</b>
Alkalinity, Carbonate	mg/L	66	< 2.0	<b>39</b>	<b>42.4</b>
Chloride	mg/L	40 (p)	<b>44</b>	<b>46</b>	<b>46</b>
Fluoride	mg/L	4.0 (p)	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>
Nitrogen, Ammonia	mg/L	0.1 (p)	<b>0.32</b>	<b>0.36</b>	<b>0.347</b>
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	<b>0.426</b>
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	<b>0.6</b>	< 0.1
Sulfate	mg/L	58	<b>130</b>	<b>150</b>	<b>434</b>
Sulfide	mg/L	0.36	< 2.0	< 5.0	< 10.0
<b>Major Cations</b>					
Calcium	mg/L	29	<b>61</b>	<b>61</b>	<b>2.6</b>
Magnesium	mg/L	15	<b>24</b>	<b>26</b>	< 1.0
Potassium	mg/L	50	<b>4.1</b>	<b>3.6</b>	<b>1</b>
Sodium	mg/L	33	<b>130</b>	<b>110</b>	<b>85.5</b>
<b>General</b>					
Hardness	mg/L	132	<b>130</b>	<b>158</b>	<b>9.8</b>

Explanations of abbreviations are included on the final page of this table.

HW-1U LLA (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**HW-1U UFB (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.59	0.98	0.4
ORP	mV	-	-234	-179.6	-268.9
pH	SU	8.4-9.4	8.83	8.85	8.93
Specific Conductance	uS/cm	-	210	97.2	157
Temperature	C	-	5.81	8.05	10.91
Turbidity	NTU	-	3.5	9.97	1.96
Water Elevation	ft MSL	-	1530.25	1532.32	1525.98
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	11	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	800 (p)	< 200	< 200	<b>296</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	75.3	< 50	< 50	< 50.0
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	40 (p)	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	127.11	<b>88</b>	<b>63</b>	<b>62.1</b>
Alkalinity, Carbonate	mg/L	13.76	<b>6.2</b>	<b>4.1</b>	<b>8.1</b>
Chloride	mg/L	120.74	< 10	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	< .025	< .025	< .025
Nitrogen, Nitrate	mg/L	0.67	< .1	< .1	< .1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< .1
Sulfate	mg/L	76.15	<b>5.6</b>	1.5	< 1.0
Sulfide	mg/L	1.31	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	45.61	<b>15</b>	<b>14</b>	<b>14.2</b>
Magnesium	mg/L	17.38	<b>6</b>	<b>3.9</b>	<b>4.5</b>
Potassium	mg/L	21.78	<b>5.2</b>	<b>2.3</b>	<b>2.8</b>
Sodium	mg/L	90.93	<b>17</b>	<b>6.9</b>	<b>7.4</b>
<b>General</b>					
Hardness	mg/L	188.88	<b>68</b>	<b>46</b>	<b>62.7</b>

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**

**HW-2 (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.3	0.46	0.4
ORP	mV	-	-181	-219.7	-190.4
pH	SU	7.7-8.7	7.74	8.3	7.71
Specific Conductance	uS/cm	-	644	456	454.1
Temperature	C	-	9.0	10.04	10.6
Turbidity	NTU	-	39.0	110.3	39.06
Water Elevation	ft MSL	-	1530.24	1532.01	1531.1
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	3401.08	<b>1400</b>	< 200	<b>1390</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	323.84	<b>320</b>	<b>170</b>	<b>294</b>
Mercury	ng/L	1.31	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	40 (p)	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	145.02	<b>110</b>	<b>120</b>	<b>114</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	25.13	<b>28</b>	<b>28</b>	<b>27.3</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.047	<b>0.073</b>	<b>0.06</b>	<b>0.0269</b>
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	<b>0.111</b>
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	134.73	<b>150</b>	<b>150</b>	<b>142</b>
Sulfide	mg/L	0.47	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	72.1	<b>59</b>	<b>56</b>	<b>54.4</b>
Magnesium	mg/L	27.74	<b>25</b>	<b>24</b>	<b>21.1</b>
Potassium	mg/L	7.08	<b>5.1</b>	<b>4.9</b>	<b>4.2</b>
Sodium	mg/L	15.47	<b>27</b>	<b>26</b>	<b>22.8</b>
<b>General</b>					
Hardness	mg/L	277.43	<b>254</b>	<b>261</b>	<b>254</b>

Explanations of abbreviations are included on the final page of this table.

HW-2 (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**

HW-8U (Monitoring)

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.81	1.78	1.54
ORP	mV	-	-120	-92.2	-98.1
pH	SU	6.4-7.4	7.16	6.85	6.76
Specific Conductance	uS/cm	-	268	223.2	333.6
Temperature	C	-	7.52	8.25	10.21
Turbidity	NTU	-	1.9	3.96	2.49
Water Elevation	ft MSL	-	1531.57	1534.27	1516.04
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	<b>7.3</b>	<b>5.3</b>	<b>6.3</b>
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	27124.65	<b>8300</b>	<b>7800</b>	<b>8010</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	5498	<b>4900</b>	<b>3800</b>	<b>3840</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	25.72	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	237.47	<b>140</b>	<b>130</b>	<b>127</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	<b>13</b>	<b>13</b>	<b>14.6</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.04	< .025	< .025	< .025
Nitrogen, Nitrate	mg/L	0.1	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	2.64	<b>8.9</b>	<b>9.6</b>	<b>9.3</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	53.48	<b>33</b>	<b>31</b>	<b>32.1</b>
Magnesium	mg/L	22.17	<b>11</b>	<b>12</b>	<b>11.5</b>
Potassium	mg/L	4.07	<b>2.9</b>	<b>3.0</b>	<b>2.8</b>
Sodium	mg/L	4.43	<b>3.3</b>	<b>3.2</b>	<b>3.5</b>
<b>General</b>					
Hardness	mg/L	224.05	<b>148</b>	<b>141</b>	<b>156</b>

Explanations of abbreviations are included on the final page of this table.

HW-8U (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**HYG-1 (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.34	0.22	0.38
ORP	mV	-	33	21.7	21.7
pH	SU	6.25-7.25	6.64	6.78	6.54
Specific Conductance	uS/cm	-	865	565.4	507.4
Temperature	C	-	8	7.46	8.6
Turbidity	NTU	-	1.1	2.21	1.45
Water Elevation	ft MSL	-	1530.72	1532.87	1533.8
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	<b>7.4</b>
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	<100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	4.4	<b>4.2</b>	< 4.0	< 4.0
Iron	ug/L	800(p)	< 200	< 200	<b>212</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	286	<b>440</b>	<b>380</b>	<b>435</b>
Mercury	ng/L	6.2	<b>26.3</b>	<b>29.2</b>	<b>16.6</b>
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	19	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	157	<b>370</b>	<b>250</b>	<b>246</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	12	<b>11</b>	< 10	<b>11.4</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.38	<b>0.34</b>	<b>0.46</b>	<b>0.523</b>
Nitrogen, Nitrate	mg/L	0.26	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	98	<b>100</b>	<b>120</b>	<b>128</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	52	<b>61</b>	<b>50</b>	<b>53</b>
Magnesium	mg/L	28	<b>31</b>	<b>26</b>	<b>27.6</b>
Potassium	mg/L	8.4	<b>13</b>	<b>11</b>	<b>10.7</b>
Sodium	mg/L	14	<b>78</b>	<b>59</b>	<b>51.1</b>
<b>General</b>					
Hardness	mg/L	230	<b>300</b>	<b>248</b>	<b>262</b>

Explanations of abbreviations are included on the final page of this table.

HYG-1 (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**KMW-5R (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	NM	NM	NM
ORP	mV	-	NM	NM	NM
pH	SU	6.7-7.7	NM	NM	NM
Specific Conductance	uS/cm	-	NM	NM	NM
Temperature	C	-	NM	NM	NM
Turbidity	NTU	-	NM	NM	NM
Water Elevation	ft MSL	-	1557.2	1560.44	1559.68
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	<b>9110</b>
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	6	< 5.0	< 5.0	<b>10.2</b>
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	<b>1.6</b>
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	<b>13.4</b>
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	14.6	<b>8</b>	< 4.0	<b>20</b>
Iron	ug/L	33432	<b>13000</b>	<b>400</b>	<b>62700</b>
Lead	ug/L	4.8	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	<b>31.1</b>
Manganese	ug/L	2815	<b>2100</b>	<b>1600</b>	<b>1970</b>
Mercury	ng/L	2.1	<b>7.42</b>	< 1.00	<b>10.9</b>
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< <b>20</b>	< 20	<b>22.8</b>
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	<b>12.7</b>
Zinc	ug/L	19.05	< <b>10</b>	< 10	<b>16.8</b>
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	486.4	<b>380</b>	<b>400</b>	<b>390</b>
Alkalinity, Carbonate	mg/L	3.31	< <b>2.0</b>	< 2.0	< 2.0
Chloride	mg/L	139.4	<b>17</b>	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< <b>1.0</b>	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.76	<b>0.03</b>	<b>0.054</b>	<b>0.0308</b>
Nitrogen, Nitrate	mg/L	0.11	< .1	< .1	< .1
Nitrogen, Nitrite	mg/L	0.06	< .1	< .1	< .1
Sulfate	mg/L	123.12	<b>120</b>	<b>110</b>	<b>108</b>
Sulfide	mg/L	3.88	< <b>0.20</b>	< 0.20	< 1.0
<b>Major Cations</b>					
Calcium	mg/L	168.98	<b>130</b>	<b>120</b>	<b>115</b>
Magnesium	mg/L	66.57	<b>51</b>	<b>47</b>	<b>53.3</b>
Potassium	mg/L	9.05	<b>7.6</b>	<b>7.3</b>	<b>7.5</b>
Sodium	mg/L	50.02	<b>5.8</b>	<b>7.2</b>	<b>7.4</b>
<b>General</b>					
Hardness	mg/L	800	<b>504</b>	<b>277</b>	<b>480</b>

Explanations of abbreviations are included on the final page of this table.

KMW-5R (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-701 QAL (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	5.06	7.69	7.54
ORP	mV	-	182	148.2	152.1
pH	SU	5.8-6.8	5.9	5.84	5.8
Specific Conductance	uS/cm	-	143	97	89
Temperature	C	-	6.6	7.71	10.3
Turbidity	NTU	-	2.2	4.01	16.93
Water Elevation	ft MSL	-	1530.36	1532.5	1531.21
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	<b>&lt; 5.0</b>	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	458.54	< 200	< 200	< 200
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	4800.88	< 50	< 50	< 50.0
Mercury	ng/L	11.19	<b>1.2</b>	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	40 (p)	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	189.4	<b>41</b>	<b>44</b>	<b>37</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	18.59	< 10	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.39	< .025	< .025	< .025
Nitrogen, Nitrate	mg/L	3.1	<b>0.94</b>	<b>0.5</b>	<b>0.138</b>
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	109.52	<b>19</b>	<b>20</b>	<b>14.2</b>
Sulfide	mg/L	0.22	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	57.31	<b>10</b>	<b>10</b>	<b>9.1</b>
Magnesium	mg/L	26.33	<b>4.7</b>	<b>4.5</b>	<b>4.1</b>
Potassium	mg/L	9.18	<b>3</b>	<b>2.5</b>	<b>2.4</b>
Sodium	mg/L	14.29	<b>6.6</b>	<b>6.6</b>	<b>5.5</b>
<b>General</b>					
Hardness	mg/L	271.75	<b>48</b>	<b>48</b>	<b>42</b>

Explanations of abbreviations are included on the final page of this table.

MW-701 QAL (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-701 UFB (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.09	0.2	0.37
ORP	mV	-	-216	-237.8	-189.2
pH	SU	7.2-8.2	7.34	7.49	7.27
Specific Conductance	uS/cm	-	394	359.7	250.9
Temperature	C	-	7.5	7.66	8.5
Turbidity	NTU	-	49	47.9	21.26
Water Elevation	ft MSL	-	1530.55	1532.83	1531.08
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	<b>&lt; 5.0</b>	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	<b>135</b>
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	30.27	< 4.0	<b>9.0</b>	< 4.0
Iron	ug/L	27404.89	<b>18000</b>	<b>16000</b>	<b>14400</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	11
Manganese	ug/L	6881.06	<b>2200</b>	<b>1900</b>	<b>2340</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	26.48	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	171.66	<b>150</b>	<b>140</b>	<b>141</b>
Alkalinity, Carbonate	mg/L	18.42	< 2.0	< 2.0	< 2.0
Chloride	mg/L	43.13	< 10	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	1.6	< .025	<b>0.053</b>	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	80.45	<b>16</b>	<b>6.8</b>	<b>15.6</b>
Sulfide	mg/L	1.7	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	40.07	<b>32</b>	<b>30</b>	<b>31.8</b>
Magnesium	mg/L	16.19	<b>14</b>	<b>13</b>	<b>13.5</b>
Potassium	mg/L	12.53	<b>3</b>	<b>3.2</b>	<b>2.8</b>
Sodium	mg/L	55.79	<b>4.6</b>	<b>4.7</b>	<b>4.4</b>
<b>General</b>					
Hardness	mg/L	163.45	<b>152</b>	141	<b>144</b>

Explanations of abbreviations are included on the final page of this table.

MW-701 UFB (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-702 QAL (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	1.05	1.53	1.18
ORP	mV	-	123	-47.5	-46.8
pH	SU	9.8-10.8	<b>6.88</b>	<b>10.84</b>	<b>9.16</b>
Specific Conductance	uS/cm	-	488	444.1	288.3
Temperature	C	-	7	7.08	7.6
Turbidity	NTU	-	30.8	6.19	10.91
Water Elevation	ft MSL	-	1529.76	1531.47	1529.9
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	<b>89.9</b>
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	7.52	< 5.0	<b>5.4</b>	< 5.0
Barium	ug/L	154.72	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	386.05	< 200	< 200	< 200
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	717.08	<b>91</b>	< 50	< 50.0
Mercury	ng/L	4.0 (p)	<b>1.34</b>	< 1.00	<b>2.49</b>
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	<b>4.6</b>
Zinc	ug/L	40 (p)	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	193.52	<b>130</b>	<b>80</b>	<b>94.9</b>
Alkalinity, Carbonate	mg/L	53.68	< 2.0	<b>12</b>	<b>12.1</b>
Chloride	mg/L	12.47	< 10	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.03	< .025	< .025	< 0.025
Nitrogen, Nitrate	mg/L	1.8	<b>0.52</b>	<b>1.1</b>	<b>0.613</b>
Nitrogen, Nitrite	mg/L	0.12	< .1	< .1	< 0.1
Sulfate	mg/L	148.08	<b>84</b>	<b>86</b>	<b>72.3</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	99.4	<b>34</b>	<b>34</b>	<b>28.6</b>
Magnesium	mg/L	17.29	<b>9.7</b>	<b>5.8</b>	<b>6.6</b>
Potassium	mg/L	36.44	<b>4.7</b>	<b>12</b>	<b>10.2</b>
Sodium	mg/L	42.19	<b>41</b>	<b>60</b>	<b>40.3</b>
<b>General</b>					
Hardness	mg/L	285.53	<b>124</b>	<b>113</b>	<b>108</b>

Explanations of abbreviations are included on the final page of this table.

MW-702 QAL (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-702 UFB (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	5.83	3.32	1.85
ORP	mV	-	-72	-110.8	-174.1
pH	SU	8.5-9.5	<b>8.13</b>	<b>7.97</b>	<b>7.82</b>
Specific Conductance	uS/cm	-	118	171.2	261
Temperature	C	-	5.6	6.92	9.4
Turbidity	NTU	-	8.1	12.69	5.11
Water Elevation	ft MSL	-	1533.03	1531.08	1526.21
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	2484	<b>650</b>	<b>640</b>	<b>908</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	126	<b>79</b>	<b>75</b>	<b>74.9</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	66	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	125	<b>94</b>	<b>93</b>	<b>93.7</b>
Alkalinity, Carbonate	mg/L	15	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	< 10	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	< .025	< .025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	36	<b>34</b>	<b>35</b>	<b>33.4</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	49	<b>31</b>	<b>30</b>	<b>30.4</b>
Magnesium	mg/L	14	<b>10</b>	<b>9.8</b>	<b>9.7</b>
Potassium	mg/L	22	<b>3.4</b>	<b>2.9</b>	<b>2.9</b>
Sodium	mg/L	8	<b>3.4</b>	<b>3.1</b>	<b>3.3</b>
<b>General</b>					
Hardness	mg/L	160	<b>112</b>	<b>121</b>	<b>118</b>

Explanations of abbreviations are included on the final page of this table.

MW-702 UFB (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-703 DBA (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.92	1.59	1.81
ORP	mV	-	-255	-163.7	-156.4
pH	SU	8.7-9.7	9.42	10.68	9.37
Specific Conductance	uS/cm	-	252	199.8	261.1
Temperature	C	-	5.1	6.91	9.07
Turbidity	NTU	-	2.31	20.91	49.61
Water Elevation	ft MSL	-	1530.61	1532.65	1528.89
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	2738	< 200	< 200	< 200
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	17	-	-	<b>15.5</b>
Manganese	ug/L	60	< 50	< 50	< 50.0
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	22	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	74	<b>58</b>	<b>53</b>	<b>66.7</b>
Alkalinity, Carbonate	mg/L	27	<b>25</b>	<b>21</b>	<b>8.1</b>
Chloride	mg/L	20	<b>16</b>	<b>17</b>	<b>16.7</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12	< .025	<b>0.044</b>	<0.025
Nitrogen, Nitrate	mg/L	0.11	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	91	<b>16</b>	<b>19</b>	<b>26.7</b>
Sulfide	mg/L	0.80 (p)	<b>0.78</b>	<b>0.43</b>	<b>0.34</b>
<b>Major Cations</b>					
Calcium	mg/L	29	<b>11</b>	<b>9.3</b>	<b>17.2</b>
Magnesium	mg/L	17	<b>9.4</b>	<b>7.1</b>	<b>9.8</b>
Potassium	mg/L	15	<b>21</b>	<b>24</b>	<b>12.2</b>
Sodium	mg/L	14	<b>11</b>	<b>13</b>	<b>8.9</b>
<b>General</b>					
Hardness	mg/L	137	<b>68</b>	55	<b>96</b>

Explanations of abbreviations are included on the final page of this table.

MW-703 DBA (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-703 LLA (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.26	0.55	0.42
ORP	mV	-	-271	-256.7	-242.1
pH	SU	8.2-9.2	8.39	8.38	8.29
Specific Conductance	uS/cm	-	270	182.9	271
Temperature	C	-	6.28	6.87	7.9
Turbidity	NTU	-	6.1	4.85	2.25
Water Elevation	ft MSL	-	1531.33	1533.27	1516.03
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	<b>&lt; 5.0</b>	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	2965.88	<b>560</b>	<b>580</b>	<b>676</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	30.13	-	-	< 10.0
Manganese	ug/L	100.53	<b>73</b>	<b>82</b>	<b>74</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	40+	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	83.95	<b>83</b>	<b>81</b>	<b>77.2</b>
Alkalinity, Carbonate	mg/L	3.97	< 2.0	< 2.0	<b>3.1</b>
Chloride	mg/L	124.08	<b>11</b>	<b>11</b>	<b>20.4</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.08	< .025	<b>0.044</b>	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	43.63	<b>32</b>	32	<b>22.2</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	38.89	<b>26</b>	<b>24</b>	<b>25.9</b>
Magnesium	mg/L	13.27	<b>11</b>	<b>10</b>	<b>10.4</b>
Potassium	mg/L	9.67	<b>3.8</b>	<b>2.9</b>	<b>3</b>
Sodium	mg/L	66.85	<b>8.3</b>	<b>6.3</b>	<b>6.5</b>
<b>General</b>					
Hardness	mg/L	137.58	<b>108</b>	<b>111</b>	<b>96</b>

Explanations of abbreviations are included on the final page of this table.

MW-703 LLA (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-703 QAL (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	6.62	6.75	7.45
ORP	mV	-	104	164.1	121.7
pH	SU	7.2-8.2	<b>6.33</b>	<b>6.14</b>	<b>6.1</b>
Specific Conductance	uS/cm	-	260	127.2	121.1
Temperature	C	-	6.40	6.36	7.00
Turbidity	NTU	-	1.75	4.56	2.92
Water Elevation	ft MSL	-	1532.86	1535.25	1535.77
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	255.36	< 200	< 200	< 200
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	105.05	< 50	< 50	< 50.0
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	40 (p)	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	99.57	<b>56</b>	<b>58</b>	<b>49.2</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	< 10	< 10	< 10.0
Fluoride	mg/L	131.24	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	< .025	< .025	< 0.025
Nitrogen, Nitrate	mg/L	0.22	<b>1.3</b>	<b>1.3</b>	<b>1.89</b>
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	49.72	<b>14</b>	<b>20</b>	<b>29.1</b>
Sulfide	mg/L	0.3	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	39.66	<b>15</b>	<b>18</b>	<b>18.8</b>
Magnesium	mg/L	10.72	<b>6</b>	<b>7.4</b>	<b>8.2</b>
Potassium	mg/L	3.13	<b>1.4</b>	<b>1.7</b>	<b>1.5</b>
Sodium	mg/L	10.48	<b>2.3</b>	<b>2.3</b>	<b>2.2</b>
<b>General</b>					
Hardness	mg/L	135.72	<b>70</b>	<b>77</b>	<b>80</b>

Explanations of abbreviations are included on the final page of this table.

MW-703 QAL (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-703 UFB (Monitoring)**

Parameter	Unit	Recommended	Q1 2017	Q2 2017	Q3 2017
		Benchmark 2014			
<b>Field</b>					
D.O.	ppm	-	1.53	1.43	0.82
ORP	mV	-	3.5	-164.7	-193.6
pH	SU	8.3-9.3	8.44	<b>7.90</b>	<b>7.99</b>
Specific Conductance	uS/cm	-	156	186.6	280.4
Temperature	C	-	6.2	6.47	8.4
Turbidity	NTU	-	8.55	4.57	5.43
Water Elevation	ft MSL	-	1531.45	1533.05	1531.13
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	<b>&lt; 5.0</b>	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	2440.99	<b>640</b>	<b>610</b>	<b>1640</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	193.95	<b>160</b>	<b>180</b>	<b>168</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	13.75	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	127.42	<b>83</b>	<b>85</b>	<b>82.4</b>
Alkalinity, Carbonate	mg/L	28.25	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	< 10	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.47	< .025	< .025	< 0.025
Nitrogen, Nitrate	mg/L	0.4 (p)	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.4 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	52.89	<b>46</b>	<b>46</b>	<b>45.6</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	53.06	<b>31</b>	<b>31</b>	<b>31.5</b>
Magnesium	mg/L	16.52	<b>11</b>	<b>11</b>	<b>10.6</b>
Potassium	mg/L	5.87	<b>2.4</b>	<b>2.4</b>	<b>2.3</b>
Sodium	mg/L	35.15	<b>2.9</b>	<b>2.9</b>	<b>3</b>
<b>General</b>					
Hardness	mg/L	193.1	<b>124</b>	<b>127</b>	<b>64.7</b>

Explanations of abbreviations are included on the final page of this table.

MW-703 UFB (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-704 DBA (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.51	0.68	1.22
ORP	mV	-	-324	-210.3	-229.1
pH	SU	8.6-9.6	8.71	<b>8.43</b>	<b>8.32</b>
Specific Conductance	uS/cm	-	218	217.5	251
Temperature	C	-	8.08	7.87	10.7
Turbidity	NTU	-	3.5	10.4	2.96
Water Elevation	ft MSL	-	1531.08	1533.89	1482.95
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1480	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	9645	<b>650</b>	<b>800</b>	<b>888</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	<b>15.1</b>
Manganese	ug/L	58	< 50	<b>54</b>	<b>52.6</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	11	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	129	<b>130</b>	<b>140</b>	<b>130</b>
Alkalinity, Carbonate	mg/L	32	<b>2.1</b>	<b>2.0</b>	<b>2</b>
Chloride	mg/L	40 (p)	< 10	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.04	< .025	< .025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	6	< 1.0	< 1.0	< 1.0
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	27	<b>20</b>	<b>22</b>	<b>21</b>
Magnesium	mg/L	14	<b>10</b>	<b>12</b>	<b>11.1</b>
Potassium	mg/L	4	<b>2.4</b>	<b>2.6</b>	<b>2.5</b>
Sodium	mg/L	14	<b>10</b>	<b>11</b>	<b>10.8</b>
<b>General</b>					
Hardness	mg/L	111	<b>100</b>	<b>113</b>	<b>116</b>

Explanations of abbreviations are included on the final page of this table.

MW-704 DBA (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-704 LLA (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.72	1.73	1.11
ORP	mV	-	-180	-139.9	-214.4
pH	SU	8.2-9.2	<b>8.03</b>	<b>8.02</b>	<b>8.09</b>
Specific Conductance	uS/cm	-	296	265.7	291.2
Temperature	C	-	4.19	7.77	11.1
Turbidity	NTU	-	10.05	24.2	5.72
Water Elevation	ft MSL	-	1530.88	1533.63	1525.34
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	4974	<b>870</b>	<b>730</b>	<b>538</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	<b>14.5</b>
Manganese	ug/L	90	<b>84</b>	<b>83</b>	<b>63.6</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	11	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	132	<b>150</b>	<b>140</b>	<b>135</b>
Alkalinity, Carbonate	mg/L	10	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	< 10	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	< .025	<b>0.025</b>	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	23	<b>9.1</b>	<b>7.8</b>	<b>5.3</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	33	<b>31</b>	<b>28</b>	<b>26.9</b>
Magnesium	mg/L	17	<b>14</b>	<b>13</b>	<b>13.5</b>
Potassium	mg/L	5	<b>4.5</b>	<b>3.9</b>	<b>4.3</b>
Sodium	mg/L	5	<b>3.8</b>	<b>3.6</b>	<b>4</b>
<b>General</b>					
Hardness	mg/L	149	<b>140</b>	<b>145</b>	<b>134</b>

Explanations of abbreviations are included on the final page of this table.

MW-704 LLA (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-704 QAL (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.11	0.5	0.35
ORP	mV	-	55	-44.7	129.3
pH	SU	5.5-6.5	5.9	6.04	5.65
Specific Conductance	uS/cm	-	451	502.9	246.7
Temperature	C	-	7.3	7.1	10.3
Turbidity	NTU	-	2	4.09	1.92
Water Elevation	ft MSL	-	1530.39	1533.08	1533.94
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	24	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	<100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	37038	<b>6900</b>	<b>86000</b>	<b>506</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	7914	<b>7000</b>	< 50	<b>1170</b>
Mercury	ng/L	5.95	<b>18</b>	<b>12.3</b>	<b>2.43</b>
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	44 (p)	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	241	<b>160</b>	<b>250</b>	<b>97</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	18	<b>16</b>	<b>16</b>	<b>16.8</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.04	<b>0.1</b>	<b>0.23</b>	< 0.025
Nitrogen, Nitrate	mg/L	0.17	<b>0.47</b>	< .1	<b>0.81</b>
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	23	<b>32</b>	<b>9.2</b>	<b>40.3</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>General</b>					
Calcium	mg/L	51	<b>38</b>	<b>42</b>	<b>32.5</b>
Magnesium	mg/L	9	<b>10</b>	<b>15</b>	<b>12.1</b>
Potassium	mg/L	3.11	<b>2.7</b>	<b>3.7</b>	<b>2.5</b>
Sodium	mg/L	27	<b>22</b>	<b>29</b>	<b>10.6</b>
<b>General</b>					
Hardness	mg/L	185	<b>160</b>	<b>192</b>	<b>136</b>

Explanations of abbreviations are included on the final page of this table.

MW-704 QAL (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-704 UFB (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.09	0.89	1.49
ORP	mV	-	-150	-171.6	-79.6
pH	SU	6.4-7.4	6.97	7.23	6.42
Specific Conductance	uS/cm	-	506	297.5	363.9
Temperature	C	-	7.6	7.68	8.8
Turbidity	NTU	-	149	43.68	23.91
Water Elevation	ft MSL	-	1530.75	1533.42	1534.19
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	5	< 4.0	< 4.0	< 4.0
Iron	ug/L	23040	<b>14000</b>	<b>20000</b>	<b>24200</b>
Lead	ug/L	4	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	618	<b>1000</b>	<b>1300</b>	<b>693</b>
Mercury	ng/L	2	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	15	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	181	<b>170</b>	<b>170</b>	<b>149</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	18	<b>15</b>	<b>12</b>	<b>22.9</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.27	<b>0.026</b>	< .025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	<b>0.333</b>
Nitrogen, Nitrite	mg/L	0.14	< .1	< .1	< 0.1
Sulfate	mg/L	38	<b>31</b>	<b>12</b>	<b>37.5</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	38	<b>50</b>	<b>47</b>	<b>43.5</b>
Magnesium	mg/L	7	<b>9.8</b>	<b>10</b>	<b>11.3</b>
Potassium	mg/L	4	<b>3.8</b>	<b>3.9</b>	<b>2.8</b>
Sodium	mg/L	65	<b>6.4</b>	<b>6.2</b>	<b>8.5</b>
<b>General</b>					
Hardness	mg/L	106	<b>186</b>	<b>180</b>	<b>170</b>

Explanations of abbreviations are included on the final page of this table.

MW-704 UFB (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-705 QAL (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.48	1.95	0.49
ORP	mV	-	-54	139.7	31.2
pH	SU	5.6-6.6	6.29	5.72	5.96
Specific Conductance	uS/cm	-	345	124.8	181.4
Temperature	C	-	6.3	6.98	11.7
Turbidity	NTU	-	1.6	2.8	1.91
Water Elevation	ft MSL	-	1533.45	1536.89	1534.43
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	14081	<b>10000</b>	<b>1900</b>	<b>6000</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	1674	< 1200	<b>280</b>	<b>630</b>
Mercury	ng/L	1	< 1.00	< 1.00	<b>1.53</b>
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	174	< 10	< 10	<10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	94	<b>78</b>	35	<b>50.5</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	66	<b>25</b>	<b>29</b>	<b>37.8</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.096	<b>0.083</b>	<b>0.062</b>	<b>0.113</b>
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	6	<b>11</b>	<b>13</b>	<b>6</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	27	<b>16</b>	<b>13</b>	<b>14.6</b>
Magnesium	mg/L	13	<b>7.1</b>	<b>5.6</b>	<b>6.4</b>
Potassium	mg/L	3	<b>2.5</b>	<b>2.1</b>	<b>2.5</b>
Sodium	mg/L	17	<b>13</b>	<b>11</b>	<b>14.4</b>
<b>General</b>					
Hardness	mg/L	115	<b>74</b>	<b>59</b>	<b>68</b>

Explanations of abbreviations are included on the final page of this table.

MW-705 QAL (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-705 UFB (Monitoring)**

Parameter	Unit	Recommended			
		Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	1	0.43	0.45
ORP	mV	-	-106	-111.1	-90.1
pH	SU	6.7-7.7	6.89	6.86	6.77
Specific Conductance	uS/cm	-	38	302.7	212
Temperature	C	-	7.3	7.21	8.4
Turbidity	NTU	-	24.7	6.7	5.98
Water Elevation	ft MSL	-	1533.16	1536.87	1531.41
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	11214	<b>10000</b>	<b>10000</b>	<b>9150</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	<b>10.5</b>
Manganese	ug/L	866	<b>900</b>	<b>910</b>	<b>894</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	17	< 10	< 10	<b>11.6</b>
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	103	<b>84</b>	88	<b>86.4</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	<b>25</b>	28	<b>30.5</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	< .025	< .025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	15	<b>2.7</b>	3.4	<b>3.9</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.2
<b>Major Cations</b>					
Calcium	mg/L	26	<b>23</b>	<b>23</b>	<b>26.4</b>
Magnesium	mg/L	12	<b>12</b>	<b>12</b>	<b>13.9</b>
Potassium	mg/L	4	<b>4.1</b>	<b>3.3</b>	<b>3.6</b>
Sodium	mg/L	3	<b>3.1</b>	<b>2.9</b>	<b>3.1</b>
<b>General</b>					
Hardness	mg/L	111	<b>114</b>	<b>121</b>	<b>134</b>

Explanations of abbreviations are included on the final page of this table.

MW-705 UFB (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-706 QAL (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	0.3	0.71	0.31
ORP	mV	-	38.6	55.5	61.5
pH	SU	6.2-7.2	<b>6</b>	<b>5.92</b>	<b>5.81</b>
Specific Conductance	uS/cm	-	1021	842.1	714.1
Temperature	C	-	7.8	10.12	9.4
Turbidity	NTU	-	20.1	1.96	1.65
Water Elevation	ft MSL	-	1558.91	1536.89	1561.16
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	<b>79.5</b>
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	16	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	<b>26.7</b>
Copper	ug/L	16 (p)	< 4.0	< 4.0	< 4.0
Iron	ug/L	10846	<b>4700</b>	<b>3900</b>	<b>3960</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	<b>10.9</b>
Manganese	ug/L	27225	<b>18000</b>	<b>17000</b>	<b>16700</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	<b>25</b>	<b>23</b>	<b>23.3</b>
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	55	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	153	<b>78</b>	<b>71</b>	<b>71.7</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	105	<b>150</b>	<b>150</b>	<b>143</b>
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	1.4	<b>0.45</b>	<b>0.48</b>	<b>0.475</b>
Nitrogen, Nitrate	mg/L	0.4 (p)	<b>0.44</b>	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.4 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	479	<b>210</b>	<b>210</b>	<b>199</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 1.0
<b>Major Cations</b>					
Calcium	mg/L	183	<b>88</b>	<b>86</b>	<b>82.2</b>
Magnesium	mg/L	56	<b>35</b>	<b>35</b>	<b>33.1</b>
Potassium	mg/L	6	<b>4.7</b>	<b>5.2</b>	<b>4.8</b>
Sodium	mg/L	234	<b>37</b>	<b>36</b>	<b>40.3</b>
<b>General</b>					
Hardness	mg/L	609	<b>80</b>	<b>6</b>	<b>372</b>

Explanations of abbreviations are included on the final page of this table.

MW-706 QAL (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-707 QAL (Monitoring)**

Parameter	Unit	Recommended	Q1 2017	Q2 2017	Q3 2017
		Benchmark 2014			
<b>Field</b>					
D.O.	ppm	-	0.5	0.56	0.43
ORP	mV	-	-150	-116.8	-133.1
pH	SU	6.3-7.3	7.11	6.81	6.97
Specific Conductance	uS/cm	-	402	251.7	235.8
Temperature	C	-	7.3	7.69	8.7
Turbidity	NTU	-	1.3	1.8	1.38
Water Elevation	ft MSL	-	1582.3	1583.8	1581.34
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	20 (p)	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	16 (p)	< 4.0	<b>4.8</b>	< 4.0
Iron	ug/L	7493	<b>5200</b>	<b>4800</b>	<b>5110</b>
Lead	ug/L	12 (p)	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	1189	<b>1000</b>	<b>910</b>	<b>885</b>
Mercury	ng/L	4.0 (p)	< 1.00	< 1.00	< 1.0
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	< 20	< 20	< 20.0
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	19	< 10	< 10	< 10.0
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	150	<b>160</b>	<b>170</b>	<b>160</b>
Alkalinity, Carbonate	mg/L	8.0 (p)	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	< 10	< 10	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.34	<b>0.26</b>	<b>0.3</b>	<b>0.29</b>
Nitrogen, Nitrate	mg/L	0.40 (p)	< .1	< .1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	< .1	< .1	< 0.1
Sulfate	mg/L	8	<b>5.3</b>	<b>5.4</b>	<b>6.9</b>
Sulfide	mg/L	0.80 (p)	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	51	<b>42</b>	<b>40</b>	<b>43.9</b>
Magnesium	mg/L	15	<b>12</b>	<b>12</b>	<b>12.5</b>
Potassium	mg/L	3	<b>2.6</b>	<b>2.4</b>	<b>2.5</b>
Sodium	mg/L	4	<b>2.8</b>	<b>3.1</b>	<b>3</b>
<b>General</b>					
Hardness	mg/L	149	<b>154</b>	<b>160</b>	<b>160</b>

Explanations of abbreviations are included on the final page of this table.

MW-707 QAL (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MW-9R (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	4	1.65	1.91
ORP	mV	-	199	128.8	106.1
pH	SU	5.4-6.4	5.94	6.04	6.05
Specific Conductance	uS/cm	-	736	214.5	330.4
Temperature	C	-	9	9.41	12.9
Turbidity	NTU	-	1.8	383.75	4.18
Water Elevation	ft MSL	-	1596.87	1597.03	1592.03
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	8.0 (p)	-	-	< 2.0
Arsenic	ug/L	25	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	-	-	< 100
Beryllium	ug/L	4.0 (p)	-	-	< 1.0
Boron	ug/L	1200 (p)	-	-	< 300
Cadmium	ug/L	4.0 (p)	-	-	< 1.0
Chromium	ug/L	40 (p)	-	-	< 10.0
Cobalt	ug/L	80 (p)	-	-	< 20.0
Copper	ug/L	5	< 4.0	< 4.0	< 4.0
Iron	ug/L	25558	< 200	< 200	< 200
Lead	ug/L	0.038	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	-	-	< 10.0
Manganese	ug/L	1694	<b>63</b>	< 50	<b>255</b>
Mercury	ng/L	1	< 1.00	< 1.00	<b>1.34</b>
Molybdenum	ug/L	200 (p)	-	-	< 50.0
Nickel	ug/L	80 (p)	<b>28</b>	<b>33</b>	<b>22.4</b>
Selenium	ug/L	20 (p)	-	-	< 5.0
Silver	ug/L	0.8 (p)	-	-	< 0.20
Thallium	ug/L	8.0 (p)	-	-	< 2.0
Vanadium	ug/L	16 (p)	-	-	< 4.0
Zinc	ug/L	25	<b>16</b>	<b>40</b>	<b>20.9</b>
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	137	<b>30</b>	<b>23</b>	<b>62.6</b>
Alkalinity, Carbonate	mg/L	2	< 2.0	< 2.0	< 2.0
Chloride	mg/L	711	<b>77</b>	<b>17</b>	< 10.0
Fluoride	mg/L	4.0 (p)	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.36	< .025	< .025	< 0.025
Nitrogen, Nitrate	mg/L	1	<b>2.7</b>	<b>0.53</b>	<b>0.36</b>
Nitrogen, Nitrite	mg/L	0.07	< .1	< .1	< 0.1
Sulfate	mg/L	343	<b>180</b>	<b>65</b>	<b>120</b>
Sulfide	mg/L	1	< 0.20	< 0.20	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	123	<b>78</b>	<b>23</b>	<b>38.8</b>
Magnesium	mg/L	48	<b>30</b>	<b>8.8</b>	<b>15.6</b>
Potassium	mg/L	8	<b>3.6</b>	<b>2.0</b>	<b>2.8</b>
Sodium	mg/L	289	<b>15</b>	<b>7.2</b>	<b>9.7</b>
<b>General</b>					
Hardness	mg/L	510	<b>300</b>	<b>103</b>	<b>174</b>

Explanations of abbreviations are included on the final page of this table.

MW-9R (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MFR-001 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	11.7	7.87	7.02
ORP	mV	-	97.1	192.5	177.3
pH	SU	6.1-7.1	6.65	5.96	7.19
Specific Conductance	uS/cm	-	37.8	68	108.9
Temperature	C	-	0.41	11.051	16.54
Turbidity	NTU	-	7.3	1.76	7.43
Flow	cfs	-	NM	NM	NM
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	50.4
Antimony	ug/L	0.73	-	-	< 1.0
Arsenic	ug/L	3.4	< 1.0	< 1.0	2.1
Barium	ug/L	12	-	-	9.2
Beryllium	ug/L	0.73	-	-	< 1.0
Boron	ug/L	14.8	-	-	< 10.0
Cadmium	ug/L	0.1	-	-	< 0.2
Chromium	ug/L	1.2	-	-	< 1.0
Cobalt	ug/L	0.42	-	-	< 1.0
Copper	ug/L	0.86	0.55	0.70	0.42
Iron	ug/L	3255	1700	920	3300
Lead	ug/L	0.351	0.174	0.167	0.161
Lithium	ug/L	5.7	-	-	< 8.0
Manganese	ug/L	226	130	61	183
Mercury	ng/L	8.5	4.48	5.09	2.84
Molybdenum	ug/L	1	-	-	< 1.0
Nickel	ug/L	1	0.62	0.71	0.77
Selenium	ug/L	0.19	-	-	< 1.0
Silver	ug/L	0.12	-	-	< 0.2
Thallium	ug/L	0.75	-	-	< 1.0
Vanadium	ug/L	1.5	-	-	< 1.0
Zinc	ug/L	2.6	2.38	2.40	1.32
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	50	21	15	38.4
Alkalinity, Carbonate	mg/L	2	< 2.0	< 2.0	< 2.0
Chloride	mg/L	13	4.2	5.7	10.1
Fluoride	mg/L	0.19	< 0.10	< 0.10	< 1.0
Nitrogen, Ammonia	mg/L	2.0 (P)	< 0.50	< 0.50	< .025
Nitrogen, Nitrate	mg/L	0.34	< 0.50	< 0.50	< 0.1
Nitrogen, Nitrite	mg/L	0.36	< 0.50	< 0.50	< 0.1
Sulfate	mg/L	10	< 1.0	< 1.0	< 1.0
Sulfide	mg/L	3.2	< 5.0	< 5.0	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	15	6.6	5.3	12.2
Magnesium	mg/L	4.1	2	1.5	3.4
Potassium	mg/L	1	0.68	0.54	0.83
Sodium	mg/L	6.9	2.5	3.2	5.5
<b>General</b>					
Hardness	mg/L	56	36	22	52.9
Total Dissolved Solids	mg/L	111	82	86.0	132
Total Suspended Solids	mg/L	4	-	4.3	< 3.3

Explanations of abbreviations are included on the final page of this table.

MFR-001 (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**MFR-002 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	11.3	7.42	6.62
ORP	mV	-	38.4	131.8	152.5
pH	SU	6.0-7.0	7.11	6.37	6.88
Specific Conductance	uS/cm	-	56.7	73.7	126.5
Temperature	C	-	0.29	11.54	17.64
Turbidity	NTU	-	8.28	1.75	6.71
Flow	cfs	-	55	143	17.7
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	51.5
Antimony	ug/L	0.72	-	-	< 1.0
Arsenic	ug/L	5.1	1.4	< 1.0	2.7
Barium	ug/L	20	-	-	11
Beryllium	ug/L	0.73	-	-	< 1.0
Boron	ug/L	13.5	-	-	13.8
Cadmium	ug/L	0.09	-	-	< 0.2
Chromium	ug/L	1.2	-	-	< 1.0
Cobalt	ug/L	0.65	-	-	< 1.0
Copper	ug/L	0.9	0.49	0.67	0.39
Iron	ug/L	6440	2400	1300	3420
Lead	ug/L	0.374	0.146	0.161	0.147
Lithium	ug/L	5.7	-	-	< 8.0
Manganese	ug/L	560	180	91	194
Mercury	ng/L	7.5	3.96	4.75	2.75
Molybdenum	ug/L	0.729	-	-	< 1.0
Nickel	ug/L	1.2	0.95	0.73	1.11
Selenium	ug/L	0.19	-	-	< 1.0
Silver	ug/L	0.12	-	-	< 0.20
Thallium	ug/L	0.73	-	-	< 1.0
Vanadium	ug/L	3	-	-	1.1
Zinc	ug/L	3	1.97	2.30	1.28
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	53	24	17	44.6
Alkalinity, Carbonate	mg/L	2	< 2.0	< 2.0	< 2.0
Chloride	mg/L	16	7.2	5.9	12
Fluoride	mg/L	0.19	< 0.10	< 0.10	< 1.0
Nitrogen, Ammonia	mg/L	2.0 (P)	< 0.50	< 0.50	< 0.025
Nitrogen, Nitrate	mg/L	0.404	< 0.50	< 0.50	< 0.10
Nitrogen, Nitrite	mg/L	0.365	< 0.50	< 0.50	< 0.10
Sulfate	mg/L	13.9	7.9	< 1.0	13.1
Sulfide	mg/L	3.2	< 5.0	< 5.0	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	18	9	5.5	14.5
Magnesium	mg/L	4.9	2.7	1.7	4.4
Potassium	mg/L	1.2	0.95	0.51	1.1
Sodium	mg/L	9.4	4.4	3.6	7.8
<b>General</b>					
Hardness	mg/L	67	36	22	56.8
Total Dissolved Solids	mg/L	125	60	78.0	190
Total Suspended Solids	mg/L	12	-	4.3	< 3.3

Explanations of abbreviations are included on the final page of this table.

MER-002 (Monitoring)

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

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	11.4	7.64	6.7
ORP	mV	-	37.9	154.5	165.9
pH	SU	6.0-7.0	<b>7.23</b>	6.8	<b>7.04</b>
Specific Conductance	uS/cm	-	58.8	85.2	126.7
Temperature	C	-	0.28	11.76	17.62
Turbidity	NTU	-	9.8	2.3	7.24
Flow	cfs	-	NM	NM	331.21
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	0.7	-	-	< 1.0
Arsenic	ug/L	3.3	<b>1.5</b>	<b>1.2</b>	<b>2.6</b>
Barium	ug/L	15	-	-	<b>11.6</b>
Beryllium	ug/L	0.73	-	-	< 1.0
Boron	ug/L	15	-	-	<b>15.6</b>
Cadmium	ug/L	0.09	-	-	< 0.20
Chromium	ug/L	0.85	-	-	< 1.0
Cobalt	ug/L	0.65	-	-	< 1.0
Copper	ug/L	0.92	<b>0.51</b>	<b>0.73</b>	<b>0.39</b>
Iron	ug/L	4268	<b>2500</b>	<b>1500</b>	<b>3050</b>
Lead	ug/L	0.35	<b>0.163</b>	<b>0.190</b>	<b>0.125</b>
Lithium	ug/L	5.69	-	-	< 8.0
Manganese	ug/L	280	<b>200</b>	<b>110</b>	<b>182</b>
Mercury	ng/L	7.6	<b>4.02</b>	<b>4.71</b>	<b>2.68</b>
Molybdenum	ug/L	0.8	-	-	< 1.0
Nickel	ug/L	1.3	<b>1.21</b>	<b>0.89</b>	<b>1.56</b>
Selenium	ug/L	0.2	-	-	< 1.0
Silver	ug/L	0.12	-	-	< 0.20
Thallium	ug/L	0.7	-	-	< 1.0
Vanadium	ug/L	1.2	-	-	<b>1.1</b>
Zinc	ug/L	2.9	<b>2.16</b>	<b>2.45</b>	<b>1.31</b>
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	56	<b>25</b>	<b>18</b>	<b>45.3</b>
Alkalinity, Carbonate	mg/L	2	< 2.0	< 2.0	< 2.0
Chloride	mg/L	19	<b>8.1</b>	<b>7.3</b>	<b>15.3</b>
Fluoride	mg/L	0.29	< 0.10	<b>0.37</b>	< 1.0
Nitrogen, Ammonia	mg/L	2.0 (P)	< 0.50	< 0.50	<b>0.0267</b>
Nitrogen, Nitrate	mg/L	0.343	< 0.50	< 0.50	< 0.10
Nitrogen, Nitrite	mg/L	0.365	< 0.50	< 0.50	< 0.10
Sulfate	mg/L	16	<b>9.1</b>	< 1.0	<b>16.5</b>
Sulfide	mg/L	3.2	< 5.0	< 5.0	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	19	<b>9</b>	<b>5.9</b>	<b>14.2</b>
Magnesium	mg/L	5.3	<b>2.8</b>	<b>1.9</b>	<b>4.4</b>
Potassium	mg/L	1.4	<b>1</b>	<b>0.57</b>	<b>1.2</b>
Sodium	mg/L	11	<b>4.8</b>	<b>5.0</b>	<b>9.4</b>
<b>General</b>					
Hardness	mg/L	71	<b>36</b>	<b>22</b>	<b>62.7</b>
Total Dissolved Solids	mg/L	141	<b>68</b>	<b>54.0</b>	<b>114</b>
Total Suspended Solids	mg/L	3.1	-	<b>5.2</b>	< 3.3

Explanations of abbreviations are included on the final page of this table.

MER-003 (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**WBR-001 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	9.66	6.58	NM
ORP	mV	-	195.7	211.5	NM
pH	SU	5.0-6.0	5.27	5.05	NM
Specific Conductance	uS/cm	-	35	71.9	NM
Temperature	C	-	0.12	11.07	NM
Turbidity	NTU	-	4.16	0.3	NM
Flow	cfs	-	0.169	NM	NM
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	NM
Antimony	ug/L	0.7	-	-	NM
Arsenic	ug/L	8.7	<b>1.1</b>	< 1.0	NM
Barium	ug/L	26	-	-	NM
Beryllium	ug/L	0.73	-	-	NM
Boron	ug/L	12.7	-	-	NM
Cadmium	ug/L	0.059	-	-	NM
Chromium	ug/L	2.7	-	-	NM
Cobalt	ug/L	0.85	-	-	NM
Copper	ug/L	1	<b>0.77</b>	<b>0.83</b>	NM
Iron	ug/L	11056	<b>1300</b>	<b>1000</b>	NM
Lead	ug/L	1.8	<b>0.797</b>	<b>0.746</b>	NM
Lithium	ug/L	8.6	-	-	NM
Manganese	ug/L	641	<b>97</b>	<b>45</b>	NM
Mercury	ng/L	17	<b>8.33</b>	<b>9.54</b>	NM
Molybdenum	ug/L	8.1	-	-	NM
Nickel	ug/L	1.9	<b>0.71</b>	<b>0.67</b>	NM
Selenium	ug/L	0.325	-	-	NM
Silver	ug/L	0.122	-	-	NM
Thallium	ug/L	0.7	-	-	NM
Vanadium	ug/L	4.2	-	-	NM
Zinc	ug/L	9.2	<b>5.48</b>	<b>5.28</b>	NM
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	15	<b>5.1</b>	<b>3.8</b>	NM
Alkalinity, Carbonate	mg/L	2	< 2.0	< 2.0	NM
Chloride	mg/L	24	<b>10</b>	<b>13</b>	NM
Fluoride	mg/L	0.26	< 0.10	< 0.10	NM
Nitrogen, Ammonia	mg/L	0.78	< 0.50	< 0.50	NM
Nitrogen, Nitrate	mg/L	0.342	< 0.50	< 0.50	NM
Nitrogen, Nitrite	mg/L	0.365	< 0.50	< 0.50	NM
Sulfate	mg/L	9.3	< 120	< 25	NM
Sulfide	mg/L	3.2	< 5.0	< 5.0	NM
<b>Major Cations</b>					
Calcium	mg/L	8.3	<b>3.5</b>	<b>2.9</b>	NM
Magnesium	mg/L	3.3	<b>1.4</b>	<b>1.1</b>	NM
Potassium	mg/L	2.6	<b>0.91</b>	<b>0.69</b>	NM
Sodium	mg/L	11	<b>4.7</b>	<b>6.5</b>	NM
<b>General</b>					
Hardness	mg/L	38	<b>16</b>	<b>16</b>	NM
Total Dissolved Solids	mg/L	204	<b>60</b>	<b>167</b>	NM
Total Suspended Solids	mg/L	34	-	< 3.3	NM

Explanations of abbreviations are included on the final page of this table.

WBR-001 (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data**  
**WBR-002 (Monitoring)**

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	1.6	8.59	6.63
ORP	mV	-	116.4	133.6	158.4
pH	SU	6.3-7.3	6.2	6.58	7.4
Specific Conductance	uS/cm	-	141.2	167	172.3
Temperature	C	-	1.34	13.09	19.82
Turbidity	NTU	-	22.2	12.57	29.12
Flow	cfs	-	NM	2.66	8.21
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	90.4
Antimony	ug/L	0.72	-	-	< 1.0
Arsenic	ug/L	10	3.5	1.4	4
Barium	ug/L	19	-	-	8.7
Beryllium	ug/L	0.73	-	-	< 1.0
Boron	ug/L	18	-	-	16.8
Cadmium	ug/L	0.09	-	-	< 0.20
Chromium	ug/L	10	-	-	< 1.0
Cobalt	ug/L	0.8	-	-	< 1.0
Copper	ug/L	1.34	1.18	1.44	0.99
Iron	ug/L	15593	7300	2300	9740
Lead	ug/L	0.252	0.293	0.255	0.332
Lithium	ug/L	5.6	-	-	< 8.0
Manganese	ug/L	1295	890	95	278
Mercury	ng/L	4.3	2.68	2.78	1.93
Molybdenum	ug/L	2.8	-	-	< 1.0
Nickel	ug/L	1.9	2.67	1.85	2.02
Selenium	ug/L	0.176	-	-	< 1.0
Silver	ug/L	0.122	-	-	< 0.20
Thallium	ug/L	0.72	-	-	< 1.0
Vanadium	ug/L	0.83	-	-	< 1.0
Zinc	ug/L	4.5	2.86	1.66	1.84
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	41	98	13	31.4
Alkalinity, Carbonate	mg/L	2	< 2.0	< 2.0	< 2.0
Chloride	mg/L	56	48	32	42.9
Fluoride	mg/L	0.31	< 0.10	< 0.10	< 1.0
Nitrogen, Ammonia	mg/L	0.61	< 0.50	< 0.50	0.0313
Nitrogen, Nitrate	mg/L	0.36	< 0.50	< 0.50	< 0.1
Nitrogen, Nitrite	mg/L	0.365	< 0.50	< 0.50	< 0.1
Sulfate	mg/L	10.1	< 1.0	< 1.0	< 1.0
Sulfide	mg/L	3.2	< 5.0	< 5.0	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	13	10	4.7	9
Magnesium	mg/L	5.8	4.9	2.2	4.2
Potassium	mg/L	2.7	1.9	1.3	0.97
Sodium	mg/L	28	24	16	22.2
<b>General</b>					
Hardness	mg/L	56	40	22	43.1
Total Dissolved Solids	mg/L	182	126	198	197
Total Suspended Solids	mg/L	9.8	-	6.9	3.9

Explanations of abbreviations are included on the final page of this table.

WBR-002 (Monitoring)

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

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017
<b>Field</b>					
D.O.	ppm	-	5.13	3.73	5.6
ORP	mV	-	21.5	117.2	68.5
pH	SU	6.1-7.1	6.68	6.2	<b>7.53</b>
Specific Conductance	uS/m	-	101.8	134.8	175.4
Temperature	C	-	0.18	10.86	18.07
Turbidity	NTU	-	18.8	6.64	38.79
Flow	cfs	-	NM	NM	NM
<b>Metals</b>					
Aluminum	ug/L	200 (p)	-	-	< 50.0
Antimony	ug/L	0.7	-	-	< 1.0
Arsenic	ug/L	4.4	<b>2.8</b>	<b>1.4</b>	<b>4.2</b>
Barium	ug/L	19	-	-	<b>17.8</b>
Beryllium	ug/L	0.7	-	-	< 1.0
Boron	ug/L	19.1	-	-	<b>12.9</b>
Cadmium	ug/L	0.09	-	-	< 0.20
Chromium	ug/L	0.74	-	-	< 1.0
Cobalt	ug/L	1.2	-	-	< 1.0
Copper	ug/L	1	<b>0.54</b>	<b>0.67</b>	<b>0.5</b>
Iron	ug/L	11315	<b>9300</b>	<b>3100</b>	<b>10200</b>
Lead	ug/L	0.44	<b>0.169</b>	<b>0.165</b>	<b>0.102</b>
Lithium	ug/L	5.53	-	-	< 8.0
Manganese	ug/L	2101	<b>790</b>	<b>130</b>	<b>1090</b>
Mercury	ng/L	6	<b>2.76</b>	<b>2.93</b>	<b>3.1</b>
Molybdenum	ug/L	1.9	-	-	< 1.0
Nickel	ug/L	1.8	<b>1.36</b>	<b>1.05</b>	<b>1.74</b>
Selenium	ug/L	0.19	-	-	< 1.0
Silver	ug/L	0.12	-	-	< 0.20
Thallium	ug/L	0.72	-	-	< 1.0
Vanadium	ug/L	0.82	-	-	< 1.0
Zinc	ug/L	10	<b>3.28</b>	<b>1.94</b>	<b>2.15</b>
<b>Major Anions</b>					
Alkalinity, Bicarbonate	mg/L	56	<b>28</b>	<b>17</b>	<b>48.8</b>
Alkalinity, Carbonate	mg/L	2	< 2.0	< 2.0	< 2.0
Chloride	mg/L	43	<b>31</b>	<b>20</b>	<b>32.7</b>
Fluoride	mg/L	0.34	< 0.10	< 0.10	< 1.0
Nitrogen, Ammonia	mg/L	2.0 (P)	< 0.50	< 0.50	<b>0.0792</b>
Nitrogen, Nitrate	mg/L	0.303	< 0.50	< 0.50	< 0.1
Nitrogen, Nitrite	mg/L	0.365	< 0.50	< 0.50	< 0.1
Sulfate	mg/L	13.8	< 1.0	< 1.0	< 1.0
Sulfide	mg/L	3.17	< 5.0	< 5.0	< 0.20
<b>Major Cations</b>					
Calcium	mg/L	16	<b>9</b>	<b>5.3</b>	<b>12.1</b>
Magnesium	mg/L	6.6	<b>4.1</b>	<b>2.6</b>	<b>5</b>
Potassium	mg/L	2	<b>1.9</b>	<b>1.2</b>	<b>1.9</b>
Sodium	mg/L	21	<b>15</b>	<b>12</b>	<b>15.9</b>
<b>General</b>					
Hardness	mg/L	69	<b>40</b>	<b>24</b>	<b>56.8</b>
Total Dissolved Solids	mg/L	184	<b>144</b>	<b>104</b>	<b>307</b>
Total Suspended Solids	mg/L	15.4	-	<b>5.0</b>	<b>18.2</b>

Explanations of abbreviations are included on the final page of this table.

WBR-003 (Monitoring)

**2017**  
**Mine Permit Groundwater Quality Monitoring Data Abbreviations & Data Qualifiers**  
**Humboldt Mill**

*Explanations of abbreviations are included on the final page of this table.*

*Abbreviations & Data Qualifiers*

**Notes:**

Benchmarks are calculated based on guidance from Eagles Mine's Development of Site Specific Benchmarks for Mine Permit Water Quality Monitoring.

Results in **bold** text indicate that the parameter was detected at a level greater than the laboratory reporting limit.

Highlighted Cell = Value is equal to or above site-specific benchmark. An exceedance occurs if there are 2 consecutive sampling events with a value equal to or greater than the benchmark at a compliance monitoring location.

(p) = Due to less than two detections in baseline dataset, benchmark defaulted to four times the reporting limit.

--Denotes no benchmark required or parameter was not required to be collected during the sampling quarter.

NM = Not measured during the sampling event.