Eagle Mine Data - 2016
Mine Permit Surface Water Quality Monitoring Data
HMP-009 (Compliance)
Humboldt Mill

Parameter	Unit	Recom-mended Benchmark 2014	Q1 2016 2/22/16		Q2 2016 5/16/16	
Field						
D.O.[1]	ppm	--	NM		**11**	
ORP	mV	--	NM		**178**	
pH	SU	7.0-8.0	NM		**7.2**	
Specific Conductance	µS/cm	--	NM		**637**	
Temperature	°C	--	NM		**7.8**	
Turbidity	NTU	--	NM		**3.5**	
Flow	cfs	--	NM		NM	
Metals						
Aluminum	ug/L	200 (p)	--		--	
Antimony	ug/L	11.5	--		--	
Arsenic	ug/L	2.2	NM		<1.0	
Barium	ug/L	27	--		--	
Beryllium	ug/L	0.67	--		--	
Boron	ug/L	113	--		--	
Cadmium	ug/L	0.1	--		--	
Chromium	ug/L	1.3	--		--	
Cobalt	ug/L	3.0	--		--	
Copper	ug/L	7.9	NM		**5.3**	
Iron	ug/L	1620	NM		**83**	
Lead	ug/L	1.0	NM		**0.03**	
Lithium	ug/L	5.3	--		--	
Manganese	ug/L	337	NM		**23**	
Mercury	ng/L	1.1	NM		**0.86**	
Molybdenum	ug/L	13	--		--	
Nickel	ug/L	17	NM		**9.8**	
Selenium	ug/L	0.36	--		--	
Silver	ug/L	0.12	--		--	
Thallium	ug/L	0.68	--		--	
Vanadium	ug/L	1.7	--		--	
Zinc	ug/L	6.1	NM		**0.4**	
Major Anions						
Alkalinity, Bicarbonate	mg/L	124	NM		**92**	
Alkalinity, Carbonate	mg/L	2.0	NM		<2.0	
Chloride	mg/L	15	NM		**29**	
Fluoride	mg/L	0.41	NM		**0.15**	
Nitrogen, Ammonia	mg/L	2.0 (P)	NM		<0.5	
Nitrogen, Nitrate	mg/L	2.5	NM		<0.50	
Nitrogen, Nitrite	mg/L	0.34	NM		<0.50	
Sulfate	mg/L	138	NM		**180**	
Sulfide	mg/L	3.0	NM		<0.5	
Major Cations						
Calcium	mg/L	68	NM		**51**	
Magnesium	mg/L	26	NM		**25**	
Potassium	mg/L	9.4	NM		**8.5**	
Sodium	mg/L	15	NM		**33**	
General						
Hardness	mg/L	251	NM		**230**	
Total Dissolved Solids	mg/L	361	NM		**414**	
Total Suspended Solids	mg/L	13	NM		<3.3	

Eagle Mine Data - 2016
Mine Permit Surface Water Quality Monitoring Data
HMWQ-004 (Compliance)
Humboldt Mill

Parameter	Unit	Recom-mended Benchmark 2014	Q1 2016 2/22/16		Q2 2016 5/16/16	
Field						
D.O.[1]	ppm	--	NM		NM	
ORP	mV	--	NM		NM	
pH	SU	5.7-6.7	NM		NM	
Specific Conductance	µS/cm	--	NM		NM	
Temperature	°C	--	NM		NM	
Turbidity	NTU	--	NM		NM	
Flow	cfs	--	NM		NM	
Metals						
Aluminum	ug/L	200 (p)	--		--	
Antimony	ug/L	2.3	--		--	
Arsenic	ug/L	35	NM		NM	
Barium	ug/L	118	--		--	
Beryllium	ug/L	4.0 (p)	--		--	
Boron	ug/L	36	--		--	
Cadmium	ug/L	0.10	--		--	
Chromium	ug/L	14	--		--	
Cobalt	ug/L	3.0	--		--	
Copper	ug/L	11	NM		NM	
Iron	ug/L	73,409	NM		NM	
Lead	ug/L	2.1	NM		NM	
Lithium	ug/L	16	--		--	
Manganese	ug/L	2541	NM		NM	
Mercury	ng/L	43	NM		NM	
Molybdenum	ug/L	4.7	--		--	
Nickel	ug/L	5.6	NM		NM	
Selenium	ug/L	0.44	--		--	
Silver	ug/L	0.35	--		--	
Thallium	ug/L	4.0 (P)	--		--	
Vanadium	ug/L	39	--		--	
Zinc	ug/L	44	NM		NM	
Major Anions						
Alkalinity, Bicarbonate	mg/L	68	NM		NM	
Alkalinity, Carbonate	mg/L	8.0 (P)	NM		NM	
Chloride	mg/L	68	NM		NM	
Fluoride	mg/L	0.23	NM		NM	
Nitrogen, Ammonia	mg/L	1.9	NM		NM	
Nitrogen, Nitrate	mg/L	2.0 (P)	NM		NM	
Nitrogen, Nitrite	mg/L	2.0 (P)	NM		NM	
Sulfate	mg/L	4.0 (P)	NM		NM	
Sulfide	mg/L	20 (P)	NM		NM	
Major Cations						
Calcium	mg/L	21	NM		NM	
Magnesium	mg/L	8.1	NM		NM	
Potassium	mg/L	3.3	NM		NM	
Sodium	mg/L	49	NM		NM	
General						
Hardness	mg/L	88	NM		NM	
Total Dissolved Solids	mg/L	209	NM		NM	
Total Suspended Solids	mg/L	353	NM		NM	

2016
Mine Permit Surface Water Quality Monitoring Data
MER-001 (Reference)
Humboldt Mill

Parameter	Unit	Recom-mended Benchmark 2014	Q1 2016 2/22/16		Q2 2016 5/16/16	
Field						
D.O.[1]	ppm	--	**10**		**9.8**	
ORP	mV	--	**180**		**341**	
pH	SU	6.1-7.1	**6.1**		**5.9**	
Specific Conductance	µS/cm	--	**83**		**66**	
Temperature	°C	--	**0.1**		**8.6**	
Turbidity	NTU	--	**6.7**		**2.1**	
Flow	cfs	--	NM		NM	
Metals						
Aluminum	ug/L	200 (p)	--		--	
Antimony	ug/L	0.73	--		--	
Arsenic	ug/L	3.4	<1.0		<1.0	
Barium	ug/L	12	--		--	
Beryllium	ug/L	0.73	--		--	
Boron	ug/L	14.8	--		--	
Cadmium	ug/L	0.10	--		--	
Chromium	ug/L	1.2	--		--	
Cobalt	ug/L	0.42	--		--	
Copper	ug/L	0.86	**0.44**		**0.58**	
Iron	ug/L	3255	**1200**		**880**	
Lead	ug/L	0.35	**0.11**		**0.12**	
Lithium	ug/L	5.7	--		--	
Manganese	ug/L	226	**72**		**81**	
Mercury	ng/L	8.5	**2.5**		**3.8**	
Molybdenum	ug/L	1.0	--		--	
Nickel	ug/L	1.0	**0.52**		**0.57**	
Selenium	ug/L	0.19	--		--	
Silver	ug/L	0.12	--		--	
Thallium	ug/L	0.75	--		--	
Vanadium	ug/L	1.5	--		--	
Zinc	ug/L	2.6	**1.6**		**1.7**	
Major Anions						
Alkalinity, Bicarbonate	mg/L	50	**25**		**22**	
Alkalinity, Carbonate	mg/L	2.0	< 2.0		< 2.0	
Chloride	mg/L	13	**5.2**		**5.2**	
Fluoride	mg/L	0.19	< 0.10		< 0.10	
Nitrogen, Ammonia	mg/L	2.0 (P)	< 0.50		< 0.50	
Nitrogen, Nitrate	mg/L	0.34	< 0.50		< 0.50	
Nitrogen, Nitrite	mg/L	0.36	< 0.50		< 0.50	
Sulfate	mg/L	10	**3.3**		< 1.0	
Sulfide	mg/L	3.2	< 5.0		< 5.0	
Major Cations						
Calcium	mg/L	15	**8.5**		**6.9**	
Magnesium	mg/L	4.1	**2.4**		**2.2**	
Potassium	mg/L	1.0	**0.57**		**0.52**	
Sodium	mg/L	6.9	**3.1**		**3.2**	
General						
Hardness	mg/L	56	**34**		**26**	
Total Dissolved Solids	mg/L	111	**62**		**58**	
Total Suspended Solids	mg/L	4.0	< 3.3		< 3.3	

Eagle Mine Data - 2016
Mine Permit Surface Water Quality Monitoring Data
MER-002 (Compliance)
Humboldt Mill

Parameter	Unit	Recom-mended Benchmark 2014	Q1 2016 2/22/16		Q2 2016 5/16/16	
Field						
D.O.[1]	ppm	--	**10**		**9.2**	
ORP	mV	--	**141**		**148**	
pH	SU	6.0-7.0	**6.3**		**6.8**	
Specific Conductance	µS/cm	--	**118**		**79**	
Temperature	°C	--	**0**		**9.2**	
Turbidity	NTU	--	**5.7**		**2.3**	
Flow	cfs	--	**17**		**38**	
Metals						
Aluminum	ug/L	200 (p)	--		--	
Antimony	ug/L	0.72	--		--	
Arsenic	ug/L	5.1	**1.1**		<1.0	
Barium	ug/L	20	--		--	
Beryllium	ug/L	0.73	--		--	
Boron	ug/L	14	--		--	
Cadmium	ug/L	0.09	--		--	
Chromium	ug/L	1.2	--		--	
Cobalt	ug/L	0.65	--		--	
Copper	ug/L	0.90	**0.42**		**0.57**	
Iron	ug/L	6440	**1600**		**1100**	
Lead	ug/L	0.37	**0.10**		**0.11**	
Lithium	ug/L	5.7	--		--	
Manganese	ug/L	560	**150**		**96**	
Mercury	ng/L	7.5	**2.4**		**3.7**	
Molybdenum	ug/L	0.73	--		--	
Nickel	ug/L	1.2	**0.96**		**0.62**	
Selenium	ug/L	0.19	--		--	
Silver	ug/L	0.12	--		--	
Thallium	ug/L	0.73	--		--	
Vanadium	ug/L	3.0	--		--	
Zinc	ug/L	3.0	**1.5**		**1.7**	
Major Anions						
Alkalinity, Bicarbonate	mg/L	53	**30**		**21**	
Alkalinity, Carbonate	mg/L	2.0	< 2.0		< 2.0	
Chloride	mg/L	16	**7.6**		**6.4**	
Fluoride	mg/L	0.19	< 0.10		< 0.10	
Nitrogen, Ammonia	mg/L	2.0 (P)	< 0.50		< 0.50	
Nitrogen, Nitrate	mg/L	0.40	< 0.50		< 0.50	
Nitrogen, Nitrite	mg/L	0.37	< 0.50		< 0.50	
Sulfate	mg/L	14	**13**		**3.9**	
Sulfide	mg/L	3.2	< 5.0		< 5.0	
Major Cations						
Calcium	mg/L	18	**11**		**8.3**	
Magnesium	mg/L	4.9	**3.4**		**2.4**	
Potassium	mg/L	1.2	**0.94**		**0.62**	
Sodium	mg/L	9.4	**5.0**		**4.2**	
General						
Hardness	mg/L	67	**40**		**30**	
Total Dissolved Solids	mg/L	125	**72**		**56**	
Total Suspended Solids	mg/L	12	<3.3		<3.3	

Eagle Mine Data - 2016
Mine Permit Surface Water Quality Monitoring Data
MER-003 (Compliance)
Humboldt Mill

Parameter	Unit	Recom-mended Benchmark 2014	Q1 2016 2/22/16		Q2 2016 5/16/16	
Field						
D.O.[1]	ppm	--	**10**		**9.4**	
ORP	mV	--	**148**		**89**	
pH	SU	6.0-7.0	**6.0**		**6.7**	
Specific Conductance	µS/cm	--	**130**		**112**	
Temperature	°C	--	**0.1**		**9.2**	
Turbidity	NTU	--	**6.2**		**2.5**	
Flow	cfs	--	NM		NM	
Metals						
Aluminum	ug/L	200 (p)	--		--	
Antimony	ug/L	0.70	--		--	
Arsenic	ug/L	3.3	**1.2**		<1.0	
Barium	ug/L	15	--		--	
Beryllium	ug/L	0.73	--		--	
Boron	ug/L	15	--		--	
Cadmium	ug/L	0.09	--		--	
Chromium	ug/L	0.85	--		--	
Cobalt	ug/L	0.65	--		--	
Copper	ug/L	0.92	**0.43**		**0.55**	
Iron	ug/L	4268	**1700**		**1200**	
Lead	ug/L	0.35	**0.09**		**0.10**	
Lithium	ug/L	5.7	--		--	
Manganese	ug/L	280	**170**		**110**	
Mercury	ng/L	7.6	**2.2**		**3.7**	
Molybdenum	ug/L	0.80	--		--	
Nickel	ug/L	1.3	**1.2**		**0.95**	
Selenium	ug/L	0.20	--		--	
Silver	ug/L	0.12	--		--	
Thallium	ug/L	0.70	--		--	
Vanadium	ug/L	1.2	--		--	
Zinc	ug/L	2.9	**1.6**		**1.9**	
Major Anions						
Alkalinity, Bicarbonate	mg/L	56	**32**		**25**	
Alkalinity, Carbonate	mg/L	2.0	< 2.0		< 2.0	
Chloride	mg/L	19	**8.9**		**9.4**	
Fluoride	mg/L	0.29	< 0.10		< 0.10	
Nitrogen, Ammonia	mg/L	2.0 (P)	< 0.50		< 0.50	
Nitrogen, Nitrate	mg/L	0.34	< 0.50		< 0.50	
Nitrogen, Nitrite	mg/L	0.37	< 0.50		< 0.50	
Sulfate	mg/L	16	**14**		**11**	
Sulfide	mg/L	3.2	< 5.0		< 5.0	
Major Cations						
Calcium	mg/L	19	**12**		**9.8**	
Magnesium	mg/L	5.3	**3.7**		**3.0**	
Potassium	mg/L	1.4	**1.1**		**0.87**	
Sodium	mg/L	11	**5.8**		**6.2**	
General						
Hardness	mg/L	71	**40**		**34**	
Total Dissolved Solids	mg/L	141	**78**		**82**	
Total Suspended Solids	mg/L	3.1	<3.3		<3.3	

Eagle Mine Data - 2016
Mine Permit Surface Water Quality Monitoring5Data
WBR-001 (Reference)
Humboldt Mill

Parameter	Unit	Recom-mended Benchmark 2014	Q1 2016 2/22/16		Q2 2016 5/16/16	
Field						
D.O.[1]	ppm	--	**10**		**8**	
ORP	mV	--	**253**		**165**	
pH	SU	5.0-6.0	**6.0**		**5.3**	
Specific Conductance	µS/cm	--	**110**		**99**	
Temperature	°C	--	**0.3**		**13**	
Turbidity	NTU	--	**3.2**		**3.5**	
Flow	cfs	--	NM		NM	
Metals						
Aluminum	ug/L	200 (p)	--		--	
Antimony	ug/L	0.70	--		--	
Arsenic	ug/L	8.7	**1.2**		**1.2**	
Barium	ug/L	26	--		--	
Beryllium	ug/L	0.73	--		--	
Boron	ug/L	12.7	--		--	
Cadmium	ug/L	0.06	--		--	
Chromium	ug/L	2.7	--		--	
Cobalt	ug/L	0.85	--		--	
Copper	ug/L	1.0	**0.62**		**0.63**	
Iron	ug/L	11056	**1800**		**1200**	
Lead	ug/L	1.8	**1.0**		**0.69**	
Lithium	ug/L	8.6	--		--	
Manganese	ug/L	641	**150**		**77**	
Mercury	ng/L	17.0	**7.5**		**7.0**	
Molybdenum	ug/L	8.1	--		--	
Nickel	ug/L	1.9	**0.73**		**0.67**	
Selenium	ug/L	0.33	--		--	
Silver	ug/L	0.12	--		--	
Thallium	ug/L	0.70	--		--	
Vanadium	ug/L	4.2	--		--	
Zinc	ug/L	9.2	**6.0**		**4.9**	
Major Anions						
Alkalinity, Bicarbonate	mg/L	15	**5.5**		**4.5**	
Alkalinity, Carbonate	mg/L	2.0	< 2.0		< 2.0	
Chloride	mg/L	24	**15**		**23**	
Fluoride	mg/L	0.26	< 0.10		< 0.10	
Nitrogen, Ammonia	mg/L	0.78	< 0.50		< 0.50	
Nitrogen, Nitrate	mg/L	0.34	< 0.50		< 0.50	
Nitrogen, Nitrite	mg/L	0.37	< 0.50		< 0.50	
Sulfate	mg/L	9.3	<25	J	< 25	
Sulfide	mg/L	3.2	< 5.0		< 5.0	
Major Cations						
Calcium	mg/L	8.3	**5.1**		**4.5**	
Magnesium	mg/L	3.3	**2.0**		**1.8**	
Potassium	mg/L	2.6	**0.89**		**0.69**	
Sodium	mg/L	11	**6.8**		**11**	
General						
Hardness	mg/L	38	**35**		**20**	
Total Dissolved Solids	mg/L	204	**108**		**92**	
Total Suspended Solids	mg/L	34	< 3.3		< 3.3	

Eagle Mine Data - 2016
Mine Permit Surface Water Quality Monitoring Data
WBR-002 (Compliance)
Humboldt Mill

Parameter	Unit	Recom-mended Benchmark 2014	Q1 2016 2/22/16		Q2 2016 5/16/16	
Field						
D.O.[1]	ppm	--	**6.9**		**8.7**	
ORP	mV	--	**160**		**125**	
pH	SU	6.3-7.3	**6.0**		**6.8**	
Specific Conductance	µS/cm	--	**233**		**161**	
Temperature	°C	--	**0.2**		**10**	
Turbidity	NTU	--	**33**		**29**	
Flow	cfs	--	NM		NM	
Metals						
Aluminum	ug/L	200 (p)	--		--	
Antimony	ug/L	0.72	--		--	
Arsenic	ug/L	10	**3.4**		**2.0**	
Barium	ug/L	19	--		--	
Beryllium	ug/L	0.73	--		--	
Boron	ug/L	18	--		--	
Cadmium	ug/L	0.09	--		--	
Chromium	ug/L	10	--		--	
Cobalt	ug/L	0.80	--		--	
Copper	ug/L	1.3	**1.0**		**1.9**	
Iron	ug/L	15593	**8300**		**3300**	
Lead	ug/L	0.25	**0.33**		**0.42**	
Lithium	ug/L	5.6	--		--	
Manganese	ug/L	1295	**400**		**94**	
Mercury	ng/L	4.3	**3.2**		**3.1**	
Molybdenum	ug/L	2.8	--		--	
Nickel	ug/L	1.9	**2.4**		**2.2**	
Selenium	ug/L	0.18	--		--	
Silver	ug/L	0.12	--		--	
Thallium	ug/L	0.72	--		--	
Vanadium	ug/L	0.8	--		--	
Zinc	ug/L	4.5	**3.7**		**4.7**	
Major Anions						
Alkalinity, Bicarbonate	mg/L	41	**28**		**12**	
Alkalinity, Carbonate	mg/L	2.0	< 2.0		< 2.0	
Chloride	mg/L	56	**47**		**37**	
Fluoride	mg/L	0.31	< 0.10		< 0.10	
Nitrogen, Ammonia	mg/L	0.61	< 0.50		< 0.50	
Nitrogen, Nitrate	mg/L	0.36	< 0.50		< 0.50	
Nitrogen, Nitrite	mg/L	0.37	< 0.50		< 0.50	
Sulfate	mg/L	10	**2.0**		**5.0**	
Sulfide	mg/L	3.2	< 5.0		< 5.0	
Major Cations						
Calcium	mg/L	13	**11**		**6.1**	
Magnesium	mg/L	5.8	**5.1**		**3.1**	
Potassium	mg/L	2.7	**1.8**		**1.8**	
Sodium	mg/L	28	**23**		**18**	
General						
Hardness	mg/L	56	**50**		**28**	
Total Dissolved Solids	mg/L	182	**172**		**92**	
Total Suspended Solids	mg/L	9.8	**10**		**9.3**	

Eagle Mine Data - 2016
Mine Permit Surface Water Quality Monitoring Data
WBR-003 (Compliance)
Humboldt Mill

Parameter	Unit	Recom-mended Benchmark 2014	Q1 2016 2/22/16		Q2 2016 5/16/16	
Field						
D.O.[1]	ppm	--	**3.6**		NM	
ORP	mV	--	**117**		**125**	
pH	SU	6.1-7.1	**6.0**		**6.7**	
Specific Conductance	µS/cm	--	**226**		**151**	
Temperature	°C	--	**0.2**		**12**	
Turbidity	NTU	--	**19**		**10**	
Flow	cfs	--	NM		NM	
Metals						
Aluminum	ug/L	200 (p)	--		--	
Antimony	ug/L	0.70	--		--	
Arsenic	ug/L	4.4	**2.4**		**1.3**	
Barium	ug/L	19	--		--	
Beryllium	ug/L	0.70	--		--	
Boron	ug/L	19	--		--	
Cadmium	ug/L	0.09	--		--	
Chromium	ug/L	0.74	--		--	
Cobalt	ug/L	1.2	--		--	
Copper	ug/L	1.0	**0.52**		**0.55**	
Iron	ug/L	11315	**9600**		**4600**	
Lead	ug/L	0.44	**0.39**		**0.13**	
Lithium	ug/L	5.5	--		--	
Manganese	ug/L	2101	**1400**		**320**	
Mercury	ng/L	6.0	**3.7**		**3.3**	
Molybdenum	ug/L	1.9	--		--	
Nickel	ug/L	1.8	**1.7**		**1.5**	
Selenium	ug/L	0.19	--		--	
Silver	ug/L	0.12	--		--	
Thallium	ug/L	0.72	--		--	
Vanadium	ug/L	0.82	--		--	
Zinc	ug/L	10	**5.3**		**1.5**	
Major Anions						
Alkalinity, Bicarbonate	mg/L	56	**45**		**31**	
Alkalinity, Carbonate	mg/L	2.0	< 2.0		< 2.0	
Chloride	mg/L	43	**35**		**25**	
Fluoride	mg/L	0.34	<0.10		0.1	
Nitrogen, Ammonia	mg/L	2.0 (P)	< 0.50		< 0.50	
Nitrogen, Nitrate	mg/L	0.30	< 0.50		< 0.50	
Nitrogen, Nitrite	mg/L	0.37	< 0.50		< 0.50	
Sulfate	mg/L	14	<1.0		<1.0	
Sulfide	mg/L	3.2	< 5.0		< 5.0	
Major Cations						
Calcium	mg/L	16	**13**		**10**	
Magnesium	mg/L	6.6	**5.5**		**4.3**	
Potassium	mg/L	2.0	**1.7**		**1.5**	
Sodium	mg/L	21	**16**		**13**	
General						
Hardness	mg/L	69	**56**		**40**	
Total Dissolved Solids	mg/L	184	**136**		**114**	
Total Suspended Solids	mg/L	15	**12**		**7**	

Eagle Mine Data - 2016
Mine Permit Surface Water Quality Monitoring Data
Abbreviations & Data Qualifiers
Humboldt Mill

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.
e = estimated value. The laboratory statement of data qualifications indicates that a quality control limit for this parameter was exceeded.
NM = Not measured.
J = estimated value, results of laboratory control parameters were outside of established control limits.