

Appendix 11: Results of the 2022 Tailings Supernatant Sampling

Parameter	Tailings Liquid		Sample date																											
	Unit	1/9/2022	1/25/2022	2/6/2022	3/6/2022	3/29/2022	4/7/2022	4/17/2022	5/2/2022	5/15/2022	5/29/2022	6/12/2022	6/29/2022	7/19/2022	7/24/2022	8/7/2022	8/21/2022	9/4/2022	9/18/2022	10/2/2022	10/17/2022	10/30/2022	11/13/2022	11/27/2022	12/11/2022	12/25/2022				
Lab Sdg	C09176	C23562	C23538	C26230	C27734	C29205	C417023	C52422	C63410	C70281	C81285	C87779	C92091	C92804	C12162	8/7/2022	C20309	C29399	C38310	C70530	C76579	C80994	C82762	C22748	C24271	C30153				
Conventional Parameters																														
pH	m/L	8.49	8.68	9.04	8.39	8.75	8.12	9.01	8.44	8.34	8.66	8.62	8.18	8.50	8.75	8.64	9.02	9.00	7.73	8.91	9.19	9.12	9.20	9.52	9.56	8.77				
Turbidity	m/L	150	160	20	14	5.0	0.3	95	170	100	500	180	140	1.6	3.2	4.1	54	10000	270	3.5	1.4	6.8	3.2	17	4.2	7.5				
Hardness as CaCO3	m/L	2530	2270	2010	1700	1560	1740	1930	1820	2370	2300	1130	1570	1830	200	240	210	290	2360	2140	2040	2060	1930	2070	2100	2560				
Cyanide free (as CaCO3 dissolved)	m/L	1800	1800	2100	1740	1560	1740	1930	1820	1860	1930	1800	1600	1950	2110	1940	2000	2040	1920	2130	2030	2020	2010	2000	2050	2440				
Total Alkalinity as CaCO3	m/L	210	190	210	190	200	240	200	250	130	190	130	190	130	290	240	190	290	240	190	240	240	240	240	240	170				
TDS	m/L	16100	14300	13500	15200	13300	13900	14100	14000	13100	13300	11800	14400	15100	15000	16700	16000	14600	15500	13500	12000	13900	13600	14000	14400					
TSS	m/L	14000	8200	3300	69	9	380	1200	8500	5000	18	10	21	1600	24	110	26000	7400	55	36	52	69	82	200	200					
Major Ions																														
Chloride	m/L	3200	3500	2100	3000	2800	2800	2100	3000	2200	2600	2800	2700	3000	3200	3500	3200	3400	3300	3400	3300	2600	2600	1900	2400	3100				
Sulfate	m/L	26.3	31.6	38.1	17.3	22.3	-	21.7	28.7	30.7	37.7	33.4	33.2	26.7	61.3	83.1	211	160	194	75.8	93.2	46.7	53.4	74.9	13.7					
Cyanide free (as CaCO3 dissolved)	m/L	0.029	0.03	0.021	0.024	0.024	0.024	-	0.026	0.016	0.017	0.021	0.024	0.027	0.036	0.036	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032					
Fluoride (WAD)	m/L	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036					
Fluoride	m/L	0.039	0.031	0.031	0.041	0.044	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031					
Sulfate	m/L	5700	5500	4600	5500	4600	5400	5800	6200	630	800	4800	5000	5200	5300	3000	4800	6700	6100	5700	5100	4900	6000	5700	4800					
Nitrients and Chlorophyll a																														
Ammonia Nitrogen (as N)	m/L	320	330	310	390	360	360	370	380	300	220	360	260	290	310	290	330	310	340	330	360	490	430	430	430					
Nitrate (as N)	m/L	160	147	124	119	102	76.1	73.0	176	143	100	178	144	154	158	215	259	184	148	210	191	217	215	273	217					
Nitrite (as N)	m/L	0.249	0.28	0.49	0.94	0.44	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33					
Total Nitrite (as N)	m/L	1.98	2.47	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92						
Total phosphorus (P)	m/L	1.2	3.2	4.8	2.0	0.40	0.27	1.9	1.4	8.6	8.5	11.1	1.1	0.67	1.62	1.84	2.18	0.38	5.8	2.1	1.6	1.0	4.9	1.6	2.0					
Total phosphorus (PI)	m/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Dissolved phosphorus	m/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10						
Orthophosphate (P)	m/L	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0						
Total Metals																														
Aluminum	m/L	67.2	66.7	26.1	0.799	0.692	0.252	8.36	4.71	36.6	46.6	0.554	3.90	0.529	5.50	0.699	7.39	85.2	49.8	3.10	3.89	7.67	1.13	3.18	1.78					
Antimony	m/L	< 0.010	< 0.010	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.007	< 0.007	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
Arsenic	m/L	17.1	8.53	15.1	1.52	0.800	4.85	7.95	3.99	15.3	27.3	0.26	9.81	3.27	10.8	2.70	17.8	31.4	30.3	13.5	15.8	13.5	17.2	14.7						
Barium	m/L	0.135	0.415	0.299	0.304	0.314	0.181	0.280	0.227	0.157	0.668	0.227	0.145	0.347	0.381	0.430	0.472	0.167	0.167	0.167	0.167	0.167	0.167	0.167						
Bismuth	m/L	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020							
Boron	m/L	1.0	1.4	2.5	0.87	0.92	1.28	1.07	1.65	2.5	2.5	0.69	1.3	0.66	1.0	1.49	2.5	2.5	1.2	2.5	1.0	2.5	1.0	2.5						
Chromium	m/L	0.0073	0.0095	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010							
Cadmium (total)	m/L	0.071	0.064	0.065	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010							
Cadmium	m/L	0.129	0.121	0.051	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010							
Cobalt	m/L	0.272	0.106	0.200	0.201	0.247	0.309	0.262	0.246	0.368	0.290	0.474	0.305	0.511	0.620	0.620	0.620	0.620	0.620	0.620	0.620	0.620	0.620							
Copper	m/L	0.058	0.219	1.58	0.027	0.159	0.059	0.086	< 0.0050	0.046	0.429	< 0.0050	0.031	0.810	3.44	0.438	0.820	0.849	0.488	0.488	0.488	0.488	0.488							
Iron	m/L	299	247	196	63.2	7.22	4.93	26.3	24.8	248	148	84.8	65.6	29.9	16.6	9.09	341	211	21.4	15.1	16.1	15.1	16.1							
Lanthanum	m/L	-	0.0573	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Lead	m/L	61.3	0.689	0.549	0.042	0.018	< 0.0020	0.121	0.328	2.81	1.30	0.0244	0.136	0.0289	0.777	0.0241	0.111	2.79	3.10	0.066	0.098	0.065	0.065							
Lithium	m/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010								
Magnesium (total)	m/L	69.7	61.4	30.9	29.6	26.0	19.0	21.4	38.7	68.6	35.8	11.3	21.1	23.2	26.5	30.3	8.4	84.5	48.0	13.1	2.5	5.8	3.7							
Manganese	m/L	3.65	2.19	0.910	0.021	0.026	0.031	0.129	0.439	3.79	1.31	< 0.020	0.022	0.027	0.051	0.033	0.051	0.033	0.051	0.033	0.051	0.033	0.051							
Mercury	m/L	< 0.0015	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010								
Molybdenum	m/L	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143								
Nickel	m/L	0.071	0.069	< 0.050	< 0.010	0.018	0.012	0.038	0.065	0.264	0.010	0.020	0.012	0.051	0.028	0.050	0.067	0.050	0.050	0.050	0.050	0.050	0.050							
Potassium (total)	m/L	40.4	0.035	0.045	0.0291	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268	0.0268								
Silicon	m/L	54.0	34.5	2.2	1.8	1.9	13.6	7.0	41	56.4	2.7	7.4	9.9	27.7	5.2	11.2	32.1													