

2017
Mine Permit Groundwater Quality Monitoring Data
HW-1L (Monitoring)
Humboldt Mill

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.45	2.76	1.76	0.22	0.75
ORP	mV	-	-	-232	-31.8	-192.6	-307.4	274.5
pH	SU	9.0-10.0	8.14-9.14	8.38	8.56	8.37	7.72	8.49
Specific Conductance	uS/cm	-	-	361	247.4	355.6	357.2	382.5
Temperature	C	-	-	7.5	8.2	11.29	8.37	7.9
Turbidity	NTU	-	-	29.4	10.69	4.6	3.47	3.54
Water Elevation	ft MSL	-	-	1465.85	1464.52	1463.67	1485.53	1458.45
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	745.21	-	-	632	-	-
Cadmium	ug/L	4.0 (p)	3.000	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	1134	1186.83	670	610	622	907	446
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	23.04	-	-	18.7	-	-
Manganese	ug/L	23	200	< 50	< 50	< 50	< 50	< 50
Mercury	ng/L	4.0 (p)	4.0	< 1.00	< 1.00	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.8	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	11	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	117	109.06	84	82	81.3	82.3	80
Alkalinity, Carbonate	mg/L	14	7.8	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	52	57.2	46	45	46	46	44.8
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.04	0.1	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	24	33.01	25	25	24	25.8	25.4
Sulfide	mg/L	0.80 (p)	0.8	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	35	34.39	26	24	25.7	27.9	25.4
Magnesium	mg/L	17	14.63	11	11	11.2	11.2	10.4
Potassium	mg/L	11	6.17	2.1	1.8	1.9	1.8	1.8
Sodium	mg/L	27	28.01	25	25	24.3	23.4	21.9
General								
Hardness	mg/L	157	155.68	114	111	114	128	139

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	1.05	2.01	2.06	3.09	0.68
ORP	mV	-	-	-143	-50.4	-91.8	-53.4	-91.4
pH	SU	8.6-9.6	8.06-9.06	8.82	9.04	8.99	8.43	9.43
Specific Conductance	uS/cm	-	-	4.69	324.5	435.2	442.6	523.1
Temperature	C	-	-	7.03	8.18	10.5	8.06	6.4
Turbidity	NTU	-	-	978	855.47	777	869	893
Water Elevation	ft MSL	-	-	1489.96	1494.49	1495.62	1512.99	1521.55
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	9.6	11	7.4	< 5.0	< 5.0	8.6
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	8.56	7.1	4.1	< 4.0	< 4.0	7.7
Iron	ug/L	800 (p)	56769.6	35000	35000	< 200	3230	45200
Lead	ug/L	12 (p)	15.0	110	59	< 3.0	8.2	86.7
Lithium	ug/L	40 (p)	17.39	-	-	16	-	-
Manganese	ug/L	200 (p)	672.84	490	290	< 50	< 50	455
Mercury	ng/L	4.0 (p)	14.2	9.8	< 10.0	< 1.0	4.97	3.95
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	40 (p)	44.15	35	20	< 10	< 10	33.8
Major Anions								
Alkalinity, Bicarbonate	mg/L	125	156.67	170	120	82.8	78.8	48.5
Alkalinity, Carbonate	mg/L	66	64.24	< 2.0	39	42.4	56.6	82.8
Chloride	mg/L	40 (p)	61.2	44	46	46	65.8	90.1
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.1 (p)	0.299	0.32	0.36	0.347	0.427	0.567
Nitrogen, Nitrate	mg/L	0.40 (p)	0.57	< 0.1	< 0.1	0.426	0.137	0.129
Nitrogen, Nitrite	mg/L	0.40 (p)	0.78	< 0.1	0.6	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	58	395.42	130	150	434	372	299
Sulfide	mg/L	0.36	0.80	< 2.0	< 5.0	< 10.0	< 5.0	< 5.0
Major Cations								
Calcium	mg/L	29	61.29	61	61	2.6	7.2	64
Magnesium	mg/L	15	25.82	24	26	< 1.0	2.4	26.4
Potassium	mg/L	50	16.88	4.1	3.6	1.0	1.0	5.3
Sodium	mg/L	33	134.27	130	110	85.5	99.4	136
General								
Hardness	mg/L	132	170.91	130	158	9.8	30	30

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.59	0.98	0.4	0.36	0.48
ORP	mV	-	-	-234	-179.6	-268.9	-281.6	-281.4
pH	SU	8.4-9.4	8.4-9.4	8.83	8.85	8.93	8.63	8.94
Specific Conductance	uS/cm	-	-	210	97.2	157	175.3	182.8
Temperature	C	-	-	5.81	8.05	10.91	8.63	5.7
Turbidity	NTU	-	-	3.5	9.97	1.96	4.67	4.72
Water Elevation	ft MSL	-	-	1530.25	1532.32	1532.19	1532.13	1531.72
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	11	9.3	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	800 (p)	1364.17	< 200	< 200	296	224	<200
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	16.74	-	-	< 10	-	-
Manganese	ug/L	75.3	80.14	< 50	< 50	< 50	< 50	< 50
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	127.11	121.72	88.0	63	62.1	76.2	81.0
Alkalinity, Carbonate	mg/L	13.76	17.08	6.2	4.1	8.1	6.1	< 2.0
Chloride	mg/L	120.74	96.09	< 10	< 10	< 10	< 10	< 10
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	0.097	< 0.025	< 0.025	< 0.025	< 0.025	0.028
Nitrogen, Nitrate	mg/L	0.67	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	76.15	72.34	5.6	1.5	< 1.0	< 1.0	2.1
Sulfide	mg/L	1.31	2.47	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	45.61	34.03	15	14	14.2	16.8	14.8
Magnesium	mg/L	17.38	15.63	6	3.9	4.5	5.5	5.5
Potassium	mg/L	21.78	20.91	5.2	2.3	2.8	3.2	3.4
Sodium	mg/L	90.93	67.74	17	6.9	7.4	6.7	7.7
General								
Hardness	mg/L	188.88	146.74	68	46	62.7	72	88.2

2017
Mine Permit Groundwater Quality Monitoring Data
HW-2 (Monitoring)
Humboldt Mill

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.3	0.46	0.4	0.41	0.49
ORP	mV	-	-	-181	-219.7	-190.4	-81.8	-231.9
pH	SU	7.7-8.7	7.29-8.29	7.74	8.3	7.71	7.91	8.07
Specific Conductance	uS/cm	-	-	644	456	454.1	672.4	699.2
Temperature	C	-	-	9.0	10.04	10.6	11.47	10.1
Turbidity	NTU	-	-	39.0	110.3	39.06	55.74	356.1
Water Elevation	ft MSL	-	-	1530.24	1532.01	1531.1	1532.55	1533.17
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	3401.08	2594.79	1400	< 200	1390	1290	912
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10	-	-
Manganese	ug/L	323.84	333.37	320	170	294	306	304
Mercury	ng/L	1.31	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	145.02	141.40	110	120	114	109	99
Alkalinity, Carbonate	mg/L	8.0 (p)	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	25.13	34.7	28	28	27.3	33.7	33.5
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.047	0.083	0.073	0.06	0.0269	0.0281	<0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	0.111	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	134.73	175.33	150	150	142	156	135
Sulfide	mg/L	0.47	0.52	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	72.1	71.88	59	56	54.4	59.2	57
Magnesium	mg/L	27.74	26.49	25	24	21.1	23.7	22.7
Potassium	mg/L	7.08	6.12	5.1	4.9	4.2	5.3	5.1
Sodium	mg/L	15.47	29.55	27	26	22.8	29.5	33.8
General								
Hardness	mg/L	277.43	296.9	254	261	254	262	161

2017
Mine Permit Groundwater Quality Monitoring Data
HW-8U (Monitoring)
Humboldt Mill

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.81	1.78	1.54	0.2	2.87
ORP	mV	-	-	-120	-92.2	-98.1	-106.9	-86.4
pH	SU	6.4-7.4	6.4-7.4	7.16	6.85	6.76	6.15	6.84
Specific Conductance	uS/cm	-	-	268	223.2	333.6	353.1	454.6
Temperature	C	-	-	7.52	8.25	10.21	8.43	6.1
Turbidity	NTU	-	-	1.9	3.96	2.49	2.24	7.35
Water Elevation	ft MSL	-	-	1531.57	1534.27	1534.38	1533.86	1533.04
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	8.8	7.3	5.3	6.3	7.9	8.5
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	27124.65	22048.83	8300	7800	8010	7000	8810
Lead	ug/L	12 (p)	9	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	14.39	-	-	< 10	-	-
Manganese	ug/L	5498	6267.76	4900	3800	3840	5830	5820
Mercury	ng/L	4.0 (p)	4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.8	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	25.72	26.73	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	237.47	214.17	140	130	127	147	154
Alkalinity, Carbonate	mg/L	8.0 (p)	8	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	18.35	13	13	14.6	17.4	18.9
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.04	0.041	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	2.64	12.26	8.9	9.6	9.3	11.6	13.2
Sulfide	mg/L	0.80 (p)	0.8	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	53.48	45.93	33	31	32.1	35.7	40.2
Magnesium	mg/L	22.17	18.68	11	12	11.5	11.1	12.5
Potassium	mg/L	4.07	3.64	2.9	3.0	2.8	2.7	3.1
Sodium	mg/L	4.43	4.26	3.3	3.2	3.5	3.5	4.2
General								
Hardness	mg/L	224.05	203.47	148	141	156	170	157

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.34	0.22	0.38	0.41	0.66
ORP	mV	-	-	33	21.7	21.7	179.2	33.4
pH	SU	6.25-7.25	6.29-7.29	6.64	6.78	6.54	6.60	6.81
Specific Conductance	uS/cm	-	-	865	565.4	507.4	806.5	761.3
Temperature	C	-	-	8.0	7.46	8.6	8.91	7.6
Turbidity	NTU	-	-	1.1	2.21	1.45	1.53	1.11
Water Elevation	ft MSL	-	-	1530.72	1532.87	1533.8	1533.62	1532.87
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	7.4	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	<100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	4.4	9.22	4.2	< 4.0	< 4.0	< 4.0	12.3
Iron	ug/L	800(p)	481.9	< 200	< 200	212	353	<200
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10	-	-
Manganese	ug/L	286	627.41	440	380	435	688	671
Mercury	ng/L	6.2	37.3	26.3	29.2	16.6	20.6	7.99
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	19	25.31	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	157	372.91	370	250	246	297	259
Alkalinity, Carbonate	mg/L	8.0 (p)	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	12	21.5	11	< 10	11.4	11.9	11
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.38	0.56	0.34	0.46	0.523	0.686	0.333
Nitrogen, Nitrate	mg/L	0.26	0.08	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	98	136.69	100	120	128	113	122
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	52	65.21	61	50	53	61.3	58.1
Magnesium	mg/L	28	34.32	31	26	27.6	32.9	28.1
Potassium	mg/L	8.4	12.96	13	11	10.7	12	11.1
Sodium	mg/L	14	80.47	78	59	51.1	55.8	49
General								
Hardness	mg/L	230	321.93	300	248	262	300	284

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	NM	NM	NM	5.24	5.08
ORP	mV	-	-	NM	NM	NM	286.3	14
pH	SU	6.7-7.7	6.67-7.67	NM	NM	NM	7.11	7.15
Specific Conductance	uS/cm	-	-	NM	NM	NM	880.3	868.5
Temperature	C	-	-	NM	NM	NM	8.37	7.7
Turbidity	NTU	-	-	NM	NM	NM	1454.96	2076.5
Water Elevation	ft MSL	-	-	1557.2	1560.44	1559.68	1559.63	1554.17
Metals								
Aluminum	ug/L	200 (p)	200	-	-	9110	-	-
Antimony	ug/L	8.0 (p)	4	-	-	< 2.0	-	-
Arsenic	ug/L	6	7.5	< 5.0	< 5.0	10.2	< 5.0	18.4
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	1.6	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	13.4	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	14.6	28.32	8	< 4.0	20	17	51.8
Iron	ug/L	33432	52956	13000	400	62700	22500	91200
Lead	ug/L	4.8	9	< 3.0	< 3.0	< 3.0	< 3.0	6.4
Lithium	ug/L	40 (p)	31.39	-	-	31.1	-	-
Manganese	ug/L	2815	2789	2100	1600	1970	1250	2330
Mercury	ng/L	2.1	14.89	7.42	< 1.00	10.9	9.64	24.1
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	22.8	< 20	47.4
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.8	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	12.7	-	-
Zinc	ug/L	19.05	23.65	< 10	< 10	16.8	13.2	33.9
Major Anions								
Alkalinity, Bicarbonate	mg/L	486.4	480.97	380	400	390	378	372
Alkalinity, Carbonate	mg/L	3.31	8	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	139.4	191.74	17	< 10	< 10	< 10	< 10
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.76	0.063	0.03	0.054	0.0308	0.0266	<0.025
Nitrogen, Nitrate	mg/L	0.11	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.06	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	123.12	138.86	120	110	108	99.4	86.9
Sulfide	mg/L	3.88	0.8	< 0.20	< 0.20	< 1.0	< 1.0	<0.62
Major Cations								
Calcium	mg/L	168.98	166.39	130	120	115	108	123
Magnesium	mg/L	66.57	65.48	51	47	53.3	45.6	55.4
Potassium	mg/L	9.05	8.30	7.6	7.3	7.5	7.3	7.8
Sodium	mg/L	50.02	7.71	5.8	7.2	7.4	7.4	8.5
General								
Hardness	mg/L	800	757.06	504	277	480	484	490

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	4	1.65	1.91	0.52	1.81
ORP	mV	-	-	199	128.8	106.1	219.6	215.7
pH	SU	5.4-6.4	5.4-6.4	5.94	6.04	6.05	6.05	5.89
Specific Conductance	uS/cm	-	-	736	214.5	330.4	450.7	364.3
Temperature	C	-	-	9	9.41	12.9	11.3	5.8
Turbidity	NTU	-	-	1.8	383.75	4.18	363.1	2.57
Water Elevation	ft MSL	-	-	1596.87	1597.03	1592.03	1595.16	1595.96
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	25	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	5	38.92	< 4.0	< 4.0	< 4.0	< 4.0	5.4
Iron	ug/L	25558	4098.78	< 200	< 200	< 200	1840	< 200
Lead	ug/L	0.038	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10	-	-
Manganese	ug/L	1694	1376.02	63	< 50	255	580	124
Mercury	ng/L	1	10.07	< 1.0	< 1.0	1.34	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	185.91	28	33	22.4	57.5	116
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	25	38.14	16	40	20.9	24.5	37.1
Major Anions								
Alkalinity, Bicarbonate	mg/L	137	85.44	30	23	62.6	41.4	28.8
Alkalinity, Carbonate	mg/L	2	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	711	184.87	77	17	< 10	10.5	20
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.36	0.22	< 0.025	< 0.025	< 0.025	0.078	< 0.025
Nitrogen, Nitrate	mg/L	1	3.8	2.7	0.53	0.36	< 0.1	0.949
Nitrogen, Nitrite	mg/L	0.07	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	343	334.5	180	65	120	141	135
Sulfide	mg/L	1	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	123	116.03	78	23	38.8	45.4	35.9
Magnesium	mg/L	48	41.43	30	8.8	15.6	16.4	12.5
Potassium	mg/L	8	5.21	3.6	2.0	2.8	2.6	2.6
Sodium	mg/L	289	47.56	15	7.2	9.7	7.7	6.7
General								
Hardness	mg/L	510	479.44	300	103	174	182	161

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	5.06	7.69	7.54	5.98	4.15
ORP	mV	-	-	182	148.2	152.1	312.9	179.8
pH	SU	5.8-6.8	5.46-6.46	5.9	5.84	5.8	5.91	6.11
Specific Conductance	uS/cm	-	-	143	97	89	117.5	222.4
Temperature	C	-	-	6.6	7.71	10.3	8.69	4.24
Turbidity	NTU	-	-	2.2	4.01	16.93	1.59	2.57
Water Elevation	ft MSL	-	-	1530.36	1532.5	1531.66	1531.62	1531.67
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	458.54	497.99	< 200	< 200	< 200	< 200	< 200
Lead	ug/L	12 (p)	9	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10	-	-
Manganese	ug/L	4800.88	5262.51	< 50	< 50	< 50	< 50	50.4
Mercury	ng/L	11.19	8.44	1.2	< 1.0	< 1.0	< 1.0	1.34
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.8	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	189.4	117.82	41	44	37	29.7	58.6
Alkalinity, Carbonate	mg/L	8.0 (p)	8	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	18.59	22.96	< 10	< 10	< 10	< 10	13.2
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.39	0.402	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	3.1	1.87	0.94	0.5	0.138	0.448	0.777
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	109.52	85.65	19	20	14.2	15.5	20.2
Sulfide	mg/L	0.22	0.8	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	57.31	43.04	10	10	9.1	9.2	18.9
Magnesium	mg/L	26.33	18.63	4.7	4.5	4.1	4.3	7.3
Potassium	mg/L	9.18	8.95	3.0	2.5	2.4	2.4	3.0
Sodium	mg/L	14.29	11.68	6.6	6.6	5.5	5.1	7.2
General								
Hardness	mg/L	271.75	199.04	48	48	42	48	106

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.09	0.2	0.37	0.46	0.50
ORP	mV	-	-	-216	-237.8	-189.2	-29.7	-207.2
pH	SU	7.2-8.2	6.71-7.71	7.34	7.49	7.27	7.26	7.48
Specific Conductance	uS/cm	-	-	394	359.7	250.9	382.8	387.5
Temperature	C	-	-	7.5	7.66	8.5	7.81	6.7
Turbidity	NTU	-	-	49	47.9	21.26	6.45	76.07
Water Elevation	ft MSL	-	-	1530.55	1532.83	1531.08	1531.9	1532.06
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	157.47	-	-	135	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	30.27	45.38	< 4.0	9.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	27404.89	24957.73	18000	16000	14400	16200	15000
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	12.91	-	-	11	-	-
Manganese	ug/L	6881.06	4677.42	2200	1900	2340	2390	2260
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	26.48	13.83	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	171.66	161.71	150	140	141	133	145
Alkalinity, Carbonate	mg/L	18.42	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	43.13	48.85	< 10	< 10	< 10	< 10	< 10
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	1.6	1.75	< 0.025	0.053	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	80.45	52.19	16	6.8	15.6	21.3	19.6
Sulfide	mg/L	1.7	1.86	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	40.07	38.59	32	30	31.8	33.9	34.6
Magnesium	mg/L	16.19	16.16	14	13	13.5	15	14.8
Potassium	mg/L	12.53	8.53	3	3.2	2.8	2.9	2.7
Sodium	mg/L	55.79	33.46	4.6	4.7	4.4	4.7	4.5
General								
Hardness	mg/L	163.45	163.25	152	141	144	152	176

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	1.05	1.53	1.18	0.68	1.3
ORP	mV	-	-	123	-47.5	-46.8	41.6	-47.1
pH	SU	9.8-10.8	8.81-9.91	6.88	10.84	9.16	7.54	9.96
Specific Conductance	uS/cm	-	-	488	444.1	288.3	319.5	421.6
Temperature	C	-	-	7	7.08	7.6	7.12	6.8
Turbidity	NTU	-	-	30.8	6.19	10.91	4.8	1.78
Water Elevation	ft MSL	-	-	1529.76	1531.47	1529.9	1529.87	1530.82
Metals								
Aluminum	ug/L	200 (p)	122.72	-	-	89.9	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	7.52	7.5	< 5.0	5.4	< 5.0	< 5.0	< 5.0
Barium	ug/L	154.72	195.71	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10.0	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20.0	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	386.05	800	< 200	< 200	< 200	< 200	< 200
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10.0	-	-
Manganese	ug/L	717.08	545.68	91	< 50	< 50	< 50	< 50
Mercury	ng/L	4.0 (p)	3.55	1.34	< 1.00	2.49	2.61	1.49
Molybdenum	ug/L	200 (p)	200	-	-	< 50.0	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	12.79	-	-	4.6	-	-
Zinc	ug/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	193.52	160.17	130	80	94.9	116	75.8
Alkalinity, Carbonate	mg/L	53.68	40.7	< 2.0	12	12.1	< 2.0	8.1
Chloride	mg/L	12.47	17.58	< 10	< 10	< 10	< 10	< 10
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.03	0.042	< .025	< .025	<0.025	<0.025	<0.025
Nitrogen, Nitrate	mg/L	1.8	1.24	0.52	1.1	0.613	0.285	1.06
Nitrogen, Nitrite	mg/L	0.12	0.18	< 0.1	< 0.1	< 0.1	< 0.1	0.127
Sulfate	mg/L	148.08	133.19	84	86	72.3	61.5	59.8
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	99.4	78.82	34	34	28.6	26.2	28.9
Magnesium	mg/L	17.29	14.06	9.7	5.8	6.6	6.9	6.2
Potassium	mg/L	36.44	22.00	4.7	12	10.2	7	13.9
Sodium	mg/L	42.19	60.14	41	60	40.3	34.9	40.4
General								
Hardness	mg/L	285.53	251.25	124	113	108	100	114

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	5.83	3.32	1.85	3.87	1.29
ORP	mV	-	-	-72	-110.8	-174.1	-133.6	-194.1
pH	SU	8.5-9.5	7.11-8.11	8.13	7.97	7.82	7.74	8.06
Specific Conductance	uS/cm	-	-	118	171.2	261	259.6	260.3
Temperature	C	-	-	5.6	6.92	9.4	5.88	7
Turbidity	NTU	-	-	8.1	12.69	5.11	5.23	5.01
Water Elevation	ft MSL	-	-	1533.03	1531.08	1528.15	1521.18	1518.19
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	2484	1328.38	650	640	908	828	623
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	12.91	-	-	< 10	-	-
Manganese	ug/L	126	118.08	79	75	74.9	78.4	89.1
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	66	76.03	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	125	111.84	94	93	93.7	92.4	96.5
Alkalinity, Carbonate	mg/L	15	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	0.087	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	36	36.1	34	35	33.4	34.2	33.1
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	49	38.98	31	30	30.4	28.9	27.9
Magnesium	mg/L	14	11.74	10	9.8	9.7	8.9	8.8
Potassium	mg/L	22	11.24	3.4	2.9	2.9	2.8	2.7
Sodium	mg/L	8	5.20	3.4	3.1	3.3	2.9	2.8
General								
Hardness	mg/L	160	139.94	112	121	118	120	139

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	6.62	6.75	7.45	5.79	6.00
ORP	mV	-	-	104	164.1	121.7	382.1	229.1
pH	SU	7.2-8.2	6.3-7.3	6.33	6.14	6.1	6.14	6.19
Specific Conductance	uS/cm	-	-	260	127.2	121.1	194.6	199.1
Temperature	C	-	-	6.40	6.36	7.00	6.39	5.90
Turbidity	NTU	-	-	1.75	4.56	2.92	7.24	1.49
Water Elevation	ft MSL	-	-	1532.86	1535.25	1535.77	1534.51	1533.96
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	255.36	286.57	< 200	< 200	< 200	< 200	< 200
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10	-	-
Manganese	ug/L	105.05	106.54	< 50	< 50	< 50	< 50	< 50
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	99.57	92.34	56	58	49.2	50.2	54.5
Alkalinity, Carbonate	mg/L	8.0 (p)	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Fluoride	mg/L	131.24	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	0.082	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.22	1.81	1.3	1.3	1.89	1.85	1.82
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	49.72	40.56	14	20	29.1	31.1	29
Sulfide	mg/L	0.3	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	39.66	31.29	15	18	18.8	18.7	18.5
Magnesium	mg/L	10.72	9.83	6	7.4	8.2	8.8	7.9
Potassium	mg/L	3.13	2.57	1.4	1.7	1.5	1.6	1.6
Sodium	mg/L	10.48	7.74	2.3	2.3	2.2	2.2	2
General								
Hardness	mg/L	135.72	115.53	70	77	80	80	106

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	1.53	1.43	0.82	0.55	2.61
ORP	mV	-	-	3.5	-164.7	-193.6	-231.2	-231.5
pH	SU	8.3-9.3	7.44-8.44	8.44	7.90	7.99	8.00	8.19
Specific Conductance	uS/cm	-	-	156	186.6	280.4	282.3	293.3
Temperature	C	-	-	6.2	6.47	8.4	6.33	5.1
Turbidity	NTU	-	-	8.55	4.57	5.43	4.78	2.32
Water Elevation	ft MSL	-	-	1531.45	1533.05	1531.13	1532.43	1532.09
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	2440.99	1902.7	640	610	1640	1820	1630
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10	-	-
Manganese	ug/L	193.95	199.79	160	180	168	184	189
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	13.75	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	127.42	111.44	83	85	82.4	82.3	83
Alkalinity, Carbonate	mg/L	28.25	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.47	0.75	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.4 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.4 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	52.89	49.32	46	46	45.6	47.2	46.1
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	53.06	42.87	31	31	31.5	31.8	30.5
Magnesium	mg/L	16.52	13.90	11	11	10.6	10.5	10
Potassium	mg/L	5.87	4.23	2.4	2.4	2.3	2.3	2.3
Sodium	mg/L	35.15	17.31	2.9	2.9	3.0	3.0	2.8
General								
Hardness	mg/L	193.1	173.44	124	127	64.7	144	147

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.26	0.55	0.42	0.52	0.42
ORP	mV	-	-	-271	-256.7	-242.1	-256.9	-289.1
pH	SU	8.2-9.2	8.08-9.08	8.39	8.38	8.29	8.24	8.43
Specific Conductance	uS/cm	-	-	270	182.9	271	269.2	279.6
Temperature	C	-	-	6.28	6.87	7.9	6.45	6.3
Turbidity	NTU	-	-	6.1	4.85	2.25	13.57	2.94
Water Elevation	ft MSL	-	-	1531.33	1533.27	1532.59	1534.61	1530.84
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 300	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	2965.88	2081.98	560	580	676	2090	817
Lead	ug/L	12 (p)	9	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	30.13	28.08	-	-	< 10	-	-
Manganese	ug/L	100.53	94.53	73	82	74	59	81.2
Mercury	ng/L	4.0 (p)	4	< 1.00	< 1.00	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20.0	< 20.0
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.8	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	40+	40	< 10	< 10	< 10.0	< 10.0	< 10.0
Major Anions								
Alkalinity, Bicarbonate	mg/L	83.95	92.11	83	81	77.2	79.8	81
Alkalinity, Carbonate	mg/L	3.97	10.41	< 2.0	< 2.0	3.1	< 2.0	< 2.0
Chloride	mg/L	124.08	96.57	11	11	20.4	11.3	10.8
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.08	0.076	< 0.025	0.044	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	43.63	43.42	32	32	22.2	31.9	33
Sulfide	mg/L	0.80 (p)	0.8	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	38.89	33.74	26	24	25.9	25.2	25.3
Magnesium	mg/L	13.27	12.29	11	10	10.4	10.1	10
Potassium	mg/L	9.67	7.73	3.8	2.9	3	3.2	3
Sodium	mg/L	66.85	51.07	8.3	6.3	6.5	6.6	6.3
General								
Hardness	mg/L	137.58	134.66	108	111	96	120	131

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.92	1.59	1.81	0.45	0.89
ORP	mV	-	-	-255	-163.7	-156.4	-199.3	-255.7
pH	SU	8.7-9.7	8.89-9.89	9.42	10.68	9.37	9.99	8.98
Specific Conductance	uS/cm	-	-	252	199.8	261.1	269.7	300.4
Temperature	C	-	-	5.1	6.91	9.07	6.65	5.7
Turbidity	NTU	-	-	2.31	20.91	49.61	5.73	1.08
Water Elevation	ft MSL	-	-	1530.61	1532.65	1531.84	1531.32	1531.35
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	2738	861.32	< 200	< 200	< 200	798	< 200
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	17	19.81	-	-	15.5	-	-
Manganese	ug/L	60	200	< 50	< 50	< 50	< 50	< 50
Mercury	ng/L	4.0 (p)	4.0	< 1.00	< 1.00	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20.0	< 20.0
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	22	26.21	< 10	< 10	< 10	15.3	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	74	87.85	58	53	66.7	43.4	82
Alkalinity, Carbonate	mg/L	27	38.7	25	21	8.1	16.2	< 2.0
Chloride	mg/L	20	20	16	17	16.7	16.1	15.3
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12	0.12	< 0.025	0.044	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.11	0.86	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	91	72.78	16	19	26.7	23.6	99.8
Sulfide	mg/L	0.80 (p)	1.27	0.78	0.43	0.34	0.29	< 0.20
Major Cations								
Calcium	mg/L	29	27.00	11	9.3	17.2	11.5	25
Magnesium	mg/L	17	17.28	9.4	7.1	9.8	6.1	11.1
Potassium	mg/L	15	29.63	21	24	12.2	25.4	7.6
Sodium	mg/L	14	16.16	11	13	8.9	12.4	7.5
General								
Hardness	mg/L	137	139.55	68	55	96	70	137

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.11	0.5	0.35	0.45	0.76
ORP	mV	-	-	55	-44.7	129.3	65.7	147.6
pH	SU	5.5-6.5	5.43-6.43	5.9	6.04	5.65	6.25	5.85
Specific Conductance	uS/cm	-	-	451	502.9	246.7	809.7	371.8
Temperature	C	-	-	7.3	7.1	10.3	9.19	5.2
Turbidity	NTU	-	-	2	4.09	1.92	1.79	17.89
Water Elevation	ft MSL	-	-	1530.39	1533.08	1533.94	1534.17	1533.29
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	24	7.5	< 5.0	< 5.0	< 5.0	17.2	< 5.0
Barium	ug/L	400 (p)	400	-	-	<100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	37038	84519.23	6900	86000	506	103000	< 200
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10	-	-
Manganese	ug/L	7914	8782.76	7000	< 50	1170	5600	689
Mercury	ng/L	5.95	34.7	18	12.3	2.43	47	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	44 (p)	37.8	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	241	264.36	160	250	97	283	78.8
Alkalinity, Carbonate	mg/L	8.0 (p)	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	18	23.77	16	16	16.8	< 10	16.9
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.04	0.19	0.1	0.23	< 0.025	1.66	< 0.025
Nitrogen, Nitrate	mg/L	0.17	1.47	0.47	< 0.1	0.81	0.127	1.15
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	23	44.8	32	9.2	40.3	15.6	54.7
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
General								
Calcium	mg/L	51	47.35	38	42	32.5	37	32.9
Magnesium	mg/L	9	14.76	10	15	12.1	14.7	12.2
Potassium	mg/L	3.11	6.10	2.7	3.7	2.5	9.0	2.3
Sodium	mg/L	27	32.26	22	29	10.6	25.7	10.7
General								
Hardness	mg/L	185	191.15	160	192	136	150	167

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.09	0.89	1.49	0.58	0.97
ORP	mV	-	-	-150	-171.6	-79.6	29.6	-108.1
pH	SU	6.4-7.4	6.4-7.4	6.97	7.23	6.42	6.74	6.81
Specific Conductance	uS/cm	-	-	506	297.5	363.9	607.6	599.1
Temperature	C	-	-	7.6	7.68	8.8	8.45	7.4
Turbidity	NTU	-	-	149	43.68	23.91	34.82	39.98
Water Elevation	ft MSL	-	-	1530.75	1533.42	1534.64	1534.74	1533.89
Metals								
Aluminum	ug/L	200 (p)	5824.36	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	5	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	23040	44051.82	14000	20000	24200	45100	42900
Lead	ug/L	4	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	30.14	-	-	< 10	-	-
Manganese	ug/L	618	1384.15	1000	1300	693	873	906
Mercury	ng/L	2	1.4	< 1.0	< 1.0	< 1.0	1.28	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	15	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	181	198.18	170	170	149	188	158
Alkalinity, Carbonate	mg/L	8.0 (p)	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	18	24.46	15	12	22.9	23.4	21.6
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.27	0.78	0.026	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	0.333	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.14	0.18	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	38	45.37	31	12	37.5	29	44.1
Sulfide	mg/L	0.80 (p)	0.49	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	38	66.63	50	47	43.5	57.2	52.7
Magnesium	mg/L	7	14.04	9.8	10	11.3	13.4	13.1
Potassium	mg/L	4	5.28	3.8	3.9	2.8	3.3	2.7
Sodium	mg/L	65	43.16	6.4	6.2	8.5	11.1	10.7
General								
Hardness	mg/L	106	226.12	186	180	170	192	216

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q4 2017
Field								
D.O.	ppm	-	-	0.72	1.73	1.11	0.32	0.54
ORP	mV	-	-	-180	-139.9	-214.4	-288.7	-260.4
pH	SU	8.2-9.2	8.2-9.2	8.03	8.02	8.09	8.07	8.34
Specific Conductance	uS/cm	-	-	296	265.7	291.2	304.7	328.2
Temperature	C	-	-	4.19	7.77	11.1	9.91	4.1
Turbidity	NTU	-	-	10.05	24.2	5.72	39.1	3.58
Water Elevation	ft MSL	-	-	1530.88	1533.63	1534.17	1534.69	1533.36
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	4974	3308.59	870	730	538	< 200	1130
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	28.25	-	-	14.5	-	-
Manganese	ug/L	90	95.14	84	83	63.6	< 50	83.4
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	11	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	132	152.81	150	140	135	86.9	135
Alkalinity, Carbonate	mg/L	10	13.4	< 2.0	< 2.0	< 2.0	5	< 2.0
Chloride	mg/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	0.1	< 0.025	0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< .1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< .1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	23	20.79	9.1	7.8	5.3	2.2	10.3
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	33	33.39	31	28	26.9	12.7	30.3
Magnesium	mg/L	17	15.62	14	13	13.5	11	13.7
Potassium	mg/L	5	12.01	4.5	3.9	4.3	10	5.9
Sodium	mg/L	5	15.49	3.8	3.6	4	5.5	4.5
General								
Hardness	mg/L	149	156.51	140	145	134	88	161

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.51	0.68	1.22	0.25	0.99
ORP	mV	-	-	-324	-210.3	-229.1	-305.7	-258.6
pH	SU	8.6-9.6	8.13-9.13	8.71	8.43	8.32	8.9	8.46
Specific Conductance	uS/cm	-	-	218	217.5	251	269	263.2
Temperature	C	-	-	8.08	7.87	10.7	8.9	6.5
Turbidity	NTU	-	-	3.5	10.4	2.96	3.36	1.95
Water Elevation	ft MSL	-	-	1531.08	1533.89	1532.6	1531.8	-
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1480	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	9645	934.33	650	800	888	792	830
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	20.38	-	-	15.1	-	-
Manganese	ug/L	58	54.95	< 50	54	52.6	52.4	< 50
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	11	40	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	129	159.56	130	140	130	119	132
Alkalinity, Carbonate	mg/L	32	22.4	2.1	2.0	2.0	4.0	< 2.0
Chloride	mg/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.04	0.1	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	6	5.34	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	27	26.45	20	22	21	18	21.8
Magnesium	mg/L	14	13.52	10	12	11.1	9.3	10.6
Potassium	mg/L	4	3.26	2.4	2.6	2.5	2.3	2.4
Sodium	mg/L	14	12.84	10	11	10.8	9.1	9.9
General								
Hardness	mg/L	111	130.20	100	113	116	110	125

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.48	1.95	0.49	0.41	0.63
ORP	mV	-	-	-54	139.7	31.2	158.1	-92.4
pH	SU	5.6-6.6	5.67-6.67	6.29	5.72	5.96	6.13	6.66
Specific Conductance	uS/cm	-	-	345	124.8	181.4	223	231.1
Temperature	C	-	-	6.3	6.98	11.7	8.51	5.1
Turbidity	NTU	-	-	1.6	2.8	1.91	2.07	7.48
Water Elevation	ft MSL	-	-	1533.45	1536.89	1534.64	1535.31	1533.76
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	14081	12956.53	10000	1900	6000	6670	7440
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10	-	-
Manganese	ug/L	1674	1535.09	< 1200	280	630	601	651
Mercury	ng/L	1.0	1.8	< 1.0	< 1.0	1.53	1.07	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50.0	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	174	283.42	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	94	85.4	78	35	50.5	46.5	110
Alkalinity, Carbonate	mg/L	8.0 (p)	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	66	51.62	25	29	37.8	27.3	24.6
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.096	0.132	0.083	0.062	0.113	0.106	0.095
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	6.0	21.2	11	13	6	5.9	2.4
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	27	23.88	16	13	14.6	13.8	12.1
Magnesium	mg/L	13	10.91	7.1	5.6	6.4	6.1	5.6
Potassium	mg/L	3	3.03	2.5	2.1	2.5	2.4	2.1
Sodium	mg/L	17	16.56	13	11	14.4	14	12.3
General								
Hardness	mg/L	115	109.66	74	59	68	60	74

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	1	0.43	0.45	0.45	0.91
ORP	mV	-	-	-106	-111.1	-90.1	25.5	-117.1
pH	SU	6.7-7.7	6.59-7.59	6.89	6.86	6.77	6.95	6.96
Specific Conductance	uS/cm	-	-	38	302.7	212	311.8	387.6
Temperature	C	-	-	7.3	7.21	8.4	8.71	6.2
Turbidity	NTU	-	-	24.7	6.7	5.98	21.19	172.1
Water Elevation	ft MSL	-	-	1533.16	1536.87	1534.61	1535.41	1533.53
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50.0	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	11214	13309.31	10000	10000	9150	8350	3960
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	13.19	-	-	10.5	-	-
Manganese	ug/L	866	972.64	900	910	894	873	1440
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	17	34.43	< 10	< 10	11.6	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	103	117.78	84	88	86.4	84.4	101
Alkalinity, Carbonate	mg/L	8.0 (p)	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	35.98	25	28	30.5	31.9	30.9
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.12 (p)	0.1	< 0.025	< 0.025	< 0.025	< 0.025	0.03
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	0.107	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	15	14.23	2.7	3.4	3.9	5.6	4.7
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	26	26.00	23	23	26.4	25.2	28.6
Magnesium	mg/L	12	13.29	12	12	13.9	12	15.5
Potassium	mg/L	4	4.01	4.1	3.3	3.6	3.4	3.4
Sodium	mg/L	3	3.37	3.1	2.9	3.1	2.8	3.0
General								
Hardness	mg/L	111	127.17	114	121	134	120	172

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.3	0.71	0.31	0.43	0.94
ORP	mV	-	-	38.6	55.5	61.5	199.1	63.6
pH	SU	6.2-7.2	5.74-6.74	6.00	5.92	5.81	5.83	6.02
Specific Conductance	uS/cm	-	-	1021	842.1	714.1	1020.4	991.4
Temperature	C	-	-	7.8	10.12	9.4	8.4	7.8
Turbidity	NTU	-	-	20.1	1.96	1.65	3.14	2.91
Water Elevation	ft MSL	-	-	1558.91	1562.28	1561.16	1561.17	1559.45
Metals								
Aluminum	ug/L	200 (p)	200	-	-	79.5	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	16	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	31.38	-	-	26.7	-	-
Copper	ug/L	16 (p)	16	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Iron	ug/L	10846	8029.11	4700	3900	3960	3500	3490
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	17.21	-	-	10.9	-	-
Manganese	ug/L	27225	23484.14	18000	17000	16700	14800	15000
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	27.04	25	23	23.3	22.8	23.2
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	4.77	-	-	< 4.0	-	-
Zinc	ug/L	55	77.08	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	153	131.77	78	71	71.7	71.4	145
Alkalinity, Carbonate	mg/L	8.0 (p)	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	105	165.11	150	150	143	139	126
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	1.4	0.88	0.45	0.48	0.475	0.483	0.416
Nitrogen, Nitrate	mg/L	0.4 (p)	0.4	0.44	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.4 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	479	433.53	210	210	199	196	186
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	183	132.61	88	86	82.2	78.6	79.9
Magnesium	mg/L	56	43.54	35	35	33.1	30.5	29.4
Potassium	mg/L	6	5.64	4.7	5.2	4.8	4.5	4.3
Sodium	mg/L	234	139.93	37.0	36.0	40.3	36.1	45.0
General								
Hardness	mg/L	609	619.10	80	6	372	6	29

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

Parameter	Unit	Recommended Benchmark 2014	Recommended Benchmark 2018	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field								
D.O.	ppm	-	-	0.5	0.56	0.43	0.42	0.61
ORP	mV	-	-	-150	-116.8	-133.1	-1.4	-131.5
pH	SU	6.3-7.3	6.43-7.43	7.11	6.81	6.97	7.11	7.26
Specific Conductance	uS/cm	-	-	402	251.7	235.8	338.6	342.9
Temperature	C	-	-	7.3	7.69	8.7	8.9	4.18
Turbidity	NTU	-	-	1.3	1.8	1.38	1.93	1.23
Water Elevation	ft MSL	-	-	1582.3	1583.8	1581.34	1582.67	1582.09
Metals								
Aluminum	ug/L	200 (p)	200	-	-	< 50	-	-
Antimony	ug/L	8.0 (p)	4.0	-	-	< 2.0	-	-
Arsenic	ug/L	20 (p)	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Barium	ug/L	400 (p)	400	-	-	< 100	-	-
Beryllium	ug/L	4.0 (p)	2.5	-	-	< 1.0	-	-
Boron	ug/L	1200 (p)	1200	-	-	< 300	-	-
Cadmium	ug/L	4.0 (p)	3.0	-	-	< 1.0	-	-
Chromium	ug/L	40 (p)	40	-	-	< 10	-	-
Cobalt	ug/L	80 (p)	80	-	-	< 20	-	-
Copper	ug/L	16 (p)	16	< 4.0	4.8	< 4.0	< 4.0	< 4.0
Iron	ug/L	7493	7115.36	5200	4800	5110	4580	4800
Lead	ug/L	12 (p)	9.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Lithium	ug/L	40 (p)	40	-	-	< 10	-	-
Manganese	ug/L	1189	1127.81	1000	910	885	893	976
Mercury	ng/L	4.0 (p)	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Molybdenum	ug/L	200 (p)	200	-	-	< 50	-	-
Nickel	ug/L	80 (p)	80	< 20	< 20	< 20	< 20	< 20
Selenium	ug/L	20 (p)	20	-	-	< 5.0	-	-
Silver	ug/L	0.8 (p)	0.80	-	-	< 0.20	-	-
Thallium	ug/L	8.0 (p)	2.0	-	-	< 2.0	-	-
Vanadium	ug/L	16 (p)	16	-	-	< 4.0	-	-
Zinc	ug/L	19	29.27	< 10	< 10	< 10	< 10	< 10
Major Anions								
Alkalinity, Bicarbonate	mg/L	150	168.29	160	170	160	157	166
Alkalinity, Carbonate	mg/L	8.0 (p)	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	40 (p)	40	< 10	< 10	< 10	< 10	< 10
Fluoride	mg/L	4.0 (p)	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrogen, Ammonia	mg/L	0.34	0.32	0.26	0.3	0.29	0.227	0.259
Nitrogen, Nitrate	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.40 (p)	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	8	9.35	5.3	5.4	6.9	6.8	3.2
Sulfide	mg/L	0.80 (p)	0.80	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	51	45.91	42	40	43.9	42.2	43.4
Magnesium	mg/L	15	13.49	12	12	12.5	11.7	11.3
Potassium	mg/L	3	2.93	2.6	2.4	2.5	2.4	2.1
Sodium	mg/L	4	3.62	2.8	3.1	3.0	3.0	3.0
General								
Hardness	mg/L	149	162.23	154	160	160	158	176

2017
Mine Permit Groundwater Quality Monitoring Data
MER-001 (Monitoring)
Humboldt Mill

Parameter	Unit	Recommended		Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
		Recommended Benchmark 2014	Benchmark 2018					
Field								
D.O.	ppm	-	-	11.7	7.87	7.02	11.33	11.75
ORP	mV	-	-	97.1	192.5	177.3	150.1	67.8
pH	SU	6.1-7.1	6.2-7.2	6.65	5.96	7.19	6.02	6.91
Specific Conductance	uS/cm	-	-	37.8	68	108.9	78.6	99.6
Temperature	C	-	-	0.41	11.051	16.54	0.18	0.29
Turbidity	NTU	-	-	7.3	1.76	7.43	2.08	2.9
Flow	cfs	-	-	NM	NM	NM	NM	NM
Metals								
Aluminum	ug/L	200 (p)	-	-	-	50.4	-	-
Antimony	ug/L	0.73	-	-	-	< 1.0	-	-
Arsenic	ug/L	3.4	3.6	< 1.0	< 1.0	2.1	< 1.0	1.1
Barium	ug/L	12	-	-	-	9.2	-	-
Beryllium	ug/L	0.73	-	-	-	< 1.0	-	-
Boron	ug/L	14.8	-	-	-	< 10	-	-
Cadmium	ug/L	0.1	-	-	-	< 0.2	0.01	-
Chromium	ug/L	1.2	-	-	-	< 1.0	-	-
Cobalt	ug/L	0.42	-	-	-	< 1.0	0.13	-
Copper	ug/L	0.86	0.62	0.55	0.70	0.42	0.53	0.39
Iron	ug/L	3255	2412.94	1700	920	3300	985	1610
Lead	ug/L	0.351	0.21	0.174	0.167	0.161	0.146	0.145
Lithium	ug/L	5.7	-	-	-	< 8.0	-	-
Manganese	ug/L	226	148.6	130	61	183	65.5	123
Mercury	ng/L	8.5	5.77	4.48	5.09	2.84	3.14	2.29
Molybdenum	ug/L	1	-	-	-	< 1.0	-	-
Nickel	ug/L	1	1.06	0.62	0.71	0.77	0.53	0.52
Selenium	ug/L	0.19	-	-	-	< 1.0	0.217	-
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	39.22	2.38	2.40	1.32	2.63	1.88
Major Anions								
Alkalinity, Bicarbonate	mg/L	50	41.42	21	15	38.4	16.1	28.1
Alkalinity, Carbonate	mg/L	2	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	13	12.77	4.2	5.7	10.1	< 10	6.7
Fluoride	mg/L	0.19	0.4	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nitrogen, Ammonia	mg/L	2.0 (P)	2.0	< 0.50	< 0.50	< 0.025	0.0318	0.066
Nitrogen, Nitrate	mg/L	0.34	0.17	< 0.50	< 0.50	< 0.1	< 0.1	0.112
Nitrogen, Nitrite	mg/L	0.36	2.0	< 0.50	< 0.50	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	10	9.0	< 1.0	< 1.0	< 1.0	< 5.0	1.6
Sulfide	mg/L	3.2	20	< 5.0	< 5.0	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	15	14.48	6.6	5.3	12.2	5.4	8.9
Magnesium	mg/L	4.1	3.84	2	1.5	3.4	1.6	2.5
Potassium	mg/L	1	0.93	0.68	0.54	0.83	0.52	0.68
Sodium	mg/L	6.9	6.67	2.5	3.2	5.5	2.4	3.6
General								
Hardness	mg/L	56	50.95	36	22	52	28	48
Total Dissolved Solids	mg/L	111	105.74	82	86	132	54	<50
Total Suspended Solids	mg/L	4	3.35	-	4.3	< 3.3	< 3.3	< 3.3

2017
 Mine Permit Groundwater Quality Monitoring Data
 MER-002 (Monitoring)
 Humboldt Mill

Parameter Field	Unit	Recommended Benchmark	Recommended Benchmark	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
		2014	2016 Q1					
D.O.	ppm	-	-	11.3	7.42	6.62	11.36	11.62
ORP	mv	-	-	38.4	131.8	152.5	112.1	-22.5
pH	SU	6.0-7.0	6.0-7.0	7.11	6.37	6.88	6.23	7.06
Specific Conductance	uS/cm	-	-	56.7	73.7	126.5	84.3	115.6
Temperature	°C	-	-	0.29	11.54	17.64	0.25	0.3
Turbidity	NTU	-	-	8.28	1.75	6.71	2.26	3.47
Flow	cfs	-	-	55	143	17.7	59.5	NM
Metals								
Aluminum	ug/L	200 (n)	-	-	-	51.5	-	-
Antimony	ug/L	0.72	-	-	-	<1.0	-	-
Arsenic	ug/L	5.1	2.82	1.4	<1.0	2.7	<1.0	1.4
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	0.008	-
Chromium	ug/L	1.2	-	-	-	<1.0	-	-
Cobalt	ug/L	0.65	-	-	-	<1.0	0.18	-
Copper	ug/L	0.9	1.08	0.49	0.67	0.39	0.50	0.40
Iron	ug/L	6440	3080.87	2400	1900	3920	1170	2010
Lead	ug/L	0.374	0.34	0.146	0.161	0.147	0.152	0.131
Lithium	ug/L	5.7	-	-	-	<8.0	-	-
Manganese	ug/L	560	211.73	180	91	194	77	169
Mercury	ng/L	7.5	5.12	3.96	4.75	2.75	3.59	1.95
Molybdenum	ug/L	0.729	-	-	-	<1.0	-	-
Nickel	ug/L	1.2	1.16	0.95	0.73	1.11	0.54	0.58
Selenium	ug/L	0.19	-	-	-	<1.0	0.22	-
Silver	ug/L	0.12	-	-	-	<0.20	-	-
Thallium	ug/L	0.73	-	-	-	<1.0	-	-
Vanadium	ug/L	3	-	-	-	1.1	-	-
Zinc	ug/L	3	6.33	1.97	2.30	1.28	1.94	8.25
Major Anions								
Alkalinity, Bicarbonate	mg/L	53	45.83	25	17	44.6	15.6	31.8
Alkalinity, Carbonate	mg/L	2	8.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	16	14.13	7.2	5.9	12	<10	7.8
Fluoride	mg/L	0.19	0.4	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrogen, Ammonia	mg/L	2.0 (P)	2.0	<0.50	<0.50	<0.025	0.0331	0.077
Nitrogen, Nitrate	mg/L	0.404	0.52	<0.50	<0.50	<0.10	<0.10	0.107
Nitrogen, Nitrite	mg/L	0.365	2.0	<0.50	<0.50	<0.10	<0.10	<0.10
Sulfate	mg/L	13.9	13.82	7.9	<1.0	13.1	<5.0	5.1
Sulfide	mg/L	3.2	20	<5.0	<5.0	<0.20	<0.20	<0.20
Major Cations								
Calcium	mg/L	18	16.83	9	5.5	14.5	6.1	10.3
Magnesium	mg/L	4.9	4.59	2.7	1.7	4.4	1.8	2.9
Potassium	mg/L	1.2	1.25	0.95	0.51	1.1	0.54	0.75
Sodium	mg/L	9.4	8.52	4.4	3.6	7.8	3.1	4.7
General								
Hardness	mg/L	67	60.32	36	22	56.8	24	42
Total Dissolved Solids	mg/L	125	210.48	60	78.0	190	60	120
Total Suspended Solids	mg/L	12	5.37	-	4.3	<3.3	<3.3	<3.3

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2017
Mine Permit Groundwater Quality Monitoring Data
MER-003 (Monitoring)
Humboldt Mill

Parameter	Unit	Recommended		Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
		Recommended Benchmark 2014	Benchmark 2018					
Field								
D.O.	ppm	-	-	11.4	7.64	6.7	11.02	11.36
ORP	mV	-	-	37.9	154.5	165.9	85.6	11.6
pH	SU	6.0-7.0	6.3-7.3	7.23	6.8	7.04	6.33	7.42
Specific Conductance	uS/cm	-	-	58.8	85.2	126.7	96.8	124.7
Temperature	C	-	-	0.28	11.76	17.62	0.31	0.09
Turbidity	NTU	-	-	9.8	2.3	7.24	2.77	3.43
Flow	cfs	-	-	NM	NM	331.21	198.03	NM
Metals								
Aluminum	ug/L	200 (p)	-	-	-	< 50	-	-
Antimony	ug/L	0.7	-	-	-	< 1.0	-	-
Arsenic	ug/L	3.3	2.56	1.5	1.2	2.6	< 1.0	1.5
Barium	ug/L	15	-	-	-	11.6	-	-
Beryllium	ug/L	0.73	-	-	-	< 1.0	-	-
Boron	ug/L	15	-	-	-	15.6	-	-
Cadmium	ug/L	0.09	-	-	-	< 0.20	<0.020	-
Chromium	ug/L	0.85	-	-	-	< 1.0	-	-
Cobalt	ug/L	0.65	-	-	-	< 1.0	0.2	-
Copper	ug/L	0.92	2.85	0.51	0.73	0.39	0.52	0.37
Iron	ug/L	4268	3007.1	2500	1500	3050	1180	2040
Lead	ug/L	0.35	0.35	0.163	0.190	0.125	1.06	0.127
Lithium	ug/L	5.69	-	-	-	< 8.0	-	-
Manganese	ug/L	280	223.25	200	110	182	83.4	178
Mercury	ng/L	7.6	5.23	4.02	4.71	2.68	3.5	2.14
Molybdenum	ug/L	0.8	-	-	-	< 1.0	-	-
Nickel	ug/L	1.3	1.53	1.21	0.89	1.56	0.69	0.78
Selenium	ug/L	0.2	-	-	-	< 1.0	0.22	-
Silver	ug/L	0.12	-	-	-	< 0.20	-	-
Thallium	ug/L	0.7	-	-	-	< 1.0	-	-
Vanadium	ug/L	1.2	-	-	-	1.1	-	-
Zinc	ug/L	2.9	7.49	2.16	2.45	1.31	2.02	1.99
Major Anions								
Alkalinity, Bicarbonate	mg/L	56	49.72	25	18	45.3	16.6	32.2
Alkalinity, Carbonate	mg/L	2	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	19	15.25	8.1	7.3	15.3	< 10	8.7
Fluoride	mg/L	0.29	0.2	< 0.10	0.37	< 0.10	< 0.10	< 0.10
Nitrogen, Ammonia	mg/L	2.0 (P)	2.0	< 0.50	< 0.50	0.0267	0.0501	0.087
Nitrogen, Nitrate	mg/L	0.343	0.18	< 0.50	< 0.50	< 0.10	< 0.10	0.107
Nitrogen, Nitrite	mg/L	0.365	2.0	< 0.50	< 0.50	< 0.10	< 0.10	< 0.10
Sulfate	mg/L	16	16.73	9.1	< 1.0	16.5	3.5	9.9
Sulfide	mg/L	3.2	20	< 5.0	< 5.0	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	19	16.98	9	5.9	14.2	6.2	10.8
Magnesium	mg/L	5.3	4.68	2.8	1.9	4.4	1.9	3.1
Potassium	mg/L	1.4	1.31	1	0.57	1.2	0.67	0.85
Sodium	mg/L	11	8.76	4.8	5.0	9.4	4.2	5.7
General								
Hardness	mg/L	71	62.63	36	22	62	12	42
Total Dissolved Solids	mg/L	141	133.98	68	54	114	114	62
Total Suspended Solids	mg/L	3.1	4.01	-	5.2	< 3.3	< 3.3	< 3.3

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

Parameter	Unit	Recommended		Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
		Recommended Benchmark 2014	Benchmark 2018					
Field								
D.O.	ppm	-	-	9.66	6.58	NM	9.33	10.62
ORP	mV	-	-	195.7	211.5	NM	221.7	138.6
pH	SU	5.0-6.0	4.97-5.97	5.27	5.05	NM	5.07	6.55
Specific Conductance	uS/cm	-	-	35	71.9	NM	81.5	96.9
Temperature	C	-	-	0.12	11.07	NM	0.55	0.11
Turbidity	NTU	-	-	4.16	0.3	NM	13.15	43.96
Flow	cfs	-	-	0.169	NM	NM	NM	NM
Metals								
Aluminum	ug/L	200 (p)	-	-	-	NM	-	-
Antimony	ug/L	0.7	-	-	-	NM	-	-
Arsenic	ug/L	8.7	6.6	1.1	< 1.0	NM	1.1	1.8
Barium	ug/L	26	-	-	-	NM	-	-
Beryllium	ug/L	0.73	-	-	-	NM	-	-
Boron	ug/L	12.7	-	-	-	NM	-	-
Cadmium	ug/L	0.059	-	-	-	NM	0.038	-
Chromium	ug/L	2.7	-	-	-	NM	-	-
Cobalt	ug/L	0.85	-	-	-	NM	0.25	-
Copper	ug/L	1	3.28	0.77	0.83	NM	0.65	0.97
Iron	ug/L	11056	11517.57	1300	1000	NM	1680	3460
Lead	ug/L	1.8	4.31	0.797	0.746	NM	1.06	2.16
Lithium	ug/L	8.6	-	-	-	NM	-	-
Manganese	ug/L	641	363.23	97	45	NM	104	277
Mercury	ng/L	17	15.32	8.33	9.54	NM	10.1	8.75
Molybdenum	ug/L	8.1	-	-	-	NM	-	-
Nickel	ug/L	1.9	3.08	0.71	0.67	NM	0.8	0.94
Selenium	ug/L	0.325	-	-	-	NM	0.313	-
Silver	ug/L	0.122	-	-	-	NM	-	-
Thallium	ug/L	0.7	-	-	-	NM	-	-
Vanadium	ug/L	4.2	-	-	-	NM	-	-
Zinc	ug/L	9.2	16.13	5.48	5.28	NM	5.71	7.78
Major Anions								
Alkalinity, Bicarbonate	mg/L	15	9.12	5.1	3.8	NM	3.4	10
Alkalinity, Carbonate	mg/L	2	8.0	< 2.0	< 2.0	NM	< 2.0	< 2.0
Chloride	mg/L	24	24.46	10	13	NM	15.9	19.4
Fluoride	mg/L	0.26	0.4	< 0.10	< 0.10	NM	< 0.10	< 0.10
Nitrogen, Ammonia	mg/L	0.78	2.0	< 0.50	< 0.50	NM	0.0448	0.259
Nitrogen, Nitrate	mg/L	0.342	0.24	< 0.50	< 0.50	NM	0.116	< 0.1
Nitrogen, Nitrite	mg/L	0.365	2.0	< 0.50	< 0.50	NM	< 0.1	< 0.1
Sulfate	mg/L	9.3	11.08	< 120	< 25	NM	< 5.0	< 10*
Sulfide	mg/L	3.2	20	< 5.0	< 5.0	NM	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	8.3	7.55	3.5	2.9	NM	4.2	4.9
Magnesium	mg/L	3.3	3.02	1.4	1.1	NM	1.6	2.0
Potassium	mg/L	2.6	2.65	0.91	0.69	NM	0.76	0.87
Sodium	mg/L	11	10.69	4.7	6.5	NM	7.1	8.4
General								
Hardness	mg/L	38	37.48	16	16	NM	18	60
Total Dissolved Solids	mg/L	204	210.94	60	167	NM	80	52
Total Suspended Solids	mg/L	34	55.41	-	< 3.3	NM	< 3.3	6.9

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

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

Parameter	Unit	Recommended		Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
		Recommended Benchmark 2014	Benchmark 2018					
Field								
D.O.	ppm	-	-	1.6	8.59	6.63	8.44	1.45
ORP	mV	-	-	116.4	133.6	158.4	205.3	5.34
pH	SU	6.3-7.3	5.9-6.9	6.2	6.58	7.4	5.88	6.23
Specific Conductance	uS/cm	-	-	141.2	167	172.3	164.9	252.9
Temperature	C	-	-	1.34	13.09	19.82	1.69	0.74
Turbidity	NTU	-	-	22.2	12.57	29.12	12.7	42.11
Flow	cfs	-	-	NM	2.66	8.21	1.71	NM
Metals								
Aluminum	ug/L	200 (p)	-	-	-	90.4	-	-
Antimony	ug/L	0.72	-	-	-	< 1.0	-	-
Arsenic	ug/L	10	7.13	3.5	1.4	4	2.8	5.1
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	< 0.02	-
Chromium	ug/L	10	-	-	-	< 1.0	-	-
Cobalt	ug/L	0.8	-	-	-	< 1.0	0.74	-
Copper	ug/L	1.34	1.35	1.18	1.44	0.99	1.48	0.84
Iron	ug/L	15593	16420.56	7300	2300	9740	5340	12600
Lead	ug/L	0.252	0.44	0.293	0.255	0.332	0.464	0.468
Lithium	ug/L	5.6	-	-	-	< 8.0	-	-
Manganese	ug/L	1295	1549.89	890	95	278	337	875
Mercury	ng/L	4.3	-	2.68	2.78	1.93	4.1	3.97
Molybdenum	ug/L	2.8	-	-	-	< 1.0	-	-
Nickel	ug/L	1.9	3.27	2.67	1.85	2.02	1.94	1.7
Selenium	ug/L	0.176	-	-	-	< 1.0	0.487	-
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	19.81	2.86	1.66	1.84	4.18	4.03
Major Anions								
Alkalinity, Bicarbonate	mg/L	41	105.3	98	13	31.4	18	35.2
Alkalinity, Carbonate	mg/L	2	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	56	59.63	48	32	42.9	40.7	46.5
Fluoride	mg/L	0.31	0.29	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nitrogen, Ammonia	mg/L	0.61	2.0	< 0.50	< 0.50	0.0313	0.0914	0.437
Nitrogen, Nitrate	mg/L	0.36	2.0	< 0.50	< 0.50	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.365	2.0	< 0.50	< 0.50	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	10.1	10.32	< 1.0	< 1.0	< 1.0	< 5.0	< 10*
Sulfide	mg/L	3.2	20	< 5.0	< 5.0	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	13	12.96	10	4.7	9	7.5	10.8
Magnesium	mg/L	5.8	5.87	4.9	2.2	4.2	3.7	5.2
Potassium	mg/L	2.7	2.57	1.9	1.3	0.97	1.3	1.8
Sodium	mg/L	28	27.52	24	16	22.2	21.1	22.5
General								
Hardness	mg/L	56	57.46	40	22	43.1	30	44
Total Dissolved Solids	mg/L	182	169.66	126	198	197	104	142
Total Suspended Solids	mg/L	9.8	12.9	-	6.9	3.9	5.6	14.4

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

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

Parameter	Unit	Recommended		Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
		Recommended Benchmark 2014	Benchmark 2018					
Field								
D.O.	ppm	-	-	5.13	3.73	5.6	5.01	3.52
ORP	mV	-	-	21.5	117.2	68.5	175.7	32.9
pH	SU	6.1-7.1	5.8-6.8	6.68	6.2	7.53	5.95	6.35
Specific Conductance	uS/m	-	-	101.8	134.8	175.4	141.2	249.6
Temperature	C	-	-	0.18	10.86	18.07	0.15	0.03
Turbidity	NTU	-	-	18.8	6.64	38.79	8.8	27.83
Flow	cfs	-	-	NM	NM	NM	NM	NM
Metals								
Aluminum	ug/L	200 (p)	-	-	-	< 50	-	-
Antimony	ug/L	0.7	-	-	-	< 1.0	-	-
Arsenic	ug/L	4.4	4.04	2.8	1.4	4.2	1.9	3.5
Barium	ug/L	19	-	-	-	17.8	-	-
Beryllium	ug/L	0.7	-	-	-	< 1.0	-	-
Boron	ug/L	19.1	-	-	-	12.9	-	-
Cadmium	ug/L	0.09	-	-	-	< 0.20	<0.02	-
Chromium	ug/L	0.74	-	-	-	< 1.0	-	-
Cobalt	ug/L	1.2	-	-	-	< 1.0	0.21	-
Copper	ug/L	1	0.67	0.54	0.67	0.5	0.72	0.53
Iron	ug/L	11315	12988.41	9300	3100	10200	3820	10700
Lead	ug/L	0.44	0.4	0.169	0.165	0.102	0.206	0.258
Lithium	ug/L	5.53	-	-	-	< 8.0	-	-
Manganese	ug/L	2101	2260.79	790	130	1090	115	1000
Mercury	ng/L	6	6.12	2.76	2.93	3.1	2.43	2.63
Molybdenum	ug/L	1.9	-	-	-	< 1.0	-	-
Nickel	ug/L	1.8	3.5	1.36	1.05	1.74	1.15	1.47
Selenium	ug/L	0.19	-	-	-	< 1.0	0.249	-
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	16.92	3.28	1.94	2.15	3.38	3.48
Major Anions								
Alkalinity, Bicarbonate	mg/L	56	51.3	28	17	48	18	46
Alkalinity, Carbonate	mg/L	2	8.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloride	mg/L	43	43.43	31	20	32.7	32	37.5
Fluoride	mg/L	0.34	0.3	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nitrogen, Ammonia	mg/L	2.0 (P)	2.0	< 0.50	< 0.50	0.0792	0.0653	0.442
Nitrogen, Nitrate	mg/L	0.303	0.26	< 0.50	< 0.50	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrite	mg/L	0.365	2.0	< 0.50	< 0.50	< 0.1	< 0.1	< 0.1
Sulfate	mg/L	13.8	17.39	< 1.0	< 1.0	< 1.0	< 1.0	< 10*
Sulfide	mg/L	3.17	20	< 5.0	< 5.0	< 0.20	< 0.20	< 0.20
Major Cations								
Calcium	mg/L	16	15.23	9	5.3	12.1	6.9	12.5
Magnesium	mg/L	6.6	6.08	4.1	2.6	5	3.3	5.6
Potassium	mg/L	2	2.22	1.9	1.2	1.9	1.1	1.6
Sodium	mg/L	21	19.88	15	12	15.9	16.4	17.1
General								
Hardness	mg/L	69	64.17	40	24	56.8	30	48
Total Dissolved Solids	mg/L	184	177.46	144	104	307	92	175
Total Suspended Solids	mg/L	15.4	18.78	-	5.0	18.2	8.4	11.8

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

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

Parameter	Unit	Recommended Benchmark 2014	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field							
D.O.	ppm	-	NM	NM	NM	NM	NM
ORP	mV	-	NM	NM	NM	NM	NM
pH	SU	5.69-6.69	NM	NM	NM	NM	NM
Specific Conductance	uS/m	-	NM	NM	NM	NM	NM
Temperature	C	-	NM	NM	NM	NM	NM
Turbidity	NTU	-	NM	NM	NM	NM	NM
Flow	cfs	-	NM	NM	NM	NM	NM
Metals							
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
Major Anions							
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
Major Cations							
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
General							
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	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Field							
D.O.	ppm	-	NM	NM	NM	9.0	NM
ORP	mV	-	NM	NM	NM	175	NM
pH	SU	7.03-8.03	NM	NM	NM	6.99	NM
Specific Conductance	uS/m	-	NM	NM	NM	309	NM
Temperature	C	-	NM	NM	NM	5.24	NM
Turbidity	NTU	-	NM	NM	NM	2.74	NM
Flow	cfs	-	NM	NM	NM	NM	NM
Metals							
Aluminum	ug/L	200 (p)	NM	NM	NM	-	NM
Antimony	ug/L	11.5	NM	NM	NM	-	NM
Arsenic	ug/L	2.2	NM	NM	NM	4.1	NM
Barium	ug/L	27	NM	NM	NM	-	NM
Beryllium	ug/L	0.67	NM	NM	NM	-	NM
Boron	ug/L	113	NM	NM	NM	-	NM
Cadmium	ug/L	0.1	NM	NM	NM	0.04	NM
Chromium	ug/L	1.3	NM	NM	NM	-	NM
Cobalt	ug/L	3	NM	NM	NM	3.13	NM
Copper	ug/L	7.9	NM	NM	NM	8.69	NM
Iron	ug/L	1620	NM	NM	NM	163000	NM
Lead	ug/L	1	NM	NM	NM	1.83	NM
Lithium	ug/L	5.3	NM	NM	NM	-	NM
Manganese	ug/L	337	NM	NM	NM	97.6	NM
Mercury	ng/L	1.1	NM	NM	NM	-	NM
Molybdenum	ug/L	13	NM	NM	NM	-	NM
Nickel	ug/L	17	NM	NM	NM	19.5	NM
Selenium	ug/L	0.36	NM	NM	NM	2.89	NM
Silver	ug/L	0.12	NM	NM	NM	-	NM
Thallium	ug/L	0.68	NM	NM	NM	-	NM
Vanadium	ug/L	1.7	NM	NM	NM	-	NM
Zinc	ug/L	6.1	NM	NM	NM	7.62	NM
Major Anions							
Alkalinity, Bicarbonate	mg/L	124	NM	NM	NM	52.7	NM
Alkalinity, Carbonate	mg/L	2	NM	NM	NM	< 2.0	NM
Chloride	mg/L	15	NM	NM	NM	32.4	NM
Fluoride	mg/L	0.41	NM	NM	NM	0.1	NM
Nitrogen, Ammonia	mg/L	2.0 (P)	NM	NM	NM	61.5	NM
Nitrogen, Nitrate	mg/L	2.5	NM	NM	NM	126	NM
Nitrogen, Nitrite	mg/L	0.34	NM	NM	NM	< 100	NM
Sulfate	mg/L	138	NM	NM	NM	178	NM
Sulfide	mg/L	3	NM	NM	NM	< 0.20	NM
Major Cations							
Calcium	mg/L	68	NM	NM	NM	33.3	NM
Magnesium	mg/L	26	NM	NM	NM	14.5	NM
Potassium	mg/L	9.4	NM	NM	NM	7.9	NM
Sodium	mg/L	15	NM	NM	NM	39.7	NM
General							
Hardness	mg/L	251	NM	NM	NM	138	NM
Total Dissolved Solids	mg/L	361	NM	NM	NM	630	NM
Total Suspended Solids	mg/L	13	NM	NM	NM	464	NM

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.