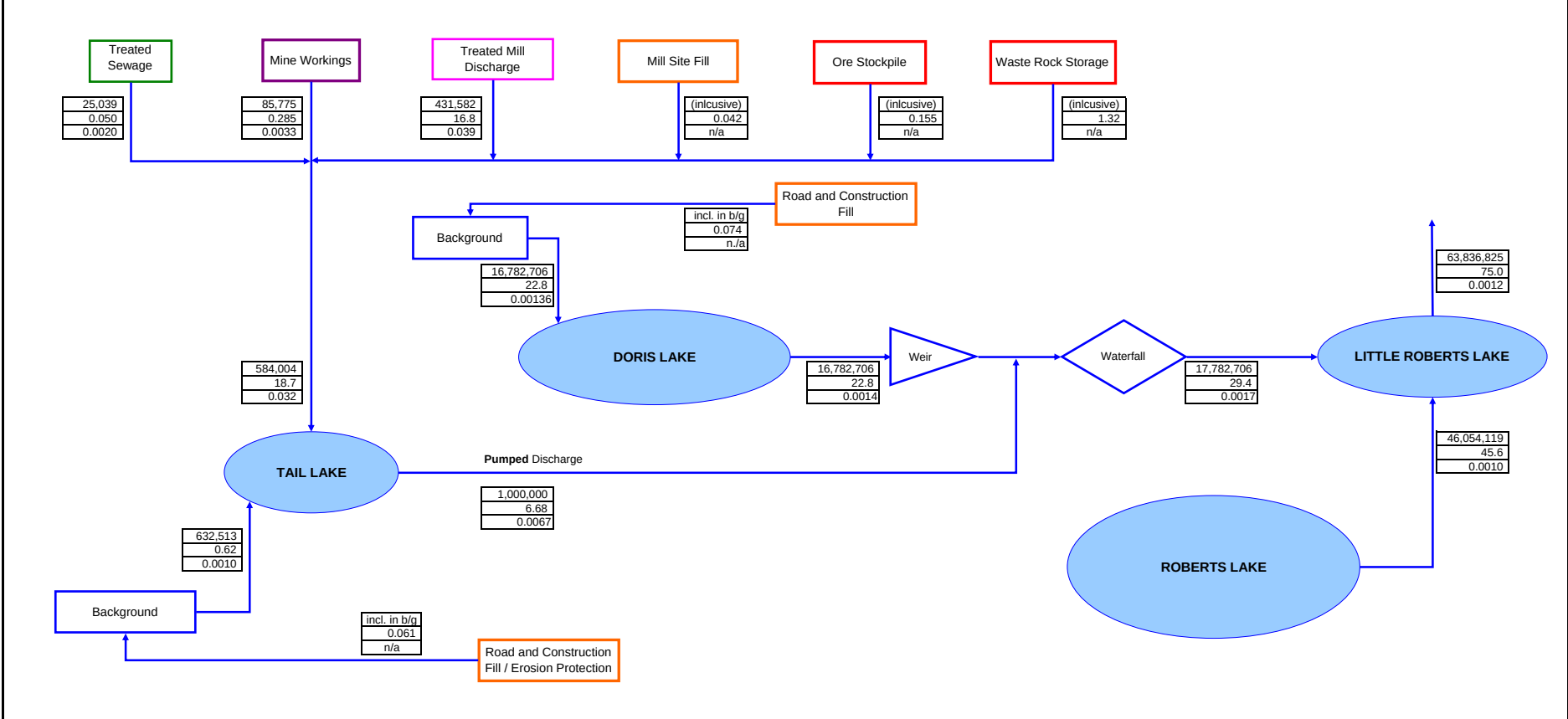


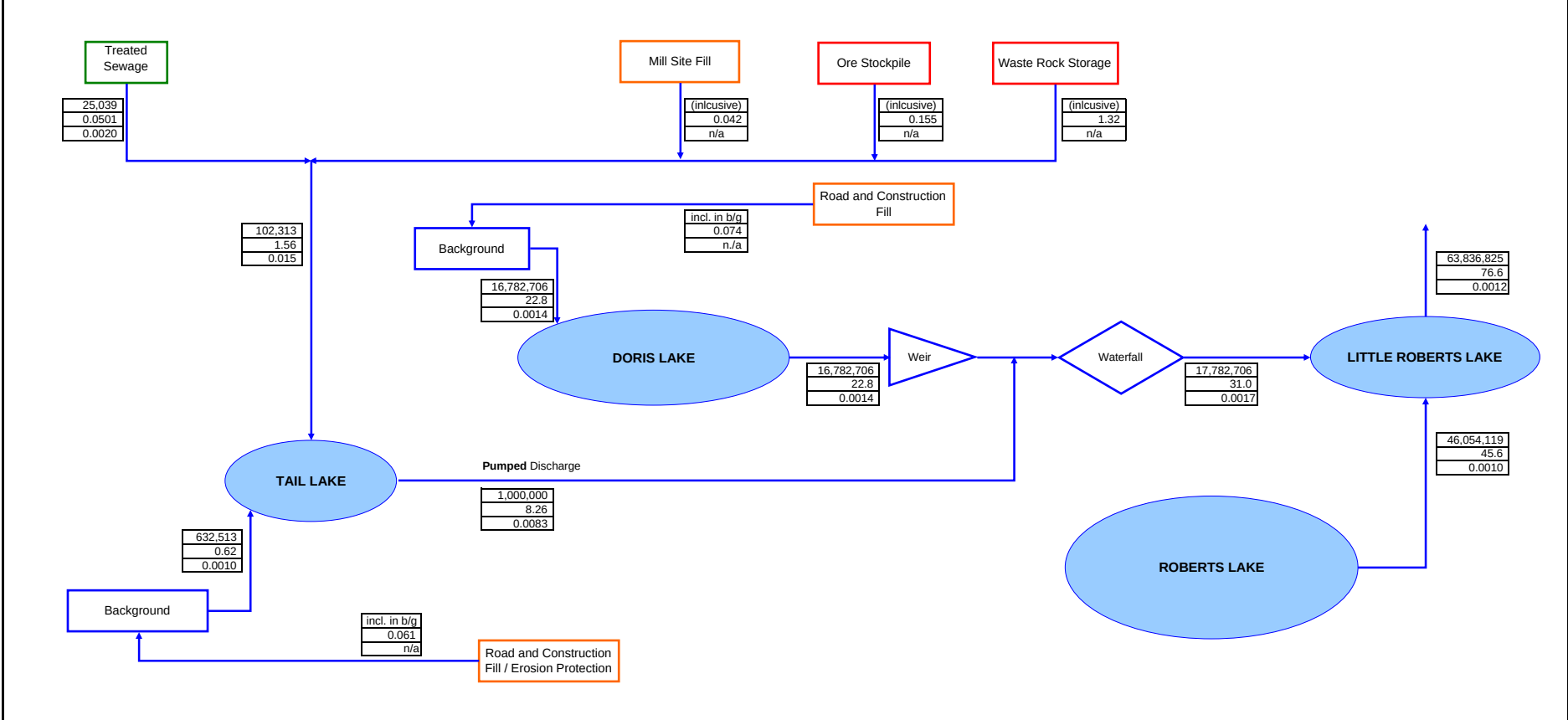
Appendix H

Water Quality Modelling Results – Average Flow Conditions

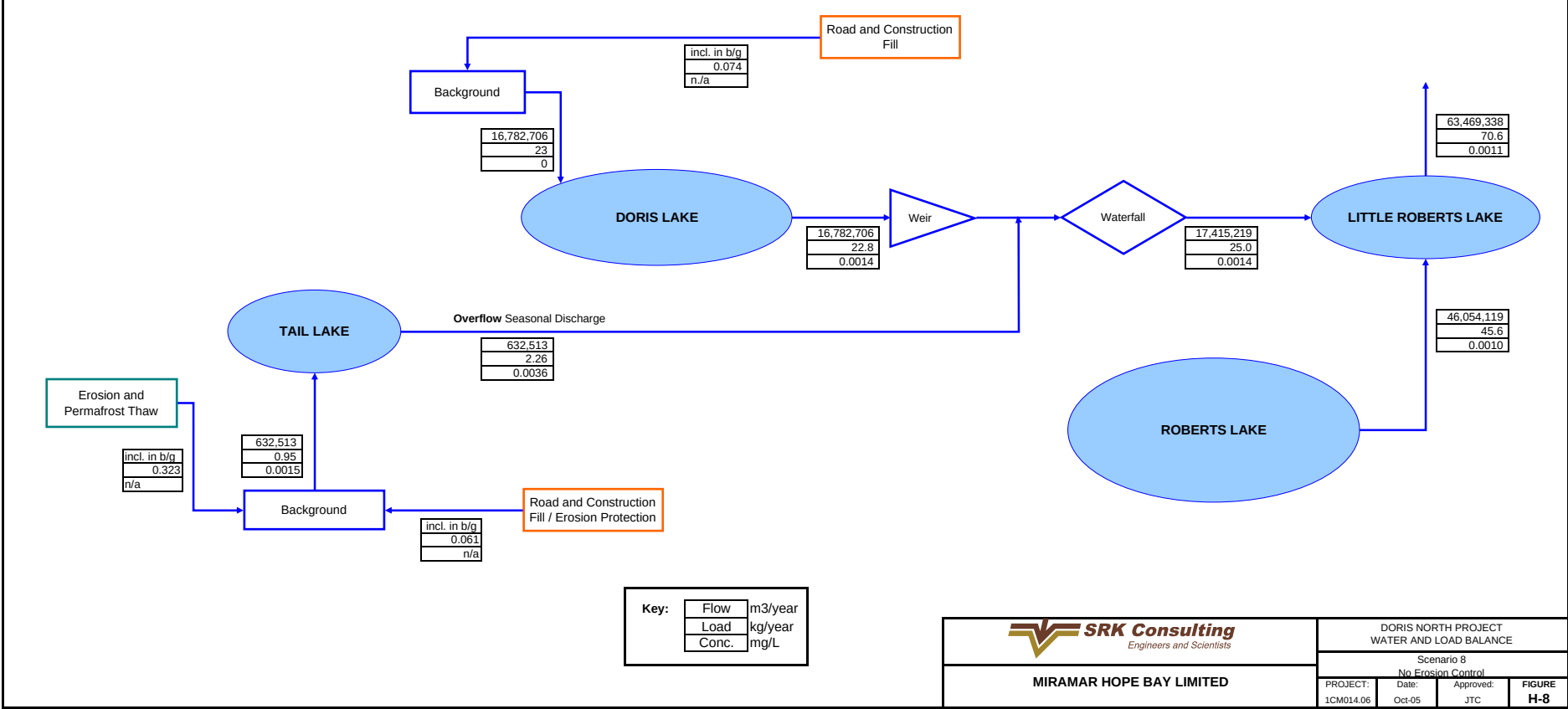
Scenario 8 OPERATIONAL CONDITIONS
Year 2



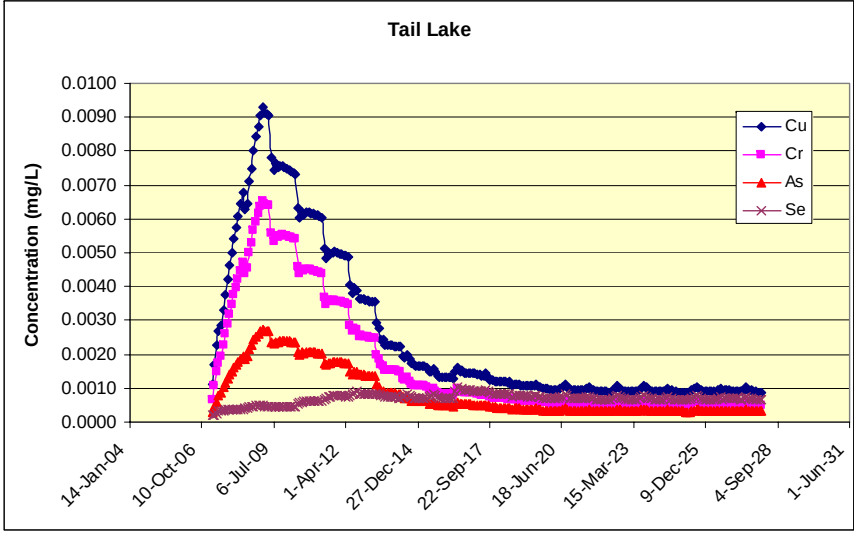
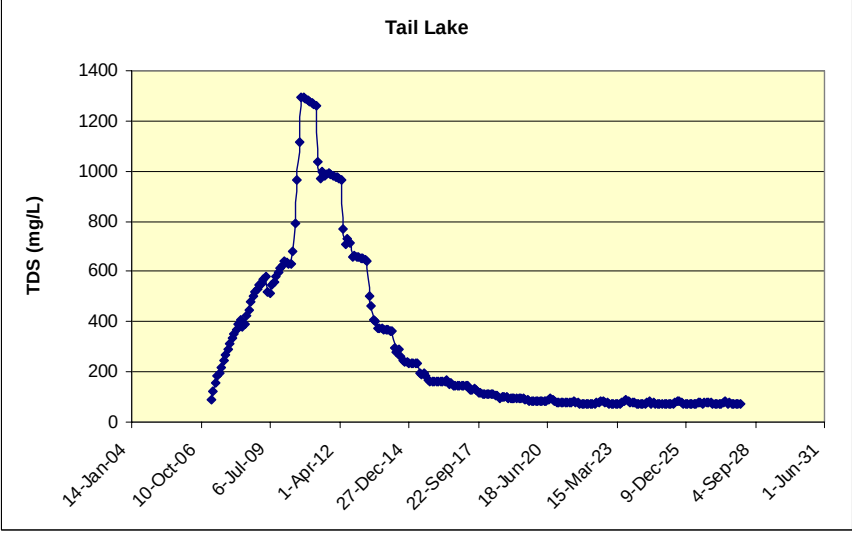
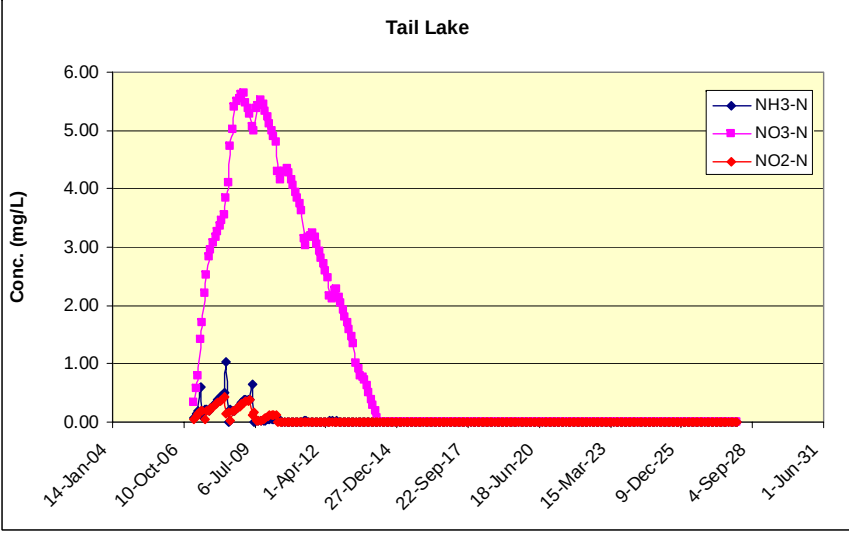
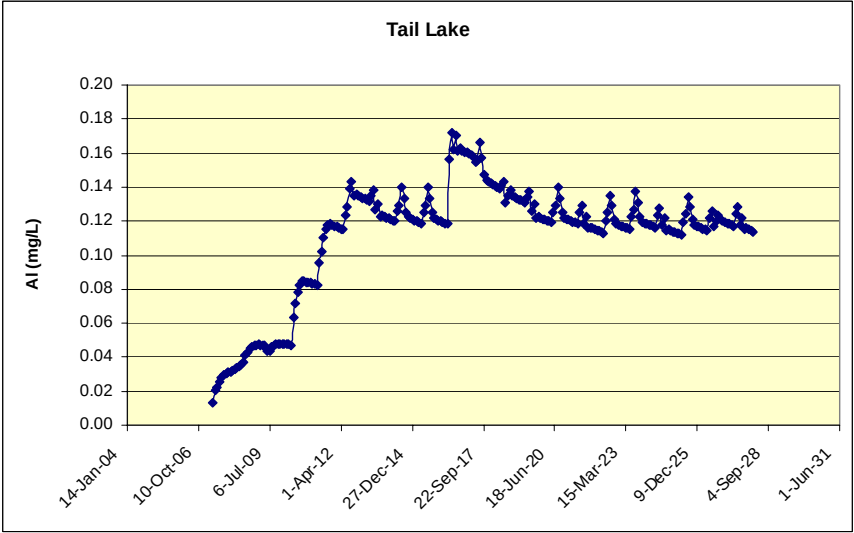
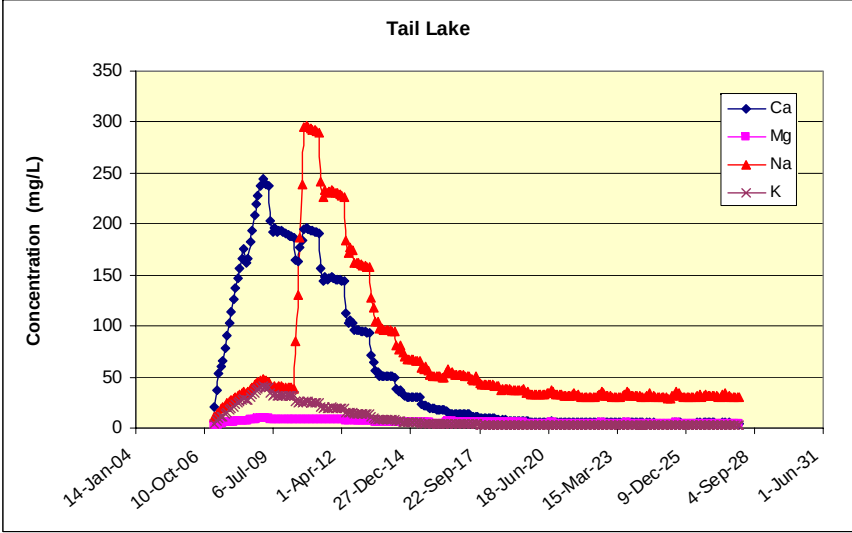
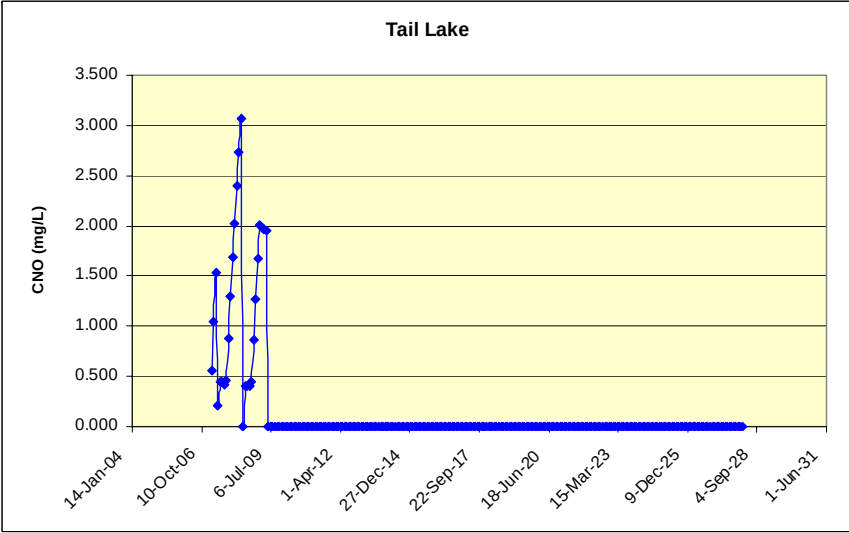
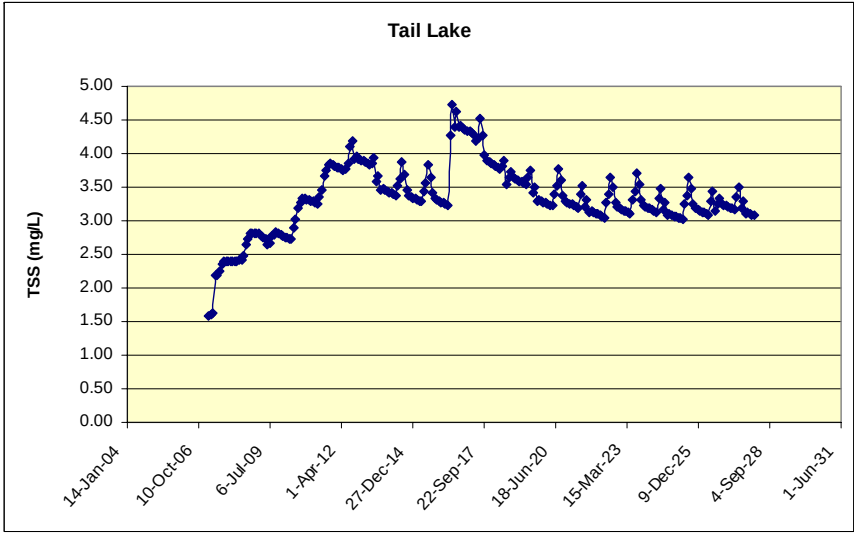
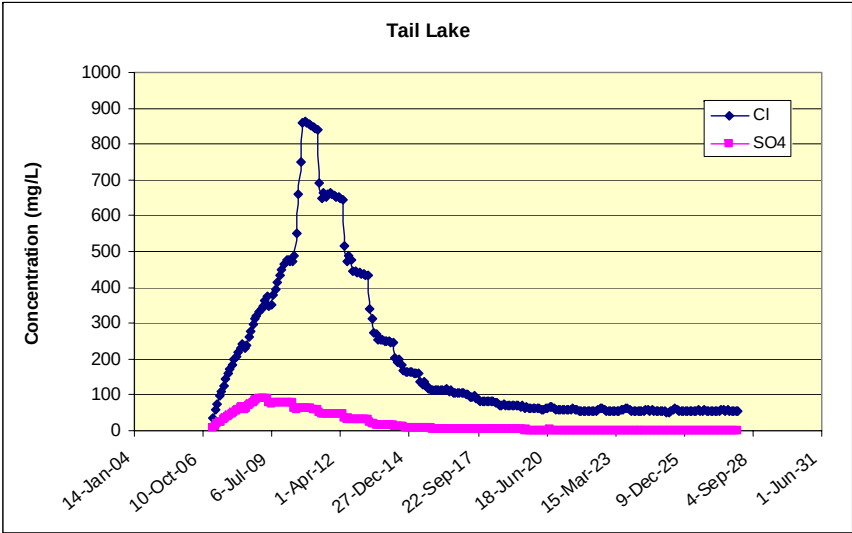
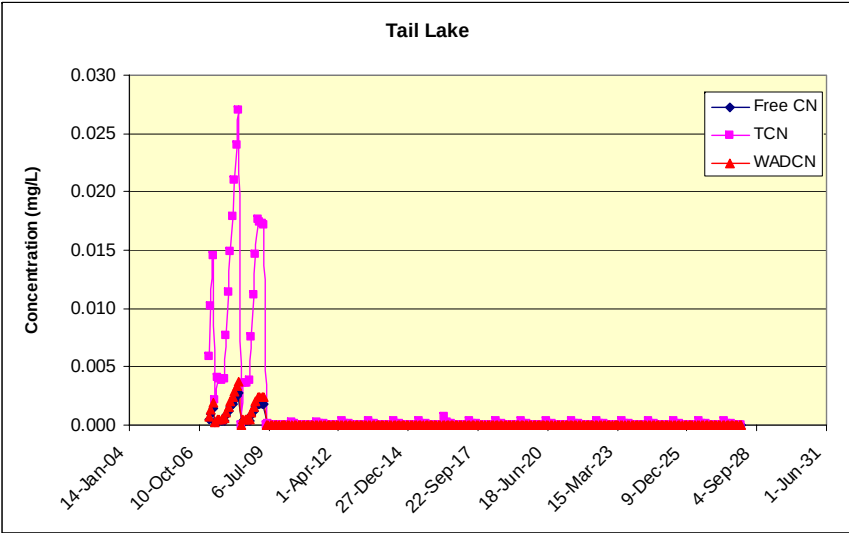
POST MILLING OPERATIONAL CONDITIONS
Year 3



POST CLOSURE CONDITIONS
Year 7



Scenario 8



Scenario 8

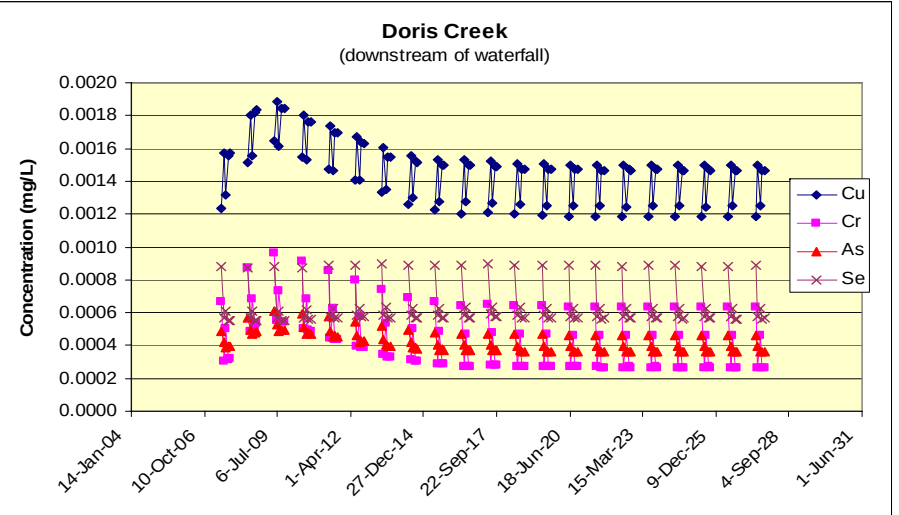
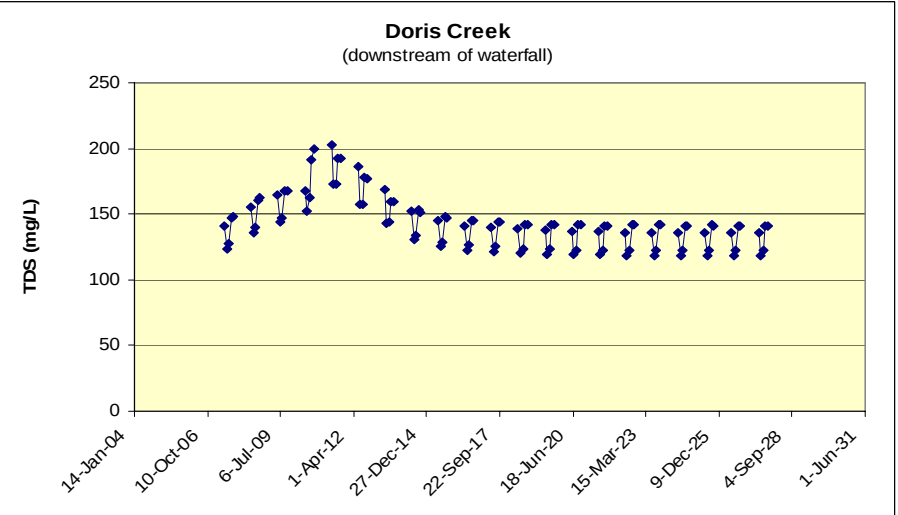
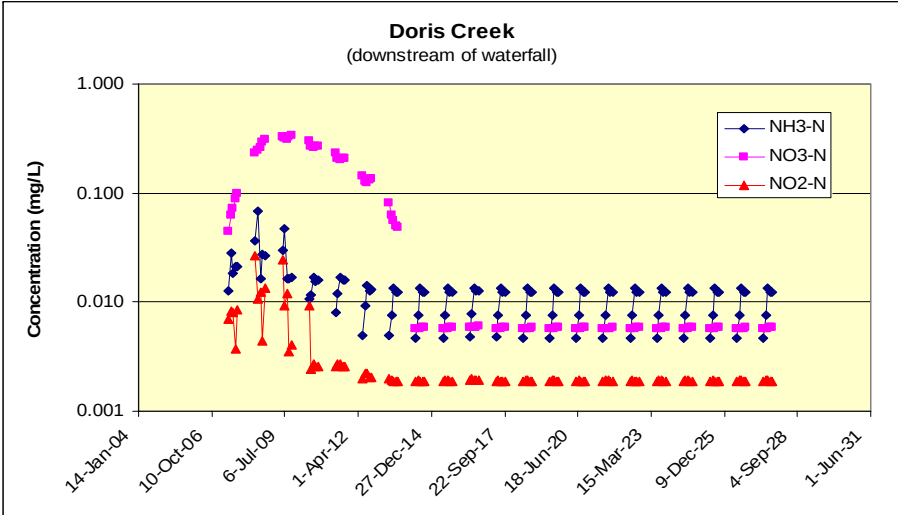
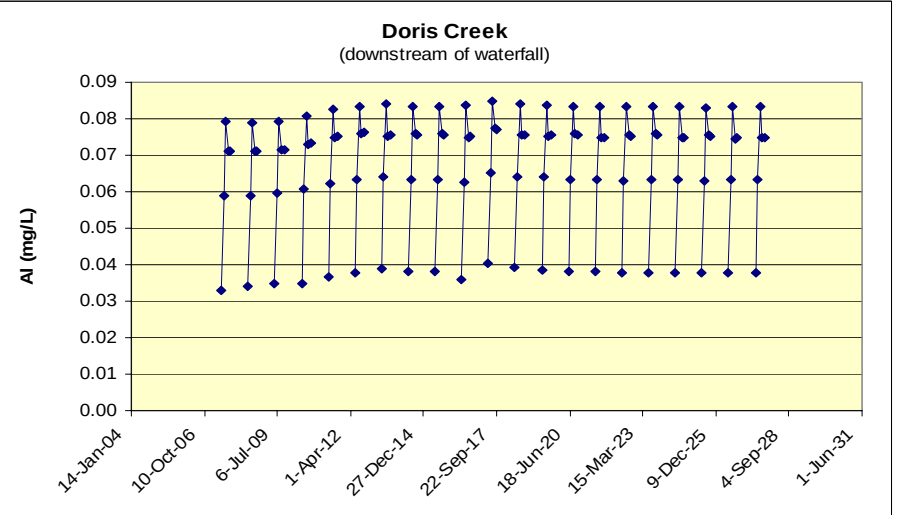
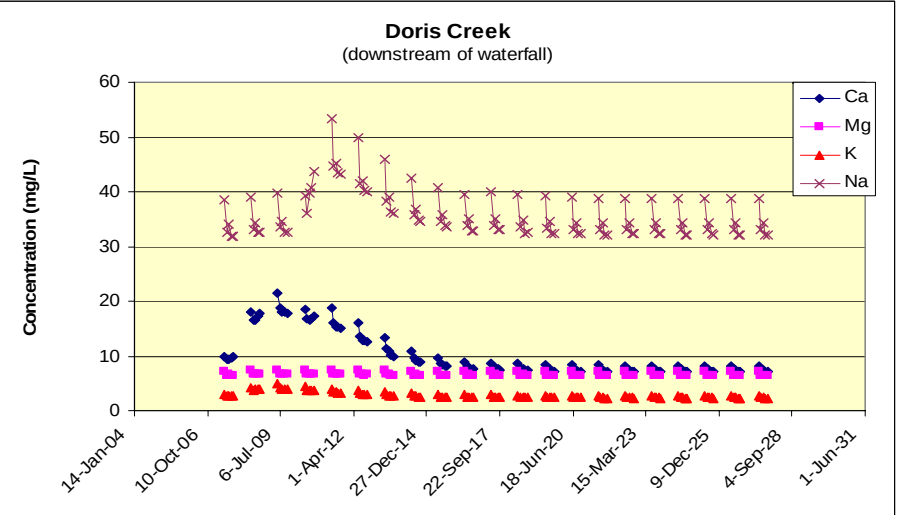
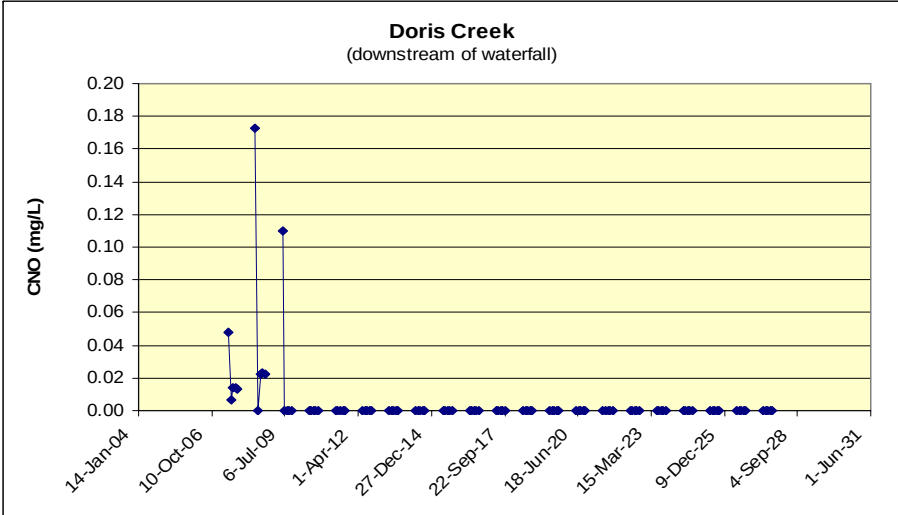
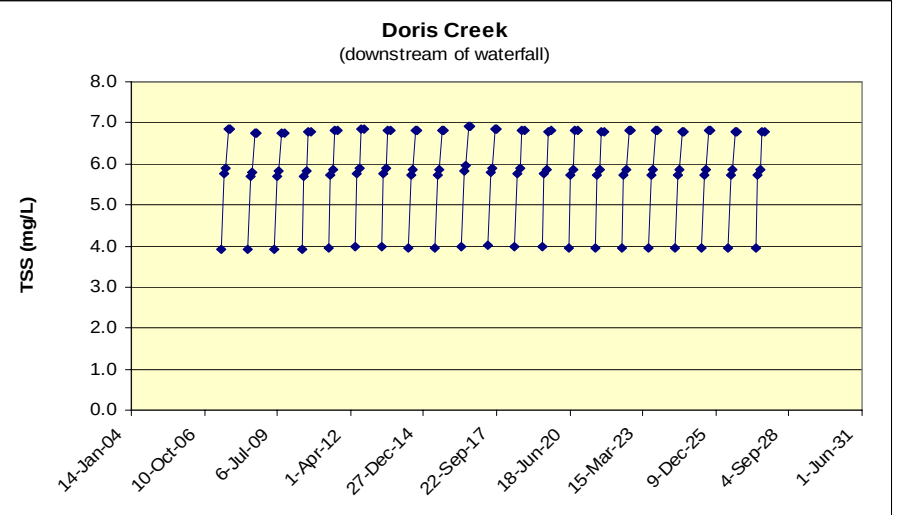
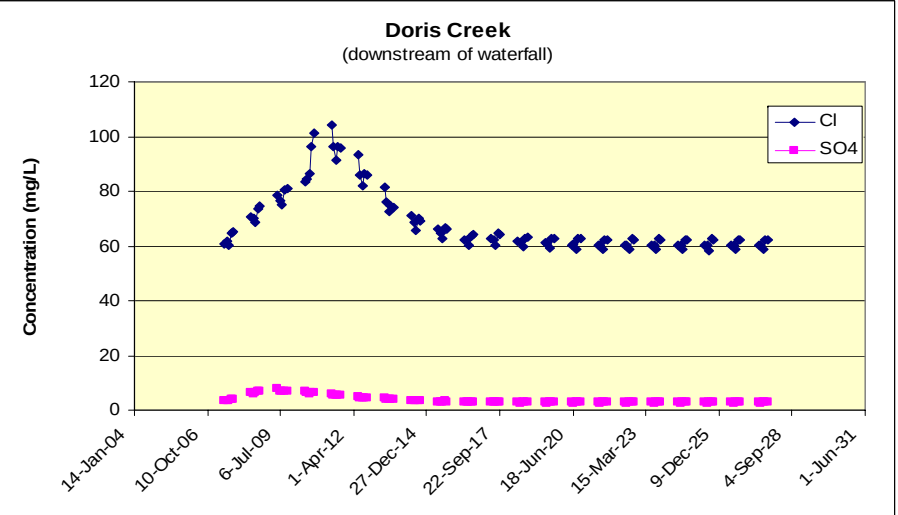
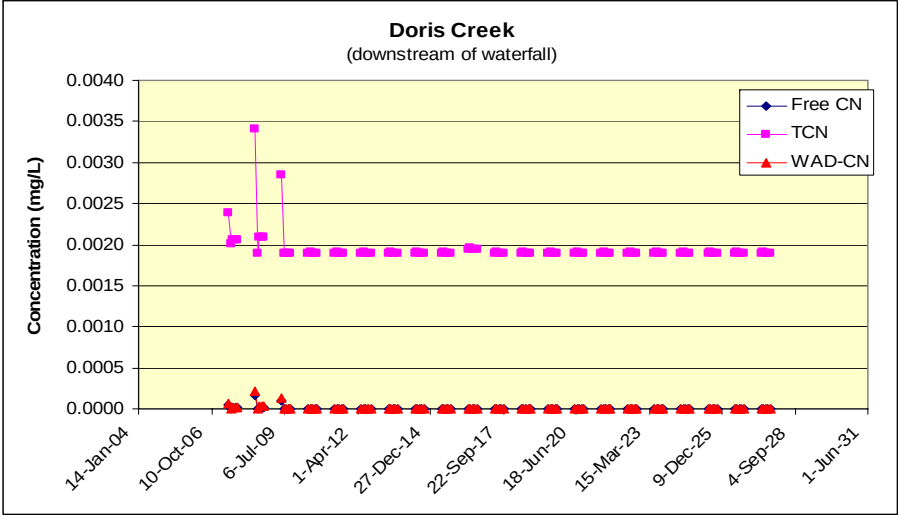


Table H-8-A-1
Scenario 8

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate		1000000 m³/year					
Degradation Field(age)		Tail Lk Cu < CME Year 9					
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1296	203	192	
TSS	mg/L			4.7	6.9	8.1	
Free CN	mg/L		0.005	0.0028	0.00016	0.00008	3%
Total CN	mg/L	1.0		0.027	0.003	0.003	
WAD CN	mg/L			0.0037	0.0002	0.0001	
CNO	mg/L			3.1	0.17	0.09	
SCN	mg/L			0.098	0.005	0.003	
Sulphate	mg/L			90	7.7	6.8	
Chloride	mg/L			863	104	87	
Total Ammonia	mg/L		0.97	1.04	0.069	0.037	7%
Nitrate	mg/L		2.9	5.6	0.34	0.18	11%
Nitrite	mg/L		0.018	0.42	0.026	0.015	144%
Alkalinity	mg/L			56	29	26	
OrthoPhosphate-P	mg/L			0.1814	0.0108	0.0062	
Phosphate-P	mg/L			0.1847	0.0309	0.0293	
Org. Carbon	mg/L			6.1	7.5	7.2	
Hardness CaCO3	mg/L			109	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.17	0.08	0.25	85%
Antimony Sb	mg/L			0.0164	0.0034	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	12%
Barium Ba	mg/L			0.0106	0.0035	0.0054	
Beryllium Be	mg/L			0.00063	0.00004	0.00003	
Bismuth Bi	mg/L			0.01587	0.00091	0.00056	
Boron B	mg/L			0.035	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000055	0.0000061	0.0000162	16%
Calcium Ca	mg/L			245	21	15	
Chromium Cr	mg/L		0.001	0.0065	0.0010	0.001	97%
Cobalt Co	mg/L			0.0102	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.009	0.00189	0.0021	94%
Iron Fe	mg/L		0.3	0.19	0.13	0.28	43%
Lead Pb	mg/L	0.2	0.002	0.00040	0.00008	0.00026	4%
Lithium Li	mg/L			0.0051	0.0029	0.0029	
Magnesium Mg	mg/L			9.3	7.4	7.3	
Manganese Mn	mg/L			0.028	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000132	0.00000127	0.0000010	1%
Molybdenum Mo	mg/L		0.073	0.0089	0.00063	0.00044	1%
Nickel Ni	mg/L	0.5	0.025	0.008	0.0009	0.0009	4%
Phosphorus P	mg/L			0.261	0.035	0.032	
Potassium K	mg/L			41	4.9	3.8	
Selenium Se	mg/L		0.001	0.00102	0.0009	0.00085	90%
Silicon SiO2	mg/L			3.9	0.69	0.62	
Silver Ag	mg/L		0.0001	0.00012	0.0000082	0.0000071	8%
Sodium Na	mg/L			297	53	46	
Strontium Sr	mg/L			0.089	0.044	0.047	
Tellurium Te	mg/L			0.049	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000043	0.000031	0.0020	4%
Thorium Th	mg/L			0.000062	0.0000044	0.0000023	
Tin Sn	mg/L			0.00252	0.00052	0.00007	
Titanium Ti	mg/L			0.0146	0.0065	0.0064	
Uranium U	mg/L			0.000089	0.000041	0.000045	
Vanadium V	mg/L			0.0035	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.023	0.0041	0.0057	14%
Zirconium Zr	mg/L			0.0051	0.0050	0.0052	

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	155	185	194	219	245	270	291	313	333	351
TSS	mg/L	1.6	1.6	1.6	2.2	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00140	0.00019	0.00040	0.00040	0.00039	0.00041	0.00080	0.00117	0.00153	0.00184
Total CN	mg/L	0.006	0.010	0.014	0.002	0.004	0.004	0.004	0.004	0.008	0.011	0.015	0.018
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0003	0.0005	0.0005	0.0005	0.0005	0.0011	0.0016	0.0020	0.0025
CNO	mg/L	0.55	1.05	1.54	0.21	0.44	0.44	0.43	0.45	0.88	1.29	1.69	2.03
SCN	mg/L	0.008	0.014	0.021	0.023	0.025	0.030	0.035	0.040	0.045	0.050	0.054	0.058
Sulphate	mg/L	7.5	13.4	19.1	23.0	25.2	29.9	34.4	39.1	43.1	47.1	50.9	54.2
Chloride	mg/L	37	57	76	98	108	126	143	159	172	185	197	208
Total Ammonia	mg/L	0.070	0.132	0.193	0.593	0.093	0.216	0.213	0.202	0.250	0.297	0.342	0.381
Nitrate	mg/L	0.35	0.57	0.80	1.41	1.71	2.21	2.53	2.84	2.95	3.06	3.17	3.26
Nitrite	mg/L	0.054	0.102	0.149	0.194	0.186	0.048	0.201	0.198	0.234	0.270	0.304	0.333
Alkalinity	mg/L	16	18	21	26	27	29	32	34	35	37	38	40
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0280	0.0312	0.0335	0.0401	0.0462	0.0530	0.0591	0.0652	0.0710	0.0760
Phosphate-P	mg/L	0.0142	0.0228	0.0313	0.0357	0.0375	0.0440	0.0500	0.0567	0.0627	0.0686	0.0743	0.0793
Org. Carbon	mg/L	3.0	2.9	2.8	3.9	3.9	4.0	4.0	3.9	3.8	3.7	3.6	3.5
Hardness CaCO3	mg/L	23	29	35	42	45	50	55	59	63	67	70	73
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0007	0.0012	0.0017	0.0033	0.0040	0.0047	0.0054	0.0059	0.0062	0.0065	0.0068	0.0071
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0009	0.0010	0.0012	0.0013	0.0014	0.0015	0.0016	0.0017
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0033	0.0036	0.0041	0.0046	0.0051	0.0055	0.0059	0.0063	0.0067
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00025	0.00027	0.00028	0.00030	0.00032	0.00033	0.00034	0.00034	0.00035
Bismuth Bi	mg/L	0.00057	0.00108	0.00158	0.00315	0.00380	0.00443	0.00510	0.00558	0.00585	0.00613	0.00640	0.00664
Boron B	mg/L	0.007	0.008	0.009	0.013	0.014	0.015	0.017	0.018	0.018	0.019	0.019	0.020
Cadmium Cd	mg/L	0.0000044	0.0000074	0.0000104	0.0000153	0.0000174	0.0000203	0.0000233	0.0000259	0.0000278	0.0000297	0.0000315	0.0000331
Calcium Ca	mg/L	21	38	54	61	65	78	90	103	114	126	137	146
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.004
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0025	0.0027	0.0032	0.0037	0.0043	0.0048	0.0052	0.0057	0.0061
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0027	0.0029	0.0033	0.0037	0.0042	0.0046	0.0050	0.0054	0.0057
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00013	0.00014	0.00017	0.00018	0.00020	0.00021	0.00022	0.00024	0.00025
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0029	0.0030	0.0031	0.0033	0.0035	0.0035	0.0036	0.0037	0.0037
Magnesium Mg	mg/L	2.5	2.9	3.3	4.3	4.5	4.9	5.4	5.7	5.9	6.1	6.4	6.5
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.008	0.009	0.011	0.012	0.013	0.015	0.016	0.017
Mercury Hg	mg/L	0.0000006	0.0000009	0.0000012	0.0000018	0.0000020	0.0000022	0.0000025	0.0000028	0.0000030	0.0000032	0.0000034	0.0000035
Molybdenum Mo	mg/L	0.00072	0.00133	0.00193	0.00216	0.00233	0.00279	0.00321	0.00369	0.00411	0.00453	0.00493	0.00528
Nickel Ni	mg/L	0.0008	0.0013	0.0018	0.0023	0.0025	0.0029	0.0033	0.0037	0.0040	0.0044	0.0047	0.0050
Phosphorus P	mg/L	0.020	0.033	0.047	0.057	0.062	0.073	0.083	0.094	0.103	0.112	0.121	0.129
Potassium K	mg/L	3.8	6.6	9.3	10.5	11.2	13.3	15.3	17.4	19.3	21.2	23.0	24.6
Selenium Se	mg/L	0.00022	0.00022	0.00023	0.00032	0.00033	0.00034	0.00036	0.00037	0.00037	0.00037	0.00038	0.00038
Silicon SiO2	mg/L	0.70	0.92	1.13	1.41	1.48	1.66	1.84	2.02	2.16	2.30	2.44	2.55
Silver Ag	mg/L	0.0000525	0.0000535	0.0000545	0.0000803	0.0000829	0.0000831	0.0000839	0.0000846	0.0000843	0.0000841	0.0000840	0.0000839
Sodium Na	mg/L	11	13	15	19	20	22	24	26	28	29	31	32
Strontium Sr	mg/L	0.017	0.021	0.026	0.032	0.034	0.038	0.042	0.046	0.049	0.052	0.055	0.058
Tellurium Te	mg/L	0.025	0.024	0.023	0.032	0.032	0.032	0.033	0.033	0.032	0.031	0.030	0.029
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000026	0.000027	0.000028	0.000030	0.000031	0.000031	0.000032	0.000032	0.000033
Thorium Th	mg/L				0.000007	0.000010	0.000011	0.000013	0.000013	0.000013	0.000012	0.000012	0.000012
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00054	0.00067	0.00077	0.00088	0.00095	0.00099	0.00103	0.00106	0.00110
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0041	0.0041	0.0042	0.0043	0.0043	0.0042	0.0041	0.0040	0.0040
Uranium U	mg/L	0.000025	0.000024	0.000024	0.000040	0.000042	0.000042	0.000043	0.000042	0.000041	0.000040	0.000039	0.000039
Vanadium V	mg/L	0.0004	0.0005	0.0007	0.0011	0.0012	0.0013	0.0015	0.0016	0.0017	0.0018	0.0018	0.0019
Zinc Zn	mg/L	0.0020	0.0034	0.0048	0.0058	0.0063	0.0075	0.0089	0.0101	0.0111	0.0120	0.0130	0.0137
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0034	0.0034	0.0034	0.0035	0.0035	0.0034	0.0033	0.0032	0.0031

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	370	388	407	379	389	426	448	479	499	516	532	546
TSS	mg/L	2.4	2.4	2.4	2.4	2.5	2.6	2.7	2.8	2.8	2.8	2.8	2.8
Free CN	mg/L	0.00218	0.00248	0.00279		0.00037	0.00037	0.00037	0.00040	0.00078	0.00116	0.00152	0.00183
Total CN	mg/L	0.021	0.024	0.027		0.004	0.004	0.004	0.004	0.008	0.011	0.015	0.018
WAD CN	mg/L	0.0029	0.0033	0.0037		0.0005	0.0005	0.0005	0.0005	0.0010	0.0015	0.0020	0.0024
CNO	mg/L	2.39	2.73	3.07		0.40	0.41	0.40	0.44	0.86	1.28	1.67	2.01
SCN	mg/L	0.062	0.066	0.070	0.064	0.066	0.073	0.077	0.083	0.087	0.091	0.095	0.098
Sulphate	mg/L	57.8	61.2	64.5	60.0	62.1	68.5	72.7	78.1	81.8	84.9	88.0	90.5
Chloride	mg/L	220	231	242	230	240	263	279	298	311	321	330	338
Total Ammonia	mg/L	0.423	0.462	0.501	1.041		0.210	0.202	0.197	0.246	0.294	0.340	0.379
Nitrate	mg/L	3.37	3.46	3.56	3.84	4.10	4.72	5.03	5.40	5.49	5.55	5.60	5.64
Nitrite	mg/L	0.365	0.395	0.424	0.148	0.177	0.036	0.198	0.199	0.236	0.272	0.307	0.336
Alkalinity	mg/L	41	42	44	42	43	47	49	51	53	54	55	56
OrthoPhosphate-P	mg/L	0.0815	0.0866	0.0917	0.0838	0.0860	0.0948	0.1004	0.1083	0.1139	0.1187	0.1234	0.1273
Phosphate-P	mg/L	0.0847	0.0897	0.0948	0.0871	0.0893	0.0982	0.1038	0.1116	0.1172	0.1219	0.1265	0.1304
Org. Carbon	mg/L	3.4	3.4	3.3	3.4	3.6	3.8	3.8	3.8	3.8	3.7	3.6	3.5
Hardness CaCO3	mg/L	77	80	83	78	81	88	92	98	101	104	107	109
Total Metals													
Aluminum Al	mg/L	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0074	0.0076	0.0079	0.0081	0.0088	0.0097	0.0104	0.0110	0.0113	0.0115	0.0117	0.0118
Arsenic As	mg/L	0.0018	0.0019	0.0020	0.0019	0.0019	0.0021	0.0023	0.0024	0.0025	0.0026	0.0027	0.0027
Barium Ba	mg/L	0.0071	0.0074	0.0078	0.0072	0.0075	0.0082	0.0087	0.0093	0.0097	0.0100	0.0103	0.0106
Beryllium Be	mg/L	0.00036	0.00037	0.00038	0.00039	0.00042	0.00045	0.00047	0.00050	0.00050	0.00051	0.00051	0.00052
Bismuth Bi	mg/L	0.00691	0.00715	0.00740	0.00767	0.00831	0.00918	0.00984	0.01043	0.01068	0.01086	0.01103	0.01118
Boron B	mg/L	0.020	0.021	0.021	0.021	0.022	0.024	0.025	0.027	0.027	0.027	0.028	0.028
Cadmium Cd	mg/L	0.0000349	0.0000366	0.0000382	0.0000373	0.0000394	0.0000434	0.0000462	0.0000493	0.0000511	0.0000525	0.0000539	0.0000550
Calcium Ca	mg/L	157	167	176	161	166	183	194	209	219	228	237	245
Chromium Cr	mg/L	0.004	0.004	0.005	0.004	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.007
Cobalt Co	mg/L	0.0065	0.0069	0.0073	0.0067	0.0069	0.0076	0.0081	0.0087	0.0092	0.0095	0.0099	0.0102
Copper Cu	mg/L	0.0061	0.0064	0.0068	0.0063	0.0065	0.0071	0.0075	0.0080	0.0084	0.0087	0.0090	0.0093
Iron Fe	mg/L	0.04	0.04	0.05	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00026	0.00027	0.00028	0.00027	0.00029	0.00032	0.00034	0.00036	0.00037	0.00038	0.00039	0.00039
Lithium Li	mg/L	0.0038	0.0039	0.0039	0.0039	0.0040	0.0043	0.0045	0.0047	0.0048	0.0048	0.0049	0.0049
Magnesium Mg	mg/L	6.8	7.0	7.2	6.9	7.2	7.8	8.2	8.6	8.9	9.0	9.2	9.3
Manganese Mn	mg/L	0.018	0.019	0.020	0.019	0.019	0.021	0.023	0.024	0.025	0.026	0.027	0.028
Mercury Hg	mg/L	0.0000037	0.0000039	0.0000040	0.0000039	0.0000041	0.0000045	0.0000048	0.0000051	0.0000053	0.0000054	0.0000056	0.0000057
Molybdenum Mo	mg/L	0.00567	0.00602	0.00638	0.00583	0.00599	0.00660	0.00700	0.00754	0.00793	0.00827	0.00859	0.00887
Nickel Ni	mg/L	0.0053	0.0056	0.0059	0.0055	0.0057	0.0063	0.0066	0.0071	0.0074	0.0077	0.0080	0.0082
Phosphorus P	mg/L	0.137	0.145	0.153	0.143	0.148	0.163	0.172	0.185	0.194	0.201	0.208	0.214
Potassium K	mg/L	26.3	27.9	29.5	27.0	27.7	30.5	32.3	34.8	36.6	38.1	39.5	40.8
Selenium Se	mg/L	0.00038	0.00039	0.00039	0.00039	0.00041	0.00044	0.00045	0.00047	0.00048	0.00048	0.00048	0.00048
Silicon SiO2	mg/L	2.68	2.81	2.93	2.76	2.85	3.12	3.28	3.50	3.63	3.74	3.85	3.94
Silver Ag	mg/L	0.0000841	0.0000842	0.0000844	0.0000894	0.0000951	0.0001004	0.0001027	0.0001057	0.0001060	0.0001056	0.0001052	0.0001048
Sodium Na	mg/L	33	35	36	34	35	38	40	43	44	45	46	47
Strontium Sr	mg/L	0.061	0.064	0.066	0.062	0.064	0.070	0.074	0.079	0.082	0.084	0.087	0.089
Tellurium Te	mg/L	0.028	0.028	0.027	0.028	0.029	0.031	0.031	0.032	0.031	0.030	0.030	0.029
Thallium Tl	mg/L	0.000033	0.000034	0.000034	0.000034	0.000036	0.000038	0.000040	0.000042	0.000042	0.000043	0.000043	0.000043
Thorium Th	mg/L	0.000011	0.000011	0.000011	0.000015	0.000017	0.000019	0.000021	0.000021	0.000021	0.000020	0.000020	0.000020
Tin Sn	mg/L	0.00113	0.00117	0.00120	0.00125	0.00136	0.00150	0.00160	0.00169	0.00173	0.00175	0.00177	0.00179
Titanium Ti	mg/L	0.0039	0.0039	0.0038	0.0039	0.0041	0.0043	0.0044	0.0045	0.0045	0.0044	0.0043	0.0043
Uranium U	mg/L	0.000038	0.000037	0.000037	0.000042	0.000046	0.000048	0.000049	0.000050	0.000050	0.000048	0.000047	0.000047
Vanadium V	mg/L	0.0020	0.0021	0.0021	0.0021	0.0023	0.0025	0.0026	0.0028	0.0029	0.0029	0.0030	0.0031
Zinc Zn	mg/L	0.0146	0.0154	0.0163	0.0151	0.0155	0.0171	0.0183	0.0197	0.0206	0.0213	0.0220	0.0227
Zirconium Zr	mg/L	0.0031	0.0030	0.0029	0.0031	0.0033	0.0034	0.0035	0.0036	0.0035	0.0034	0.0033	0.0033

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	554	567	580	521	515	545	557	579	598	612	626	639
TSS	mg/L	2.8	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Free CN	mg/L	0.00180	0.00179	0.00177									
Total CN	mg/L	0.017	0.017	0.017			0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0024	0.0024	0.0024									
CNO	mg/L	1.98	1.96	1.95									
SCN	mg/L	0.096	0.096	0.095	0.081	0.076	0.077	0.076	0.076	0.076	0.076	0.075	0.075
Sulphate	mg/L	89.4	89.2	89.0	77.5	74.3	76.7	76.3	77.2	77.7	77.5	77.4	77.3
Chloride	mg/L	349	363	377	347	351	379	394	416	434	449	464	478
Total Ammonia	mg/L	0.381	0.386	0.392	0.650		0.021	0.025	0.015	0.024	0.033	0.042	0.051
Nitrate	mg/L	5.48	5.37	5.27	5.06	4.99	5.37	5.43	5.53	5.46	5.34	5.22	5.12
Nitrite	mg/L	0.352	0.371	0.390	0.122	0.168	0.019	0.028	0.028	0.052	0.076	0.100	0.121
Alkalinity	mg/L	55	55	55	49	48	49	49	49	49	49	49	48
OrthoPhosphate-P	mg/L	0.1324	0.1384	0.1446	0.1298	0.1297	0.1400	0.1454	0.1541	0.1619	0.1686	0.1753	0.1814
Phosphate-P	mg/L	0.1354	0.1414	0.1476	0.1332	0.1330	0.1435	0.1488	0.1575	0.1653	0.1719	0.1786	0.1847
Org. Carbon	mg/L	3.4	3.4	3.4	3.6	3.7	3.9	4.0	4.0	4.0	4.0	3.9	3.9
Hardness CaCO3	mg/L	108	107	106	94	91	93	93	93	93	92	91	91
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0120	0.0124	0.0127	0.0123	0.0127	0.0137	0.0144	0.0150	0.0155	0.0158	0.0161	0.0164
Arsenic As	mg/L	0.0027	0.0027	0.0027	0.0024	0.0023	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
Barium Ba	mg/L	0.0104	0.0103	0.0103	0.0090	0.0087	0.0089	0.0089	0.0089	0.0089	0.0089	0.0088	0.0088
Beryllium Be	mg/L	0.00052	0.00053	0.00053	0.00052	0.00053	0.00056	0.00058	0.00060	0.00061	0.00061	0.00062	0.00063
Bismuth Bi	mg/L	0.01140	0.01171	0.01204	0.01172	0.01217	0.01316	0.01380	0.01445	0.01489	0.01522	0.01556	0.01587
Boron B	mg/L	0.028	0.028	0.028	0.026	0.026	0.027	0.028	0.028	0.028	0.028	0.028	0.028
Cadmium Cd	mg/L	0.0000542	0.0000538	0.0000535	0.0000473	0.0000458	0.0000473	0.0000472	0.0000476	0.0000476	0.0000472	0.0000469	0.0000466
Calcium Ca	mg/L	241	239	238	203	192	196	193	193	193	192	190	189
Chromium Cr	mg/L	0.006	0.006	0.006	0.006	0.005	0.006	0.005	0.006	0.006	0.006	0.005	0.005
Cobalt Co	mg/L	0.0101	0.0100	0.0100	0.0086	0.0081	0.0083	0.0082	0.0083	0.0083	0.0083	0.0082	0.0082
Copper Cu	mg/L	0.0091	0.0091	0.0090	0.0078	0.0074	0.0076	0.0075	0.0076	0.0076	0.0075	0.0075	0.0074
Iron Fe	mg/L	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05
Lead Pb	mg/L	0.00039	0.00039	0.00039	0.00036	0.00036	0.00038	0.00038	0.00039	0.00039	0.00040	0.00040	0.00040
Lithium Li	mg/L	0.0049	0.0048	0.0048	0.0046	0.0045	0.0047	0.0048	0.0048	0.0049	0.0048	0.0048	0.0048
Magnesium Mg	mg/L	9.2	9.2	9.2	8.4	8.3	8.6	8.7	8.8	8.8	8.8	8.8	8.8
Manganese Mn	mg/L	0.028	0.028	0.028	0.024	0.022	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Mercury Hg	mg/L	0.0000056	0.0000056	0.0000055	0.0000049	0.0000048	0.0000049	0.0000049	0.0000050	0.0000050	0.0000050	0.0000049	0.0000049
Molybdenum Mo	mg/L	0.00872	0.00867	0.00861	0.00734	0.00693	0.00708	0.00696	0.00699	0.00699	0.00693	0.00688	0.00684
Nickel Ni	mg/L	0.0081	0.0081	0.0081	0.0071	0.0068	0.0070	0.0070	0.0071	0.0071	0.0071	0.0071	0.0071
Phosphorus P	mg/L	0.218	0.224	0.230	0.206	0.204	0.218	0.223	0.233	0.242	0.248	0.255	0.261
Potassium K	mg/L	40.1	39.8	39.5	33.8	32.0	32.6	32.1	32.3	32.2	32.0	31.7	31.5
Selenium Se	mg/L	0.00047	0.00047	0.00047	0.00045	0.00045	0.00046	0.00047	0.00047	0.00047	0.00047	0.00046	0.00046
Silicon SiO2	mg/L	3.88	3.85	3.83	3.38	3.25	3.35	3.32	3.34	3.35	3.32	3.30	3.28
Silver Ag	mg/L	0.0001039	0.0001040	0.0001040	0.0001048	0.0001079	0.0001122	0.0001129	0.0001148	0.0001156	0.0001155	0.0001155	0.0001156
Sodium Na	mg/L	47	46	46	41	39	41	40	41	41	40	40	40
Strontium Sr	mg/L	0.087	0.087	0.086	0.076	0.074	0.076	0.075	0.076	0.076	0.075	0.075	0.075
Tellurium Te	mg/L	0.028	0.028	0.028	0.029	0.031	0.032	0.033	0.033	0.033	0.033	0.033	0.032
Thallium Tl	mg/L	0.000042	0.000042	0.000042	0.000040	0.000039	0.000041	0.000041	0.000042	0.000042	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000019	0.000019	0.000019	0.000019	0.000020	0.000022	0.000023	0.000023	0.000023	0.000023	0.000023	0.000023
Tin Sn	mg/L	0.00182	0.00187	0.00191	0.00187	0.00195	0.00211	0.00221	0.00231	0.00238	0.00242	0.00247	0.00252
Titanium Ti	mg/L	0.0042	0.0042	0.0042	0.0043	0.0045	0.0047	0.0048	0.0049	0.0049	0.0049	0.0049	0.0049
Uranium U	mg/L	0.000046	0.000046	0.000046	0.000048	0.000050	0.000052	0.000053	0.000054	0.000054	0.000054	0.000053	0.000053
Vanadium V	mg/L	0.0031	0.0031	0.0031	0.0030	0.0030	0.0032	0.0032	0.0034	0.0034	0.0035	0.0035	0.0035
Zinc Zn	mg/L	0.0223	0.0223	0.0222	0.0192	0.0184	0.0189	0.0189	0.0192	0.0192	0.0191	0.0191	0.0190
Zirconium Zr	mg/L	0.0032	0.0032	0.0032	0.0033	0.0034	0.0036	0.0037	0.0038	0.0037	0.0037	0.0037	0.0037

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	635	633	630	680	790	966	1115	1291	1296	1289	1283	1279
TSS	mg/L	2.7	2.7	2.7	2.9	3.0	3.2	3.3	3.3	3.3	3.3	3.3	3.3
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.074	0.074	0.073	0.061	0.058	0.059	0.058	0.058	0.059	0.058	0.058	0.058
Sulphate	mg/L	76.8	76.5	76.2	64.0	60.2	61.7	60.8	61.3	61.5	61.1	60.8	60.7
Chloride	mg/L	475	473	471	489	552	662	752	859	863	858	854	851
Total Ammonia	mg/L	0.050	0.050	0.050	0.015	0.013	0.006	0.009	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	5.00	4.90	4.80	4.30	4.14	4.30	4.29	4.35	4.27	4.16	4.05	3.95
Nitrite	mg/L	0.120	0.120	0.119		0.004	0.002	0.002	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	48	48	48	43	42	44	44	44	44	44	44	44
OrthoPhosphate-P	mg/L	0.1803	0.1796	0.1788	0.1498	0.1405	0.1440	0.1416	0.1426	0.1432	0.1424	0.1417	0.1412
Phosphate-P	mg/L	0.1836	0.1828	0.1821	0.1549	0.1463	0.1502	0.1481	0.1493	0.1498	0.1490	0.1483	0.1478
Org. Carbon	mg/L	3.9	3.9	3.9	4.0	4.2	4.4	4.5	4.5	4.6	4.5	4.5	4.5
Hardness CaCO3	mg/L	90	90	90	79	77	79	79	80	80	80	79	79
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.06	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Antimony Sb	mg/L	0.0163	0.0163	0.0162	0.0136	0.0127	0.0131	0.0129	0.0130	0.0130	0.0129	0.0129	0.0128
Arsenic As	mg/L	0.0024	0.0024	0.0023	0.0021	0.0020	0.0021	0.0020	0.0021	0.0021	0.0021	0.0021	0.0020
Barium Ba	mg/L	0.0088	0.0087	0.0087	0.0075	0.0071	0.0074	0.0073	0.0074	0.0074	0.0074	0.0073	0.0073
Beryllium Be	mg/L	0.00062	0.00062	0.00062	0.00055	0.00053	0.00055	0.00054	0.00054	0.00055	0.00054	0.00054	0.00054
Bismuth Bi	mg/L	0.01578	0.01571	0.01565	0.01310	0.01228	0.01258	0.01238	0.01247	0.01251	0.01244	0.01238	0.01234
Boron B	mg/L	0.028	0.028	0.028	0.028	0.029	0.030	0.031	0.031	0.031	0.031	0.031	0.031
Cadmium Cd	mg/L	0.0000463	0.0000462	0.0000460	0.0000413	0.0000404	0.0000421	0.0000424	0.0000430	0.0000432	0.0000429	0.0000427	0.0000426
Calcium Ca	mg/L	188	187	187	165	164	177	184	195	196	195	194	193
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.004	0.005	0.004	0.004	0.005	0.004	0.004	0.004
Cobalt Co	mg/L	0.0081	0.0081	0.0081	0.0068	0.0064	0.0065	0.0064	0.0065	0.0065	0.0065	0.0064	0.0064
Copper Cu	mg/L	0.0074	0.0074	0.0073	0.0063	0.0060	0.0062	0.0061	0.0062	0.0062	0.0062	0.0061	0.0061
Iron Fe	mg/L	0.05	0.05	0.05	0.07	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09
Lead Pb	mg/L	0.00040	0.00039	0.00039	0.00035	0.00033	0.00035	0.00034	0.00035	0.00035	0.00035	0.00035	0.00034
Lithium Li	mg/L	0.0048	0.0048	0.0048	0.0046	0.0046	0.0048	0.0049	0.0050	0.0050	0.0049	0.0049	0.0049
Magnesium Mg	mg/L	8.7	8.7	8.6	8.0	7.9	8.3	8.3	8.5	8.5	8.4	8.4	8.4
Manganese Mn	mg/L	0.023	0.022	0.022	0.019	0.018	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Mercury Hg	mg/L	0.0000049	0.0000049	0.0000048	0.0000059	0.0000065	0.0000070	0.0000073	0.0000075	0.0000075	0.0000074	0.0000074	0.0000074
Molybdenum Mo	mg/L	0.00680	0.00677	0.00675	0.00568	0.00534	0.00548	0.00539	0.00544	0.00546	0.00543	0.00540	0.00538
Nickel Ni	mg/L	0.0070	0.0070	0.0070	0.0059	0.0056	0.0058	0.0057	0.0057	0.0058	0.0057	0.0057	0.0057
Phosphorus P	mg/L	0.260	0.259	0.258	0.218	0.205	0.210	0.207	0.209	0.210	0.209	0.208	0.207
Potassium K	mg/L	31.3	31.2	31.1	26.4	25.0	25.6	25.3	25.5	25.6	25.5	25.3	25.3
Selenium Se	mg/L	0.00046	0.00046	0.00045	0.00052	0.00056	0.00059	0.00061	0.00063	0.00063	0.00063	0.00062	0.00062
Silicon SiO2	mg/L	3.26	3.25	3.23	2.89	2.80	2.90	2.89	2.92	2.93	2.92	2.90	2.89
Silver Ag	mg/L	0.0001149	0.0001144	0.0001140	0.0001112	0.0001125	0.0001161	0.0001154	0.0001166	0.0001171	0.0001164	0.0001158	0.0001155
Sodium Na	mg/L	39	39	39	85	131	186	238	296	297	295	294	293
Strontium Sr	mg/L	0.074	0.074	0.073	0.066	0.064	0.066	0.066	0.067	0.067	0.067	0.067	0.066
Tellurium Te	mg/L	0.032	0.032	0.032	0.033	0.034	0.036	0.037	0.037	0.037	0.037	0.037	0.037
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000038	0.000038	0.000040	0.000040	0.000041	0.000041	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000022	0.000022	0.000022	0.000028	0.000032	0.000035	0.000037	0.000038	0.000038	0.000038	0.000038	0.000037
Tin Sn	mg/L	0.00250	0.00249	0.00248	0.00210	0.00199	0.00205	0.00203	0.00205	0.00205	0.00204	0.00203	0.00203
Titanium Ti	mg/L	0.0048	0.0048	0.0048	0.0059	0.0065	0.0070	0.0073	0.0075	0.0075	0.0074	0.0074	0.0074
Uranium U	mg/L	0.000053	0.000053	0.000052	0.000058	0.000061	0.000065	0.000066	0.000067	0.000068	0.000067	0.000067	0.000067
Vanadium V	mg/L	0.0035	0.0035	0.0035	0.0032	0.0031	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
Zinc Zn	mg/L	0.0189	0.0188	0.0187	0.0159	0.0151	0.0155	0.0155	0.0157	0.0157	0.0156	0.0156	0.0155
Zirconium Zr	mg/L	0.0036	0.0036	0.0036	0.0037	0.0039	0.0041	0.0042	0.0043	0.0043	0.0042	0.0042	0.0042

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1274	1269	1263	1039	969	997	979	989	994	987	982	979
TSS	mg/L	3.3	3.3	3.3	3.4	3.5	3.7	3.8	3.8	3.9	3.8	3.8	3.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.058	0.057	0.057	0.046	0.043	0.044	0.043	0.043	0.043	0.043	0.043	0.043
Sulphate	mg/L	60.5	60.2	59.9	48.9	45.4	46.6	45.8	46.2	46.4	46.1	45.9	45.7
Chloride	mg/L	848	844	840	693	647	665	654	660	664	660	656	654
Total Ammonia	mg/L	0.003	0.003	0.003	0.026	0.014	0.007	0.010	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L	3.84	3.74	3.63	3.14	3.04	3.18	3.19	3.25	3.16	3.04	2.93	2.81
Nitrite	mg/L	0.001	0.001	0.001	0.005	0.005	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	44	43	43	39	38	40	40	40	41	40	40	40
OrthoPhosphate-P	mg/L	0.1408	0.1402	0.1395	0.1133	0.1049	0.1076	0.1053	0.1063	0.1068	0.1061	0.1056	0.1052
Phosphate-P	mg/L	0.1473	0.1467	0.1460	0.1214	0.1135	0.1168	0.1148	0.1159	0.1165	0.1158	0.1152	0.1148
Org. Carbon	mg/L	4.5	4.5	4.4	4.5	4.7	4.9	5.0	5.1	5.1	5.1	5.1	5.0
Hardness CaCO3	mg/L	79	79	78	68	66	69	69	70	70	70	69	69
Total Metals													
Aluminum Al	mg/L	0.08	0.08	0.08	0.10	0.10	0.11	0.11	0.12	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0128	0.0127	0.0127	0.0103	0.0096	0.0098	0.0096	0.0097	0.0098	0.0097	0.0097	0.0096
Arsenic As	mg/L	0.0020	0.0020	0.0020	0.0018	0.0017	0.0018	0.0017	0.0018	0.0018	0.0018	0.0018	0.0018
Barium Ba	mg/L	0.0073	0.0072	0.0072	0.0061	0.0058	0.0060	0.0059	0.0060	0.0061	0.0060	0.0060	0.0060
Beryllium Be	mg/L	0.00054	0.00054	0.00053	0.00047	0.00045	0.00047	0.00046	0.00047	0.00047	0.00047	0.00046	0.00046
Bismuth Bi	mg/L	0.01230	0.01225	0.01219	0.00989	0.00915	0.00939	0.00919	0.00927	0.00932	0.00926	0.00921	0.00918
Boron B	mg/L	0.031	0.031	0.031	0.030	0.031	0.032	0.033	0.034	0.034	0.034	0.033	0.033
Cadmium Cd	mg/L	0.0000424	0.0000422	0.0000420	0.0000375	0.0000366	0.0000384	0.0000387	0.0000394	0.0000396	0.0000393	0.0000391	0.0000390
Calcium Ca	mg/L	193	192	191	156	145	149	146	147	148	147	146	146
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0064	0.0064	0.0063	0.0052	0.0048	0.0049	0.0048	0.0049	0.0049	0.0049	0.0048	0.0048
Copper Cu	mg/L	0.0061	0.0061	0.0061	0.0051	0.0049	0.0050	0.0049	0.0050	0.0050	0.0050	0.0050	0.0050
Iron Fe	mg/L	0.09	0.09	0.09	0.10	0.11	0.12	0.12	0.13	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00034	0.00034	0.00034	0.00030	0.00029	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030
Lithium Li	mg/L	0.0049	0.0049	0.0048	0.0047	0.0047	0.0049	0.0050	0.0051	0.0051	0.0051	0.0050	0.0050
Magnesium Mg	mg/L	8.3	8.3	8.3	7.6	7.6	8.0	8.0	8.1	8.2	8.1	8.1	8.1
Manganese Mn	mg/L	0.019	0.019	0.019	0.016	0.015	0.015	0.015	0.015	0.016	0.015	0.015	0.015
Mercury Hg	mg/L	0.0000074	0.0000073	0.0000073	0.0000081	0.0000086	0.0000092	0.0000095	0.0000098	0.0000098	0.0000097	0.0000097	0.0000097
Molybdenum Mo	mg/L	0.00536	0.00534	0.00532	0.00435	0.00405	0.00416	0.00408	0.00411	0.00414	0.00411	0.00409	0.00407
Nickel Ni	mg/L	0.0057	0.0056	0.0056	0.0047	0.0044	0.0045	0.0044	0.0045	0.0045	0.0045	0.0044	0.0044
Phosphorus P	mg/L	0.206	0.205	0.205	0.168	0.157	0.161	0.158	0.160	0.161	0.160	0.159	0.158
Potassium K	mg/L	25.2	25.1	25.0	20.7	19.4	20.0	19.7	19.9	20.0	19.8	19.7	19.7
Selenium Se	mg/L	0.00062	0.00062	0.00061	0.00066	0.00070	0.00074	0.00076	0.00078	0.00078	0.00078	0.00077	0.00077
Silicon SiO2	mg/L	2.88	2.87	2.86	2.53	2.45	2.55	2.54	2.58	2.59	2.58	2.56	2.55
Silver Ag	mg/L	0.0001151	0.0001146	0.0001140	0.0001111	0.0001124	0.0001163	0.0001153	0.0001168	0.0001174	0.0001166	0.0001160	0.0001156
Sodium Na	mg/L	292	291	289	241	226	233	230	232	234	232	231	230
Strontium Sr	mg/L	0.066	0.066	0.065	0.058	0.056	0.059	0.059	0.060	0.060	0.060	0.059	0.059
Tellurium Te	mg/L	0.037	0.037	0.036	0.037	0.038	0.040	0.041	0.042	0.042	0.042	0.041	0.041
Thallium Tl	mg/L	0.000041	0.000040	0.000040	0.000038	0.000038	0.000040	0.000041	0.000041	0.000042	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000037	0.000037	0.000037	0.000041	0.000044	0.000048	0.000050	0.000052	0.000052	0.000051	0.000051	0.000051
Tin Sn	mg/L	0.00202	0.00201	0.00200	0.00165	0.00155	0.00160	0.00158	0.00160	0.00161	0.00160	0.00159	0.00158
Titanium Ti	mg/L	0.0074	0.0073	0.0073	0.0082	0.0087	0.0093	0.0096	0.0098	0.0099	0.0098	0.0098	0.0097
Uranium U	mg/L	0.000066	0.000066	0.000066	0.000070	0.000073	0.000077	0.000078	0.000080	0.000080	0.000080	0.000079	0.000079
Vanadium V	mg/L	0.0032	0.0032	0.0032	0.0028	0.0028	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029
Zinc Zn	mg/L	0.0155	0.0154	0.0153	0.0127	0.0119	0.0123	0.0124	0.0125	0.0126	0.0125	0.0125	0.0124
Zirconium Zr	mg/L	0.0042	0.0042	0.0042	0.0042	0.0043	0.0046	0.0047	0.0048	0.0048	0.0048	0.0047	0.0047

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	975	971	966	768	706	728	712	660	664	660	656	654
TSS	mg/L	3.8	3.8	3.7	3.8	3.9	4.1	4.2	3.9	4.0	3.9	3.9	3.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.043	0.042	0.042	0.033	0.030	0.030	0.030	0.027	0.028	0.027	0.027	0.027
Sulphate	mg/L	45.6	45.3	45.1	35.4	32.3	33.3	32.5	30.1	30.3	30.0	29.9	29.8
Chloride	mg/L	651	648	645	514	474	489	478	443	446	443	441	439
Total Ammonia	mg/L	0.004	0.004	0.004	0.030	0.016	0.008	0.013	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L	2.70	2.59	2.48	2.16	2.12	2.25	2.28	2.14	2.05	1.93	1.81	1.70
Nitrite	mg/L	0.002	0.002	0.002	0.006	0.006	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	40	40	39	35	35	36	36	34	34	34	34	33
OrthoPhosphate-P	mg/L	0.1048	0.1043	0.1038	0.0808	0.0733	0.0753	0.0733	0.0678	0.0682	0.0678	0.0674	0.0671
Phosphate-P	mg/L	0.1143	0.1138	0.1132	0.0915	0.0844	0.0872	0.0853	0.0791	0.0796	0.0790	0.0786	0.0783
Org. Carbon	mg/L	5.0	5.0	5.0	4.9	5.1	5.4	5.5	5.1	5.1	5.1	5.1	5.1
Hardness CaCO3	mg/L	69	68	68	59	57	60	59	55	56	55	55	55
Total Metals													
Aluminum Al	mg/L	0.12	0.12	0.11	0.12	0.13	0.14	0.14	0.13	0.14	0.13	0.13	0.13
Antimony Sb	mg/L	0.0096	0.0095	0.0095	0.0074	0.0067	0.0069	0.0068	0.0063	0.0063	0.0063	0.0062	0.0062
Arsenic As	mg/L	0.0017	0.0017	0.0017	0.0015	0.0014	0.0015	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014
Barium Ba	mg/L	0.0059	0.0059	0.0059	0.0049	0.0046	0.0048	0.0047	0.0044	0.0044	0.0044	0.0044	0.0044
Beryllium Be	mg/L	0.00046	0.00046	0.00046	0.00040	0.00039	0.00040	0.00039	0.00036	0.00037	0.00036	0.00036	0.00036
Bismuth Bi	mg/L	0.00914	0.00910	0.00905	0.00703	0.00638	0.00655	0.00637	0.00589	0.00593	0.00589	0.00586	0.00584
Boron B	mg/L	0.033	0.033	0.033	0.032	0.032	0.034	0.035	0.033	0.033	0.033	0.033	0.032
Cadmium Cd	mg/L	0.0000388	0.0000387	0.0000385	0.0000338	0.0000331	0.0000349	0.0000353	0.0000331	0.0000333	0.0000331	0.0000329	0.0000328
Calcium Ca	mg/L	145	144	144	113	103	106	103	95	96	95	95	95
Chromium Cr	mg/L	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0048	0.0048	0.0048	0.0037	0.0034	0.0035	0.0034	0.0032	0.0032	0.0032	0.0031	0.0031
Copper Cu	mg/L	0.0049	0.0049	0.0049	0.0041	0.0038	0.0040	0.0039	0.0036	0.0036	0.0036	0.0036	0.0036
Iron Fe	mg/L	0.12	0.12	0.12	0.13	0.14	0.15	0.15	0.14	0.14	0.14	0.14	0.14
Lead Pb	mg/L	0.00030	0.00029	0.00029	0.00025	0.00024	0.00025	0.00025	0.00024	0.00024	0.00024	0.00023	0.00023
Lithium Li	mg/L	0.0050	0.0050	0.0049	0.0047	0.0047	0.0050	0.0051	0.0047	0.0048	0.0047	0.0047	0.0047
Magnesium Mg	mg/L	8.0	8.0	7.9	7.3	7.2	7.6	7.7	7.2	7.2	7.2	7.2	7.1
Manganese Mn	mg/L	0.015	0.015	0.015	0.013	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011
Mercury Hg	mg/L	0.0000096	0.0000096	0.0000095	0.0000100	0.0000104	0.0000112	0.0000115	0.0000108	0.0000109	0.0000108	0.0000107	0.0000107
Molybdenum Mo	mg/L	0.00406	0.00404	0.00402	0.00317	0.00290	0.00298	0.00291	0.00269	0.00271	0.00269	0.00268	0.00267
Nickel Ni	mg/L	0.0044	0.0044	0.0044	0.0035	0.0032	0.0034	0.0033	0.0030	0.0031	0.0030	0.0030	0.0030
Phosphorus P	mg/L	0.158	0.157	0.156	0.124	0.114	0.118	0.115	0.107	0.107	0.106	0.106	0.105
Potassium K	mg/L	19.6	19.5	19.4	15.6	14.5	14.9	14.6	13.6	13.7	13.6	13.5	13.5
Selenium Se	mg/L	0.00077	0.00076	0.00076	0.00079	0.00082	0.00087	0.00089	0.00083	0.00084	0.00083	0.00083	0.00083
Silicon SiO2	mg/L	2.54	2.53	2.52	2.21	2.13	2.24	2.24	2.08	2.10	2.08	2.07	2.06
Silver Ag	mg/L	0.0001152	0.0001146	0.0001140	0.0001110	0.0001122	0.0001164	0.0001149	0.0001068	0.0001075	0.0001068	0.0001062	0.0001058
Sodium Na	mg/L	229	228	227	184	171	177	174	161	162	161	160	160
Strontium Sr	mg/L	0.059	0.059	0.058	0.051	0.050	0.052	0.052	0.049	0.049	0.049	0.048	0.048
Tellurium Te	mg/L	0.041	0.041	0.041	0.041	0.041	0.044	0.045	0.042	0.042	0.042	0.042	0.041
Thallium Tl	mg/L	0.000041	0.000041	0.000040	0.000038	0.000038	0.000040	0.000041	0.000038	0.000038	0.000038	0.000038	0.000038
Thorium Th	mg/L	0.000051	0.000051	0.000050	0.000053	0.000055	0.000059	0.000062	0.000058	0.000059	0.000058	0.000058	0.000058
Tin Sn	mg/L	0.00158	0.00157	0.00156	0.00124	0.00116	0.00121	0.00119	0.00110	0.00111	0.00110	0.00110	0.00109
Titanium Ti	mg/L	0.0097	0.0096	0.0096	0.0102	0.0106	0.0113	0.0116	0.0109	0.0110	0.0109	0.0108	0.0108
Uranium U	mg/L	0.000079	0.000078	0.000078	0.000080	0.000083	0.000088	0.000089	0.000083	0.000084	0.000083	0.000083	0.000082
Vanadium V	mg/L	0.0029	0.0029	0.0028	0.0026	0.0025	0.0026	0.0026	0.0024	0.0024	0.0024	0.0024	0.0024
Zinc Zn	mg/L	0.0124	0.0123	0.0123	0.0098	0.0091	0.0095	0.0096	0.0090	0.0090	0.0090	0.0089	0.0089
Zirconium Zr	mg/L	0.0047	0.0047	0.0047	0.0046	0.0047	0.0050	0.0051	0.0048	0.0048	0.0048	0.0048	0.0048

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	651	648	644	504	462	406	400	372	374	372	370	369
TSS	mg/L	3.9	3.9	3.8	3.9	3.9	3.6	3.7	3.5	3.5	3.5	3.4	3.4
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.027	0.027	0.027	0.020	0.018	0.016	0.015	0.014	0.014	0.014	0.014	0.014
Sulphate	mg/L	29.7	29.5	29.3	22.4	20.2	17.7	17.3	16.1	16.2	16.1	16.0	15.9
Chloride	mg/L	437	435	433	340	312	275	271	252	254	252	251	250
Total Ammonia	mg/L	0.004	0.004	0.004	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.58	1.47	1.35	1.02	0.91	0.79	0.77	0.71	0.61	0.50	0.40	0.29
Nitrite	mg/L	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	33	33	33	30	30	27	27	25	25	25	25	25
OrthoPhosphate-P	mg/L	0.0669	0.0665	0.0662	0.0499	0.0447	0.0391	0.0381	0.0354	0.0356	0.0353	0.0352	0.0350
Phosphate-P	mg/L	0.0780	0.0776	0.0771	0.0620	0.0570	0.0503	0.0496	0.0461	0.0464	0.0461	0.0458	0.0457
Org. Carbon	mg/L	5.0	5.0	5.0	5.0	5.1	4.7	4.7	4.4	4.5	4.4	4.4	4.4
Hardness CaCO3	mg/L	55	54	54	47	46	42	42	39	40	39	39	39
Total Metals													
Aluminum Al	mg/L	0.13	0.13	0.13	0.13	0.14	0.13	0.13	0.12	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0062	0.0062	0.0061	0.0046	0.0041	0.0036	0.0036	0.0033	0.0033	0.0033	0.0033	0.0033
Arsenic As	mg/L	0.0014	0.0014	0.0014	0.0011	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008
Barium Ba	mg/L	0.0044	0.0043	0.0043	0.0036	0.0034	0.0030	0.0030	0.0028	0.0029	0.0028	0.0028	0.0028
Beryllium Be	mg/L	0.00036	0.00036	0.00036	0.00031	0.00029	0.00026	0.00025	0.00023	0.00023	0.00023	0.00023	0.00023
Bismuth Bi	mg/L	0.00581	0.00578	0.00575	0.00431	0.00384	0.00336	0.00327	0.00303	0.00305	0.00303	0.00302	0.00300
Boron B	mg/L	0.032	0.032	0.032	0.030	0.031	0.028	0.028	0.027	0.027	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000326	0.0000325	0.0000323	0.0000259	0.0000239	0.0000212	0.0000209	0.0000195	0.0000196	0.0000195	0.0000194	0.0000193
Calcium Ca	mg/L	94	94	93	71	64	56	55	51	51	51	51	51
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0031	0.0031	0.0031	0.0023	0.0021	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017
Copper Cu	mg/L	0.0036	0.0036	0.0035	0.0029	0.0028	0.0025	0.0024	0.0023	0.0023	0.0023	0.0023	0.0022
Iron Fe	mg/L	0.14	0.14	0.14	0.15	0.15	0.14	0.14	0.13	0.14	0.13	0.13	0.13
Lead Pb	mg/L	0.00023	0.00023	0.00023	0.00019	0.00018	0.00016	0.00015	0.00014	0.00014	0.00014	0.00014	0.00014
Lithium Li	mg/L	0.0047	0.0046	0.0046	0.0044	0.0045	0.0040	0.0041	0.0039	0.0039	0.0039	0.0038	0.0038
Magnesium Mg	mg/L	7.1	7.1	7.0	6.5	6.5	5.9	6.0	5.6	5.7	5.6	5.6	5.6
Manganese Mn	mg/L	0.011	0.011	0.011	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.007	0.007
Mercury Hg	mg/L	0.0000107	0.0000106	0.0000105	0.0000107	0.0000109	0.0000099	0.0000102	0.0000096	0.0000096	0.0000096	0.0000095	0.0000095
Molybdenum Mo	mg/L	0.00266	0.00264	0.00263	0.00203	0.00184	0.00162	0.00158	0.00147	0.00148	0.00147	0.00146	0.00146
Nickel Ni	mg/L	0.0030	0.0030	0.0030	0.0024	0.0022	0.0019	0.0019	0.0018	0.0018	0.0018	0.0018	0.0017
Phosphorus P	mg/L	0.105	0.105	0.104	0.080	0.071	0.063	0.061	0.057	0.057	0.057	0.056	0.056
Potassium K	mg/L	13.4	13.3	13.3	10.6	9.8	8.6	8.5	8.0	8.0	8.0	7.9	7.9
Selenium Se	mg/L	0.00082	0.00082	0.00081	0.00083	0.00084	0.00077	0.00078	0.00074	0.00074	0.00074	0.00073	0.00073
Silicon SiO2	mg/L	2.06	2.04	2.03	1.79	1.72	1.54	1.55	1.45	1.46	1.45	1.44	1.44
Silver Ag	mg/L	0.0001054	0.0001048	0.0001043	0.0000998	0.0000998	0.0000874	0.0000854	0.0000794	0.0000798	0.0000793	0.0000789	0.0000786
Sodium Na	mg/L	159	158	158	127	118	105	104	97	97	97	96	96
Strontium Sr	mg/L	0.048	0.048	0.048	0.042	0.041	0.037	0.038	0.035	0.036	0.035	0.035	0.035
Tellurium Te	mg/L	0.041	0.041	0.041	0.041	0.041	0.038	0.039	0.036	0.037	0.036	0.036	0.036
Thallium Tl	mg/L	0.000037	0.000037	0.000037	0.000034	0.000034	0.000030	0.000031	0.000029	0.000029	0.000029	0.000029	0.000029
Thorium Th	mg/L	0.000057	0.000057	0.000057	0.000052	0.000051	0.000046	0.000047	0.000044	0.000044	0.000044	0.000044	0.000043
Tin Sn	mg/L	0.00109	0.00108	0.00108	0.00083	0.00077	0.00069	0.00068	0.00063	0.00064	0.00063	0.00063	0.00063
Titanium Ti	mg/L	0.0108	0.0107	0.0107	0.0111	0.0114	0.0104	0.0107	0.0101	0.0102	0.0101	0.0100	0.0100
Uranium U	mg/L	0.000082	0.000082	0.000081	0.000077	0.000077	0.000068	0.000068	0.000063	0.000064	0.000063	0.000063	0.000063
Vanadium V	mg/L	0.0024	0.0024	0.0024	0.0021	0.0021	0.0019	0.0019	0.0018	0.0018	0.0018	0.0017	0.0017
Zinc Zn	mg/L	0.0088	0.0088	0.0087	0.0069	0.0063	0.0056	0.0058	0.0055	0.0055	0.0055	0.0054	0.0054
Zirconium Zr	mg/L	0.0047	0.0047	0.0047	0.0045	0.0046	0.0041	0.0042	0.0040	0.0040	0.0040	0.0039	0.0039

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	367	365	363	297	278	288	264	245	240	238	237	236
TSS	mg/L	3.4	3.4	3.4	3.5	3.6	3.9	3.7	3.5	3.4	3.4	3.3	3.3
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.014	0.014	0.014	0.010	0.009	0.010	0.009	0.008	0.008	0.008	0.008	0.008
Sulphate	mg/L	15.9	15.8	15.7	12.3	11.3	11.6	10.6	9.8	9.6	9.5	9.5	9.4
Chloride	mg/L	249	248	246	202	190	198	182	169	165	164	163	162
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	0.18	0.08		0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	25	25	25	24	24	26	24	23	22	22	22	22
OrthoPhosphate-P	mg/L	0.0349	0.0347	0.0345	0.0265	0.0240	0.0247	0.0223	0.0206	0.0201	0.0200	0.0199	0.0198
Phosphate-P	mg/L	0.0455	0.0453	0.0450	0.0382	0.0359	0.0375	0.0343	0.0319	0.0311	0.0309	0.0308	0.0306
Org. Carbon	mg/L	4.4	4.4	4.3	4.5	4.7	5.0	4.7	4.4	4.3	4.3	4.2	4.2
Hardness CaCO3	mg/L	39	39	38	36	36	38	36	34	33	33	33	32
Total Metals													
Aluminum Al	mg/L	0.12	0.12	0.12	0.13	0.13	0.14	0.13	0.13	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0033	0.0033	0.0032	0.0025	0.0023	0.0023	0.0021	0.0020	0.0019	0.0019	0.0019	0.0019
Arsenic As	mg/L	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006
Barium Ba	mg/L	0.0028	0.0028	0.0028	0.0024	0.0024	0.0025	0.0024	0.0022	0.0022	0.0021	0.0021	0.0021
Beryllium Be	mg/L	0.00023	0.00023	0.00023	0.00021	0.00021	0.00021	0.00019	0.00018	0.00017	0.00017	0.00017	0.00017
Bismuth Bi	mg/L	0.00299	0.00298	0.00296	0.00225	0.00202	0.00207	0.00187	0.00172	0.00169	0.00167	0.00166	0.00166
Boron B	mg/L	0.026	0.026	0.026	0.026	0.027	0.029	0.026	0.026	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000192	0.0000191	0.0000190	0.0000161	0.0000152	0.0000159	0.0000147	0.0000136	0.0000133	0.0000132	0.0000132	0.0000131
Calcium Ca	mg/L	50	50	50	39	36	37	34	31	30	30	30	30
Chromium Cr	mg/L	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0016	0.0016	0.0016	0.0013	0.0012	0.0012	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010
Copper Cu	mg/L	0.0022	0.0022	0.0022	0.0020	0.0019	0.0020	0.0018	0.0017	0.0017	0.0017	0.0017	0.0016
Iron Fe	mg/L	0.13	0.13	0.13	0.14	0.14	0.15	0.15	0.14	0.14	0.14	0.13	0.13
Lead Pb	mg/L	0.00014	0.00014	0.00014	0.00012	0.00012	0.00012	0.00011	0.00010	0.00010	0.00010	0.00010	0.00010
Lithium Li	mg/L	0.0038	0.0038	0.0038	0.0038	0.0039	0.0042	0.0039	0.0037	0.0036	0.0036	0.0036	0.0036
Magnesium Mg	mg/L	5.6	5.5	5.5	5.4	5.5	5.9	5.6	5.2	5.1	5.1	5.0	5.0
Manganese Mn	mg/L	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005
Mercury Hg	mg/L	0.0000094	0.0000094	0.0000093	0.0000097	0.0000101	0.0000108	0.0000103	0.0000096	0.0000094	0.0000093	0.0000093	0.0000093
Molybdenum Mo	mg/L	0.00145	0.00145	0.00144	0.00115	0.00106	0.00110	0.00100	0.00093	0.00090	0.00090	0.00089	0.00089
Nickel Ni	mg/L	0.0017	0.0017	0.0017	0.0014	0.0014	0.0014	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012
Phosphorus P	mg/L	0.056	0.056	0.055	0.044	0.040	0.041	0.037	0.034	0.033	0.033	0.033	0.033
Potassium K	mg/L	7.9	7.8	7.8	6.5	6.2	6.5	5.9	5.5	5.4	5.4	5.3	5.3
Selenium Se	mg/L	0.00073	0.00072	0.00072	0.00075	0.00078	0.00083	0.00079	0.00074	0.00072	0.00072	0.00071	0.00071
Silicon SiO2	mg/L	1.43	1.43	1.42	1.33	1.32	1.40	1.31	1.22	1.19	1.19	1.18	1.18
Silver Ag	mg/L	0.0000783	0.0000779	0.0000775	0.0000796	0.0000817	0.0000841	0.0000761	0.0000704	0.0000688	0.0000683	0.0000680	0.0000677
Sodium Na	mg/L	95	95	94	81	77	81	74	69	68	67	67	67
Strontium Sr	mg/L	0.035	0.035	0.035	0.033	0.033	0.035	0.033	0.031	0.030	0.030	0.030	0.030
Tellurium Te	mg/L	0.036	0.036	0.035	0.037	0.038	0.040	0.038	0.036	0.035	0.035	0.035	0.035
Thallium Tl	mg/L	0.000028	0.000028	0.000028	0.000027	0.000028	0.000029	0.000028	0.000026	0.000025	0.000025	0.000025	0.000025
Thorium Th	mg/L	0.000043	0.000043	0.000043	0.000042	0.000042	0.000044	0.000042	0.000039	0.000038	0.000038	0.000038	0.000038
Tin Sn	mg/L	0.00063	0.00062	0.00062	0.00049	0.00047	0.00050	0.00046	0.00043	0.00042	0.00042	0.00041	0.00041
Titanium Ti	mg/L	0.0100	0.0099	0.0099	0.0104	0.0108	0.0116	0.0111	0.0104	0.0102	0.0101	0.0101	0.0100
Uranium U	mg/L	0.000062	0.000062	0.000062	0.000063	0.000064	0.000067	0.000062	0.000057	0.000056	0.000056	0.000055	0.000055
Vanadium V	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017	0.0018	0.0016	0.0015	0.0015	0.0015	0.0015	0.0015
Zinc Zn	mg/L	0.0054	0.0054	0.0053	0.0044	0.0041	0.0043	0.0042	0.0040	0.0039	0.0039	0.0039	0.0039
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0039	0.0040	0.0043	0.0041	0.0038	0.0037	0.0037	0.0037	0.0037

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	235	234	233	197	188	196	181	168	165	163	162	162
TSS	mg/L	3.3	3.3	3.3	3.4	3.6	3.8	3.6	3.4	3.3	3.3	3.3	3.3
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.008	0.008	0.008	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Sulphate	mg/L	9.4	9.3	9.3	7.4	6.8	7.1	6.5	6.0	5.9	5.8	5.8	5.8
Chloride	mg/L	162	161	160	136	131	137	127	118	115	114	114	113
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	22	22	21	21	22	24	22	21	20	20	20	20
OrthoPhosphate-P	mg/L	0.0197	0.0196	0.0195	0.0151	0.0137	0.0141	0.0127	0.0118	0.0115	0.0114	0.0113	0.0113
Phosphate-P	mg/L	0.0305	0.0304	0.0302	0.0269	0.0258	0.0271	0.0249	0.0231	0.0226	0.0224	0.0223	0.0222
Org. Carbon	mg/L	4.2	4.2	4.2	4.3	4.6	4.9	4.6	4.3	4.2	4.2	4.2	4.1
Hardness CaCO3	mg/L	32	32	32	31	32	34	32	30	29	29	29	29
Total Metals													
Aluminum Al	mg/L	0.12	0.12	0.12	0.13	0.13	0.14	0.13	0.12	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0019	0.0019	0.0019	0.0014	0.0013	0.0014	0.0013	0.0012	0.0011	0.0011	0.0011	0.0011
Arsenic As	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Barium Ba	mg/L	0.0021	0.0021	0.0021	0.0019	0.0019	0.0020	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017
Beryllium Be	mg/L	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00016	0.00014	0.00014	0.00014	0.00014	0.00014
Bismuth Bi	mg/L	0.00165	0.00164	0.00163	0.00124	0.00111	0.00114	0.00102	0.00094	0.00092	0.00091	0.00091	0.00091
Boron B	mg/L	0.024	0.024	0.024	0.025	0.026	0.027	0.026	0.024	0.024	0.024	0.024	0.023
Cadmium Cd	mg/L	0.0000131	0.0000130	0.0000129	0.0000114	0.0000111	0.0000116	0.0000108	0.0000101	0.0000098	0.0000098	0.0000097	0.0000097
Calcium Ca	mg/L	30	30	30	24	22	23	21	19	19	19	18	18
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0010	0.0010	0.0009	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Copper Cu	mg/L	0.0016	0.0016	0.0016	0.0015	0.0015	0.0016	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013
Iron Fe	mg/L	0.13	0.13	0.13	0.14	0.14	0.16	0.15	0.14	0.14	0.14	0.13	0.13
Lead Pb	mg/L	0.00010	0.00010	0.00010	0.00009	0.00009	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008	0.00008
Lithium Li	mg/L	0.0035	0.0035	0.0035	0.0036	0.0037	0.0040	0.0038	0.0035	0.0034	0.0034	0.0034	0.0034
Magnesium Mg	mg/L	5.0	5.0	4.9	5.0	5.1	5.5	5.2	4.9	4.8	4.7	4.7	4.7
Manganese Mn	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004
Mercury Hg	mg/L	0.0000092	0.0000092	0.0000091	0.0000096	0.0000099	0.0000107	0.0000101	0.0000095	0.0000093	0.0000092	0.0000092	0.0000091
Molybdenum Mo	mg/L	0.00089	0.00088	0.00088	0.00072	0.00068	0.00070	0.00064	0.00060	0.00058	0.00058	0.00058	0.00057
Nickel Ni	mg/L	0.0012	0.0011	0.0011	0.0010	0.0010	0.0010	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008
Phosphorus P	mg/L	0.033	0.032	0.032	0.026	0.024	0.025	0.022	0.020	0.020	0.020	0.020	0.020
Potassium K	mg/L	5.3	5.3	5.2	4.6	4.4	4.7	4.3	4.0	4.0	3.9	3.9	3.9
Selenium Se	mg/L	0.00071	0.00070	0.00070	0.00074	0.00077	0.00082	0.00078	0.00073	0.00071	0.00071	0.00070	0.00070
Silicon SiO2	mg/L	1.17	1.17	1.16	1.13	1.14	1.22	1.15	1.07	1.04	1.04	1.03	1.03
Silver Ag	mg/L	0.0000675	0.0000671	0.0000667	0.0000716	0.0000747	0.0000769	0.0000694	0.0000641	0.0000626	0.0000622	0.0000618	0.0000616
Sodium Na	mg/L	66	66	66	59	57	60	56	52	51	51	50	50
Strontium Sr	mg/L	0.030	0.029	0.029	0.029	0.029	0.031	0.030	0.028	0.027	0.027	0.027	0.027
Tellurium Te	mg/L	0.035	0.034	0.034	0.036	0.037	0.040	0.038	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000025	0.000025	0.000025	0.000025	0.000025	0.000027	0.000026	0.000024	0.000023	0.000023	0.000023	0.000023
Thorium Th	mg/L	0.000038	0.000037	0.000037	0.000037	0.000038	0.000041	0.000038	0.000036	0.000035	0.000035	0.000035	0.000035
Tin Sn	mg/L	0.00041	0.00041	0.00041	0.00033	0.00033	0.00035	0.00033	0.00030	0.00030	0.00029	0.00029	0.00029
Titanium Ti	mg/L	0.0100	0.0099	0.0099	0.0105	0.0109	0.0117	0.0111	0.0104	0.0102	0.0101	0.0101	0.0100
Uranium U	mg/L	0.000055	0.000055	0.000054	0.000057	0.000059	0.000062	0.000057	0.000053	0.000052	0.000051	0.000051	0.000051
Vanadium V	mg/L	0.0015	0.0015	0.0014	0.0015	0.0015	0.0016	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013
Zinc Zn	mg/L	0.0039	0.0038	0.0038	0.0032	0.0030	0.0032	0.0033	0.0031	0.0030	0.0030	0.0030	0.0030
Zirconium Zr	mg/L	0.0036	0.0036	0.0036	0.0037	0.0038	0.0041	0.0039	0.0037	0.0036	0.0035	0.0035	0.0035

Table H-8-A-2
Scenario 8

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	161	160	159	161	166	151	155	146	147	146	145
TSS	mg/L	3.3	3.2	3.2	4.3	4.7	4.4	4.6	4.4	4.4	4.4	4.4
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Sulphate	mg/L	5.8	5.7	5.7	5.0	4.9	4.4	4.5	4.2	4.3	4.2	4.2
Chloride	mg/L	113	112	112	114	118	108	111	105	106	105	104
Total Ammonia	mg/L	0.000	0.000	0.000	0.002	0.001	0.000	0.002	0.001	0.001	0.001	0.001
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	20	20	20	24	27	25	27	25	25	25	25
OrthoPhosphate-P	mg/L	0.0113	0.0112	0.0111	0.0091	0.0085	0.0075	0.0074	0.0069	0.0070	0.0069	0.0069
Phosphate-P	mg/L	0.0221	0.0220	0.0219	0.0244	0.0250	0.0228	0.0233	0.0218	0.0220	0.0218	0.0217
Org. Carbon	mg/L	4.1	4.1	4.1	5.3	6.1	5.7	5.9	5.5	5.6	5.5	5.5
Hardness CaCO3	mg/L	29	28	28	34	38	35	37	35	35	35	35
Total Metals												
Aluminum Al	mg/L	0.12	0.12	0.12	0.16	0.17	0.16	0.17	0.16	0.16	0.16	0.16
Antimony Sb	mg/L	0.0011	0.0011	0.0011	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Arsenic As	mg/L	0.0005	0.0005	0.0005	0.0005	0.0006	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005
Barium Ba	mg/L	0.0017	0.0017	0.0017	0.0019	0.0021	0.0020	0.0021	0.0020	0.0020	0.0020	0.0020
Beryllium Be	mg/L	0.00014	0.00014	0.00014	0.00018	0.00020	0.00017	0.00017	0.00016	0.00016	0.00016	0.00015
Bismuth Bi	mg/L	0.00090	0.00090	0.00089	0.00068	0.00061	0.00054	0.00052	0.00049	0.00049	0.00049	0.00048
Boron B	mg/L	0.023	0.023	0.023	0.030	0.033	0.031	0.032	0.031	0.031	0.031	0.031
Cadmium Cd	mg/L	0.0000096	0.0000096	0.0000095	0.0000104	0.0000108	0.0000099	0.0000103	0.0000097	0.0000097	0.0000097	0.0000096
Calcium Ca	mg/L	18	18	18	16	16	14	14	14	14	13	13
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Copper Cu	mg/L	0.0013	0.0013	0.0013	0.0015	0.0016	0.0015	0.0015	0.0014	0.0015	0.0014	0.0014
Iron Fe	mg/L	0.13	0.13	0.13	0.17	0.19	0.18	0.19	0.18	0.18	0.18	0.18
Lead Pb	mg/L	0.00008	0.00008	0.00008	0.00009	0.00009	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008
Lithium Li	mg/L	0.0034	0.0034	0.0033	0.0044	0.0048	0.0045	0.0047	0.0044	0.0045	0.0044	0.0044
Magnesium Mg	mg/L	4.7	4.7	4.6	5.8	6.5	6.1	6.4	6.1	6.1	6.1	6.0
Manganese Mn	mg/L	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Mercury Hg	mg/L	0.0000091	0.0000090	0.0000090	0.0000119	0.0000132	0.0000123	0.0000129	0.0000122	0.0000123	0.0000122	0.0000122
Molybdenum Mo	mg/L	0.00057	0.00057	0.00056	0.00054	0.00054	0.00049	0.00049	0.00046	0.00047	0.00046	0.00046
Nickel Ni	mg/L	0.0008	0.0008	0.0008	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Phosphorus P	mg/L	0.020	0.020	0.019	0.018	0.017	0.015	0.015	0.014	0.014	0.014	0.014
Potassium K	mg/L	3.9	3.9	3.8	4.1	4.3	3.9	4.1	3.9	3.9	3.9	3.8
Selenium Se	mg/L	0.00070	0.00069	0.00069	0.00092	0.00102	0.00094	0.00099	0.00094	0.00094	0.00094	0.00093
Silicon SiO2	mg/L	1.02	1.02	1.01	1.25	1.36	1.26	1.32	1.25	1.25	1.25	1.24
Silver Ag	mg/L	0.0000613	0.0000610	0.0000607	0.0000861	0.0000970	0.0000850	0.0000834	0.0000776	0.0000780	0.0000775	0.0000771
Sodium Na	mg/L	50	50	50	54	58	53	55	52	52	52	52
Strontium Sr	mg/L	0.027	0.027	0.026	0.032	0.036	0.033	0.035	0.033	0.033	0.033	0.033
Tellurium Te	mg/L	0.034	0.034	0.033	0.044	0.049	0.045	0.048	0.045	0.045	0.045	0.045
Thallium Tl	mg/L	0.000023	0.000023	0.000023	0.000029	0.000032	0.000029	0.000031	0.000029	0.000029	0.000029	0.000029
Thorium Th	mg/L	0.000034	0.000034	0.000034	0.000043	0.000047	0.000044	0.000046	0.000044	0.000044	0.000044	0.000043
Tin Sn	mg/L	0.00029	0.00029	0.00029	0.00026	0.00030	0.00028	0.00029	0.00028	0.00028	0.00028	0.00028
Titanium Ti	mg/L	0.0100	0.0099	0.0099	0.0132	0.0146	0.0136	0.0143	0.0136	0.0137	0.0136	0.0135
Uranium U	mg/L	0.000051	0.000050	0.000050	0.000068	0.000076	0.000068	0.000069	0.000065	0.000065	0.000065	0.000064
Vanadium V	mg/L	0.0013	0.0013	0.0013	0.0017	0.0018	0.0017	0.0017	0.0016	0.0016	0.0016	0.0016
Zinc Zn	mg/L	0.0030	0.0030	0.0030	0.0028	0.0029	0.0027	0.0033	0.0032	0.0032	0.0032	0.0032
Zirconium Zr	mg/L	0.0035	0.0035	0.0035	0.0045	0.0050	0.0046	0.0049	0.0046	0.0046	0.0046	0.0046

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	150703	117868	90656	92799	84904	78530	81148	81148	73295
TSS	183	177	183	2146	1101	469	534	277	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	12	11	11	11	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18918	17426	15486	15452	14834	13840	14302	14302	12918
Chloride	49110	47526	49110	91129	76592	58765	60146	53137	47526	49110	49110	44357
Total Ammonia	149	145	149	289	239	187	195	167	145	149	149	135
Nitrate	758	733	758	1857	1454	1051	1108	889	733	758	758	684
Nitrite	116	112	116	139	133	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	23107	16414	9495	9677	7710	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	22	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	26	23	22	21	21	21	21	21	19
Org. Carbon				3936.71	2142.01	570.47	594.53	156.53				
Hardness CaCO3	14992	14508	14992	36160	28150	18510	19027	16181	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	24.30	13.69	11.21	10.01	6.23	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.71	3.48	2.25	2.48	1.73	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.75	0.63	0.48	0.49	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.79	2.27	1.87	1.85	1.66	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.29	0.18	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.56	3.31	2.11	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	13.93	9.47	5.18	5.46	3.62	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	43723	42976	41465	40345	40824	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.43	1.37	1.15	1.07	1.05	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.88	1.83	1.73	1.70	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	2.11	1.83	1.56	1.53	1.49	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	34.23	16.39	12.68	12.84	6.89	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.15	0.11	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	2.86	1.62	0.84	0.92	0.59	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	4100	2728	1690	1706	1266	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.41	5.07	4.90	4.90	4.70	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.53	1.53	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.93	1.65	1.40	1.39	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	48	41	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7597	7275	6856	6730	6764	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.33	0.18	0.08	0.08	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	1235	898	669	681	597	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.09	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	16493	12133	8086	8327	6928	6148	6353	6353	5739
Strontium Sr	12	12	12	27	21	15	16	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	32.86	15.34	4.78	5.97	1.59	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.03	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.77	0.60	0.35	0.39	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	4.23	2.06	0.72	0.87	0.31	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.23	0.86	0.53	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.7	4.2	3.9	4.6	3.9	3.4	3.5	3.5	3.2
Zirconium Zr				3.61	1.74	0.56	0.71	0.20				

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	116042	100498	86187	86110	83149	78530	81148	81148	73295
TSS	183	177	183	1200	667	334	367	233	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18297	17059	15394	15290	14792	13840	14302	14302	12918
Chloride	49110	47526	49110	81991	70802	57245	58083	52596	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15230	11927	8288	8283	7345	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2046.13	1128.79	302.35	315.83	83.39				
Hardness CaCO3	14992	14508	14992	25762	21926	16856	16909	15626	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.10	12.01	9.16	8.78	5.91	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.47	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.27	1.99	1.75	1.72	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.15	7.30	4.47	4.70	3.42	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42090	42133	41145	39978	40728	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.31	1.26	1.11	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.83	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	20.99	11.47	9.16	9.26	5.96	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.80	1.13	0.69	0.73	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2814	2060	1451	1456	1200	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.16	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.76	1.57	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7099	7025	6791	6625	6737	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	952	767	629	631	583	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11546	9412	7277	7313	6662	6148	6353	6353	5739
Strontium Sr	12	12	12	21	17	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.10	8.10	2.55	3.19	0.86	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.34	1.19	0.45	0.54	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.08	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.04	1.01	0.34	0.43	0.12				

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	86474	69988	55697	56606	52664	49028	50662	50662	45759
TSS				1021	483	151	189	50				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5602	3983	2355	2664	1768	1247	1289	1289	1164
Chloride	49110	47526	49110	81974	70794	57244	58083	52596	47526	49110	49110	44357
Total Ammonia	25	24	25	153	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1036	654	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				8511	4993	1360	1579	417				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2042.54	1127.35	302.12	315.77	83.42				
Hardness CaCO3				11234	6925	1863	2400	634				
Total Metals												
Aluminum Al	0.81	0.78	0.81	12.59	6.52	4.73	4.25	1.90	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.55	3.32	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.27	0.18	0.08	0.10	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.80	0.48	0.24	0.26	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.20	0.13	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.52	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.33	4.67	2.09	2.34	1.14	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	2990	1803	878	996	486	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.38	0.30	0.16	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.28	0.19	0.11	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.43	0.25	0.09	0.10	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	16.02	6.64	4.58	4.78	1.48	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.39	0.72	0.28	0.33	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1865	1088	485	521	238	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.89	0.56	0.40	0.48	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.65	0.43	0.24	0.26	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	33	29	25	25	24	22	23	23	21
Potassium K	25	24	25	638	351	119	168	65	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.16	0.08	0.02	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	390	201	74	91	33	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5396	3064	934	1174	320	12	12	12	11
Strontium Sr	0	0	0	9	5	2	2	1	0	0	0	0
Tellurium Te				17.04	8.06	2.52	3.16	0.84				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.55	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.29	1.14	0.41	0.50	0.18	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.88	0.59	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.1	0.8	0.5	0.9	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.90	0.93	0.30	0.38	0.11				

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				416027	397740	383306	385884	380241				
TSS				1672	791	248	311	82				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				824	504	143	235	66				
Chloride				257722	245120	234696	235987	231872				
Total Ammonia				61	37	16	22	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8594	5045	1375	1598	423				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2062.60	1139.12	305.58	319.66	84.51				
Hardness CaCO3				11344	6997	1884	2429	642				
Total Metals												
Aluminum Al				65.49	30.83	11.67	13.17	3.60				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.58	0.32	0.14	0.15	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.05	6.34	2.09	2.50	0.69				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				24834	23627	22784	22878	22442				
Chromium Cr				0.26	0.18	0.06	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.51	0.26	0.07	0.09	0.02				
Iron Fe				69.42	31.71	12.26	14.47	3.85				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.69	0.80	0.25	0.32	0.08				
Magnesium Mg				2165	1116	389	433	115				
Manganese Mn				1.59	0.74	0.31	0.42	0.11				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1128	559	162	229	61				
Selenium Se				0.38	0.18	0.06	0.07	0.02				
Silicon SiO2				492	240	78	99	27				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				141254	133487	127995	128627	126360				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.21	8.15	2.55	3.20	0.85				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.00	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.23	2.48	0.78	0.98	0.26				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.67	0.32	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.93	0.94	0.31	0.39	0.11				

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				38361	19820	5175	7800	2063				
TSS				1696	803	252	316	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				834	511	144	238	67				
Chloride				27724	14947	4372	5688	1505				
Total Ammonia				61	37	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8718	5120	1397	1625	430				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2092.43	1156.15	310.47	325.01	85.98				
Hardness CaCO3				11508	7102	1915	2470	653				
Total Metals												
Aluminum Al				66.37	31.25	11.84	13.37	3.66				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.59	0.33	0.14	0.15	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.21	6.43	2.12	2.53	0.70				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2592	1370	516	612	169				
Chromium Cr				0.26	0.19	0.07	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.52	0.27	0.07	0.09	0.02				
Iron Fe				70.41	32.17	12.45	14.71	3.92				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.71	0.81	0.26	0.32	0.09				
Magnesium Mg				2196	1133	395	440	117				
Manganese Mn				1.61	0.75	0.32	0.43	0.11				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1144	568	164	233	62				
Selenium Se				0.39	0.19	0.06	0.07	0.02				
Silicon SiO2				499	243	79	100	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				15936	8060	2489	3134	829				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.46	8.27	2.59	3.26	0.86				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.31	2.52	0.79	0.99	0.26				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.68	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.96	0.96	0.31	0.39	0.11				

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				39015	20168	5272	7953	2087				
TSS				1725	817	256	322	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				846	518	146	242	68				
Chloride				28197	15210	4455	5799	1522				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8867	5210	1423	1657	435				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2128.10	1176.45	316.30	331.38	86.96				
Hardness CaCO3				11705	7227	1951	2518	661				
Total Metals												
Aluminum Al				67.43	31.75	12.04	13.60	3.69				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.60	0.33	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.40	6.53	2.16	2.58	0.71				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2632	1392	524	622	171				
Chromium Cr				0.26	0.19	0.07	0.04	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.53	0.27	0.07	0.09	0.02				
Iron Fe				71.59	32.73	12.68	14.99	3.96				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.74	0.83	0.26	0.33	0.09				
Magnesium Mg				2233	1152	403	448	118				
Manganese Mn				1.64	0.76	0.32	0.44	0.12				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1163	577	167	238	63				
Selenium Se				0.39	0.19	0.06	0.07	0.02				
Silicon SiO2				506	247	81	102	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16208	8202	2536	3195	839				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.76	8.42	2.64	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.40	2.56	0.80	1.01	0.27				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.69	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.99	0.97	0.32	0.40	0.11				

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				39458	20403	5253	7923	2080				
TSS				1744	827	255	321	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				707	432	108	192	50				
Chloride				28517	15387	4438	5777	1516				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8968	5271	1418	1651	433				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2152.26	1190.15	315.16	330.13	86.65				
Hardness CaCO3				11837	7311	1943	2509	659				
Total Metals												
Aluminum Al				63.86	29.44	10.88	12.12	3.18				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.53	5.98	1.89	2.23	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2408	1250	457	536	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.06	0.08	0.02				
Iron Fe				71.39	32.48	12.38	14.60	3.83				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.83	0.26	0.32	0.08				
Magnesium Mg				2232	1150	395	438	115				
Manganese Mn				1.63	0.76	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1170	580	165	235	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				464	220	68	85	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16385	8293	2525	3181	835				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.94	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.44	2.58	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.27	0.33	0.09				

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				39316	20328	5316	7966	2090				
TSS				1738	824	259	323	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				704	430	109	193	51				
Chloride				28414	15330	4492	5808	1524				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8936	5251	1435	1660	435				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2144.53	1185.78	318.97	331.91	87.10				
Hardness CaCO3				11795	7284	1967	2523	662				
Total Metals												
Aluminum Al				63.63	29.33	11.02	12.19	3.20				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.59	0.33	0.15	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.49	5.95	1.91	2.25	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2399	1245	463	539	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.50	0.26	0.07	0.08	0.02				
Iron Fe				71.14	32.36	12.53	14.68	3.85				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.82	0.26	0.32	0.08				
Magnesium Mg				2224	1146	399	440	116				
Manganese Mn				1.63	0.75	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1166	578	167	236	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				462	219	69	86	23				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16327	8263	2556	3198	839				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.87	8.47	2.66	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				5.42	2.57	0.81	1.01	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.65	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.80	0.86	0.27	0.34	0.09				

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				39405	20374	5329	7985	2095				
TSS				1742	826	259	324	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	431	109	194	51				
Chloride				28478	15365	4503	5822	1528				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8956	5263	1439	1664	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2149.34	1188.50	319.75	332.70	87.29				
Hardness CaCO3				11821	7301	1972	2529	663				
Total Metals												
Aluminum Al				63.77	29.39	11.04	12.22	3.21				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.59	0.33	0.15	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.52	5.97	1.92	2.25	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2404	1248	464	540	142				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.07	0.08	0.02				
Iron Fe				71.30	32.43	12.56	14.71	3.86				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.82	0.26	0.32	0.08				
Magnesium Mg				2229	1148	400	441	116				
Manganese Mn				1.63	0.76	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1169	579	167	236	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				463	220	69	86	23				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16363	8282	2562	3206	841				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.91	8.49	2.66	3.33	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.43	2.57	0.81	1.01	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.27	0.34	0.09				

Table H 8-A-3
Scenario 8

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				73334	37920	9762	14725	3865				
TSS				3242	1537	475	597	157				
Free CN												
Total CN				1	1	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				1313	803	200	357	94				
Chloride				52999	28597	8248	10737	2818				
Total Ammonia				3	2	0	3	1				
Nitrate				4	2	1	1	0				
Nitrite				1	1	0	0	0				
Alkalinity				16667	9796	2636	3068	805				
OrthoPhosphate-P				1	1	0	0	0				
Phosphate-P				14	5	2	2	0				
Org. Carbon				4000.05	2211.98	585.69	613.54	161.03				
Hardness CaCO3				22000	13588	3612	4663	1224				
Total Metals												
Aluminum Al				118.68	54.71	20.23	22.53	5.91				
Antimony Sb				0.12	0.10	0.06	0.09	0.02				
Arsenic As				0.31	0.17	0.05	0.06	0.02				
Barium Ba				1.11	0.61	0.27	0.28	0.07				
Beryllium Be				0.13	0.06	0.00	0.00	0.00				
Bismuth Bi				0.02	0.01	0.00	0.00	0.00				
Boron B				21.43	11.11	3.51	4.15	1.09				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				4475	2323	849	997	262				
Chromium Cr				0.46	0.33	0.11	0.05	0.01				
Cobalt Co				0.12	0.06	0.02	0.02	0.01				
Copper Cu				0.94	0.48	0.12	0.15	0.04				
Iron Fe				132.69	60.36	23.00	27.13	7.12				
Lead Pb				0.05	0.03	0.01	0.00	0.00				
Lithium Li				3.24	1.53	0.47	0.60	0.16				
Magnesium Mg				4149	2137	733	814	214				
Manganese Mn				3.03	1.41	0.59	0.80	0.21				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.21	0.10	0.03	0.04	0.01				
Nickel Ni				0.46	0.22	0.06	0.07	0.02				
Phosphorus P				6	2	0	0	0				
Potassium K				2175	1078	307	436	114				
Selenium Se				0.70	0.33	0.10	0.12	0.03				
Silicon SiO2				863	409	126	159	42				
Silver Ag				0.07	0.03	0.00	0.00	0.00				
Sodium Na				30453	15414	4693	5912	1552				
Strontium Sr				22	12	3	5	1				
Tellurium Te				33.34	15.80	4.88	6.14	1.61				
Thallium Tl				0.02	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.00	0.01	0.00				
Tin Sn				0.08	0.10	0.03	0.04	0.01				
Titanium Ti				10.11	4.79	1.48	1.86	0.49				
Uranium U				0.05	0.03	0.00	0.00	0.00				
Vanadium V				1.22	0.57	0.15	0.17	0.04				
Zinc Zn				1.1	0.5	0.3	1.1	0.3				
Zirconium Zr				3.37	1.60	0.49	0.62	0.16				

Table H-8-A-1
Scenario 8

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		9			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1296	203	192	
TSS	mg/L			4.7	6.9	8.1	
Free CN	mg/L		0.005	0.0028	0.00016	0.00008	3%
Total CN	mg/L	1.0		0.027	0.003	0.003	
WAD CN	mg/L			0.0037	0.0002	0.0001	
CNO	mg/L			3.1	0.17	0.09	
SCN	mg/L			0.098	0.005	0.003	
Sulphate	mg/L			90	7.7	6.8	
Chloride	mg/L			863	104	87	
Total Ammonia	mg/L		0.97	1.04	0.069	0.037	7%
Nitrate	mg/L		2.9	5.6	0.34	0.18	11%
Nitrite	mg/L		0.018	0.42	0.026	0.015	144%
Alkalinity	mg/L			56	29	26	
OrthoPhosphate-P	mg/L			0.1814	0.0108	0.0062	
Phosphate-P	mg/L			0.1847	0.0309	0.0293	
Org. Carbon	mg/L			6.1	7.5	7.2	
Hardness CaCO3	mg/L			109	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.17	0.08	0.25	85%
Antimony Sb	mg/L			0.0164	0.0034	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	12%
Barium Ba	mg/L			0.0106	0.0035	0.0054	
Beryllium Be	mg/L			0.00063	0.00004	0.00003	
Bismuth Bi	mg/L			0.01587	0.00091	0.00056	
Boron B	mg/L			0.035	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000055	0.0000061	0.0000162	16%
Calcium Ca	mg/L			245	21	15	
Chromium Cr	mg/L		0.001	0.0065	0.001	0.001	97%
Cobalt Co	mg/L			0.0102	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.009	0.0019	0.0021	94%
Iron Fe	mg/L		0.3	0.19	0.13	0.28	43%
Lead Pb	mg/L	0.2	0.002	0.00040	0.00008	0.00026	4%
Lithium Li	mg/L			0.0051	0.0029	0.0029	
Magnesium Mg	mg/L			9.3	7.4	7.3	
Manganese Mn	mg/L			0.028	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000132	0.0000013	0.0000010	1%
Molybdenum Mo	mg/L		0.073	0.0089	0.00063	0.00044	1%
Nickel Ni	mg/L	0.5	0.025	0.008	0.0009	0.0009	4%
Phosphorus P	mg/L			0.261	0.035	0.032	
Potassium K	mg/L			41	4.9	3.8	
Selenium Se	mg/L		0.001	0.00102	0.00090	0.00085	90%
Silicon SiO2	mg/L			3.9	0.69	0.62	
Silver Ag	mg/L		0.0001	0.00012	0.0000082	0.0000071	8%
Sodium Na	mg/L			297	53	46	
Strontium Sr	mg/L			0.089	0.044	0.047	
Tellurium Te	mg/L			0.049	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000043	0.000031	0.002001	4%
Thorium Th	mg/L			0.000062	0.0000044	0.0000023	
Tin Sn	mg/L			0.00252	0.00052	0.00007	
Titanium Ti	mg/L			0.0146	0.0065	0.0064	
Uranium U	mg/L			0.000089	0.000041	0.000045	
Vanadium V	mg/L			0.0035	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.023	0.0041	0.0057	14%
Zirconium Zr	mg/L			0.0051	0.0050	0.0052	

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				140	123	127	147	148				
TSS	mg/L				3.9	5.8	5.9	6.9	6.9				
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.05	0.01	0.01	0.01	0.01				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				3.3	3.4	3.6	3.8	4.0				
Chloride	mg/L				61	62	60	64	65				
Total Ammonia	mg/L				0.013	0.028	0.018	0.021	0.021				
Nitrate	mg/L				0.04	0.06	0.07	0.09	0.10				
Nitrite	mg/L				0.007	0.008	0.008	0.004	0.009				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0016	0.0017	0.0018	0.0020	0.0022				
Phosphate-P	mg/L				0.0170	0.0184	0.0244	0.0203	0.0204				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				45	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0009	0.0029	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00008	0.00013	0.00015	0.00017	0.00019				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000032	0.0000033	0.0000029	0.0000030	0.0000031				
Calcium Ca	mg/L				10	9	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0016	0.0013	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00021	0.00022	0.00025	0.00024	0.00026				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.018	0.019	0.025	0.021	0.022				
Potassium K	mg/L				3.0	2.7	2.7	2.7	2.7				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.52	0.53	0.53	0.54	0.55				
Silver Ag	mg/L				0.0000031	0.0000040	0.0000038	0.0000038	0.0000038				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.040	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00040	0.00041	0.00041	0.00041	0.00042				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0010	0.0032	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0049	0.0050	0.0050	0.0050	0.0050				

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				155	136	140	161	162				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00016		0.00002	0.00002	0.00002				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0002		0.0000	0.0000	0.0000				
CNO	mg/L				0.17		0.02	0.02	0.02				
SCN	mg/L				0.004	0.004	0.004	0.004	0.004				
Sulphate	mg/L				6.3	6.0	6.2	6.7	6.9				
Chloride	mg/L				71	70	69	74	75				
Total Ammonia	mg/L				0.036	0.069	0.016	0.027	0.027				
Nitrate	mg/L				0.23	0.25	0.26	0.30	0.31				
Nitrite	mg/L				0.026	0.011	0.012	0.004	0.014				
Alkalinity	mg/L				28	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0059	0.0054	0.0055	0.0060	0.0064				
Phosphate-P	mg/L				0.0209	0.0218	0.0277	0.0239	0.0242				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	46	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0008	0.0012	0.0032	0.0010	0.0010				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0031	0.0034	0.0032	0.0034	0.0034				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00045	0.00046	0.00050	0.00055	0.00058				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000053	0.0000052	0.0000049	0.0000051	0.0000053				
Calcium Ca	mg/L				18	16	17	17	18				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0005	0.0005				
Copper Cu	mg/L				0.0015	0.0018	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000008	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00051	0.00047	0.00051	0.00052	0.00054				
Nickel Ni	mg/L				0.0007	0.0008	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.025	0.025	0.031	0.028	0.029				
Potassium K	mg/L				4.3	3.8	3.8	3.9	4.0				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.64	0.63	0.64	0.65	0.66				
Silver Ag	mg/L				0.0000066	0.0000070	0.0000070	0.0000073	0.0000074				
Sodium Na	mg/L				39	33	34	32	33				
Strontium Sr	mg/L				0.042	0.043	0.037	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00045	0.00045	0.00046	0.00046	0.00047				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0018	0.0038	0.0036	0.0026	0.0026				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				165	144	147	168	168				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00010								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.11								
SCN	mg/L				0.005	0.005	0.004	0.004	0.004				
Sulphate	mg/L				7.7	6.9	6.9	7.2	7.1				
Chloride	mg/L				78	77	75	80	81				
Total Ammonia	mg/L				0.030	0.047	0.016	0.017	0.017				
Nitrate	mg/L				0.33	0.31	0.31	0.33	0.34				
Nitrite	mg/L				0.024	0.009	0.012	0.004	0.004				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0088	0.0080	0.0080	0.0086	0.0089				
Phosphate-P	mg/L				0.0239	0.0244	0.0301	0.0265	0.0268				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				49	46	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0011	0.0015	0.0034	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0033	0.0035	0.0033	0.0034	0.0034				
Beryllium Be	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00071	0.00069	0.00072	0.00077	0.00081				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000061	0.0000058	0.0000052	0.0000053	0.0000053				
Calcium Ca	mg/L				21	19	18	18	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0006	0.0006	0.0013	0.0005	0.0005				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00063	0.00056	0.00056	0.00055	0.00054				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.029	0.029	0.035	0.031	0.031				
Potassium K	mg/L				4.9	4.2	4.1	4.0	4.0				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.69	0.67	0.66	0.67	0.67				
Silver Ag	mg/L				0.0000077	0.0000079	0.0000077	0.0000080	0.0000080				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00049	0.00049	0.00049	0.00050	0.00050				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0021	0.0041	0.0037	0.0027	0.0027				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				168	153	162	191	200				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.004	0.003	0.003	0.003	0.003				
Sulphate	mg/L				7.0	6.2	6.1	6.3	6.3				
Chloride	mg/L				84	85	86	96	101				
Total Ammonia	mg/L				0.011	0.011	0.017	0.016	0.016				
Nitrate	mg/L				0.30	0.27	0.26	0.27	0.27				
Nitrite	mg/L				0.009	0.002	0.003	0.003	0.003				
Alkalinity	mg/L				29	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0108	0.0091	0.0086	0.0088	0.0087				
Phosphate-P	mg/L				0.0258	0.0256	0.0309	0.0268	0.0267				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0013	0.0015	0.0034	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00091	0.00077	0.00072	0.00074	0.00073				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000057	0.0000055	0.0000049	0.0000050	0.0000051				
Calcium Ca	mg/L				19	17	16	17	17				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00053	0.00046	0.00047	0.00046	0.00045				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.031	0.030	0.035	0.031	0.031				
Potassium K	mg/L				4.4	3.8	3.7	3.7	3.6				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.66	0.64	0.64	0.64	0.64				
Silver Ag	mg/L				0.0000082	0.0000082	0.0000080	0.0000082	0.0000082				
Sodium Na	mg/L				39	36	40	41	44				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000004	0.000004				
Tin Sn	mg/L				0.00052	0.00050	0.00049	0.00050	0.00049				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0061	0.0061				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0019	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				203	173	172	193	192				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.003	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.3	5.3	5.5	5.4				
Chloride	mg/L				104	96	92	96	96				
Total Ammonia	mg/L				0.008	0.012	0.017	0.016	0.016				
Nitrate	mg/L				0.23	0.21	0.20	0.21	0.21				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0086	0.0071	0.0066	0.0068	0.0066				
Phosphate-P	mg/L				0.0238	0.0237	0.0290	0.0250	0.0249				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.08				
Antimony Sb	mg/L				0.0011	0.0014	0.0032	0.0010	0.0010				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0031	0.0033	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00072	0.00059	0.00055	0.00056	0.00055				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000055	0.0000052	0.0000047	0.0000048	0.0000048				
Calcium Ca	mg/L				19	16	15	15	15				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0004	0.0003				
Copper Cu	mg/L				0.0015	0.0017	0.0015	0.0017	0.0017				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000011	0.0000011	0.0000011	0.0000012				
Molybdenum Mo	mg/L				0.00045	0.00039	0.00040	0.00039	0.00038				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.028	0.027	0.032	0.028	0.028				
Potassium K	mg/L				4.1	3.4	3.4	3.3	3.3				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.64	0.62	0.62	0.62	0.62				
Silver Ag	mg/L				0.0000082	0.0000082	0.0000080	0.0000082	0.0000081				
Sodium Na	mg/L				53	45	45	43	43				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00049	0.00047	0.00047	0.00047	0.00047				
Titanium Ti	mg/L				0.0061	0.0061	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000029	0.000034	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0037	0.0034	0.0023	0.0023				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				186	158	158	178	177				
TSS	mg/L				4.0	5.8	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.2	4.5	4.5	4.7	4.6				
Chloride	mg/L				93	86	82	86	86				
Total Ammonia	mg/L				0.005	0.009	0.014	0.013	0.013				
Nitrate	mg/L				0.14	0.13	0.12	0.13	0.13				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0065	0.0053	0.0048	0.0049	0.0048				
Phosphate-P	mg/L				0.0219	0.0220	0.0274	0.0233	0.0232				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0009	0.0012	0.0031	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00003	0.00003	0.00002	0.00003	0.00002				
Bismuth Bi	mg/L				0.00054	0.00042	0.00039	0.00040	0.00039				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000045	0.0000043	0.0000037	0.0000039	0.0000039				
Calcium Ca	mg/L				16	14	13	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000012	0.0000012	0.0000012				
Molybdenum Mo	mg/L				0.00037	0.00032	0.00033	0.00032	0.00031				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.024	0.029	0.025	0.025				
Potassium K	mg/L				3.8	3.2	3.1	3.0	3.0				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.61	0.60	0.59	0.60	0.60				
Silver Ag	mg/L				0.0000072	0.0000072	0.0000069	0.0000072	0.0000071				
Sodium Na	mg/L				50	42	42	40	40				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000030	0.000030	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00047	0.00045	0.00044	0.00045	0.00044				
Titanium Ti	mg/L				0.0062	0.0062	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0015	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				168	143	144	160	159				
TSS	mg/L				4.0	5.8	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	3.8	3.8	3.8	3.8				
Chloride	mg/L				81	76	73	74	74				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.08	0.06	0.06	0.05	0.05				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0044	0.0035	0.0032	0.0029	0.0029				
Phosphate-P	mg/L				0.0199	0.0204	0.0259	0.0212	0.0212				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0007	0.0010	0.0029	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00035	0.00027	0.00024	0.00022	0.00021				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000042	0.0000038	0.0000032	0.0000031	0.0000031				
Calcium Ca	mg/L				13	11	11	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0015				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.4	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000012	0.0000012	0.0000012	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00030	0.00026	0.00028	0.00024	0.00024				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.021	0.021	0.027	0.022	0.022				
Potassium K	mg/L				3.4	2.9	2.8	2.7	2.7				
Selenium Se	mg/L				0.00089	0.00059	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.59	0.57	0.57	0.56	0.56				
Silver Ag	mg/L				0.0000066	0.0000065	0.0000062	0.0000055	0.0000054				
Sodium Na	mg/L				46	38	39	36	36				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.050	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00044	0.00042	0.00042	0.00042	0.00042				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0062	0.0063				
Uranium U	mg/L				0.000028	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0007	0.0002	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0034	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				153	131	134	153	152				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.000				
Sulphate	mg/L				3.5	3.3	3.3	3.5	3.4				
Chloride	mg/L				71	68	66	70	69				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0026	0.0022	0.0021	0.0021	0.0020				
Phosphate-P	mg/L				0.0181	0.0190	0.0247	0.0205	0.0203				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0030	0.0031	0.0030				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00019	0.00015	0.00014	0.00014	0.00013				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000034	0.0000033	0.0000027	0.0000028	0.0000027				
Calcium Ca	mg/L				11	10	9	9	9				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo	mg/L				0.00023	0.00021	0.00023	0.00021	0.00021				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.019	0.025	0.021	0.020				
Potassium K	mg/L				3.1	2.7	2.6	2.6	2.5				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000051	0.0000054	0.0000052	0.0000054	0.0000049				
Sodium Na	mg/L				42	36	37	35	35				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000003	0.000002				
Tin Sn	mg/L				0.00041	0.00041	0.00040	0.00041	0.00040				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000027	0.000032	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0049				

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				145	126	129	148	147				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.2	3.0	3.1	3.2	3.2				
Chloride	mg/L				66	65	63	67	66				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0018	0.0016	0.0015	0.0015	0.0014				
Phosphate-P	mg/L				0.0173	0.0184	0.0241	0.0199	0.0198				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0004	0.0009	0.0028	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00012	0.00010	0.00009	0.00009	0.00009				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000031	0.0000030	0.0000025	0.0000025	0.0000025				
Calcium Ca	mg/L				10	9	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	6.5	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00021	0.00019	0.00019				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K	mg/L				3.0	2.5	2.5	2.5	2.5				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000045	0.0000050	0.0000048	0.0000049	0.0000045				
Sodium Na	mg/L				41	35	36	34	33				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0049				

Table H-8-A-2
Scenario 8

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				141	122	126	145	145			
TSS	mg/L				4.0	5.8	6.0	6.9	6.9			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				2.9	2.8	2.9	3.0	3.0			
Chloride	mg/L				62	62	60	64	64			
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				27	25	27	26	27			
OrthoPhosphate-P	mg/L				0.0011	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0167	0.0181	0.0240	0.0196	0.0196			
Org. Carbon	mg/L				5.5	5.1	7.5	5.0	5.0			
Hardness CaCO3	mg/L				45	42	42	44	44			
Total Metals												
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.08			
Antimony Sb	mg/L				0.0004	0.0008	0.0028	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0028	0.0031	0.0030	0.0031	0.0031			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005			
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023			
Cadmium Cd	mg/L				0.0000027	0.0000027	0.0000023	0.0000022	0.0000023			
Calcium Ca	mg/L				9	8	8	8	8			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015			
Iron Fe	mg/L				0.05	0.13	0.09	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.2	6.5	6.6	6.5	6.5			
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000009	0.0000010	0.0000010	0.0000010	0.0000010			
Molybdenum Mo	mg/L				0.00017	0.00017	0.00019	0.00017	0.00017			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.017	0.018	0.024	0.019	0.019			
Potassium K	mg/L				2.9	2.5	2.5	2.4	2.4			
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057			
Silicon SiO2	mg/L				0.52	0.52	0.53	0.52	0.53			
Silver Ag	mg/L				0.0000027	0.0000036	0.0000036	0.0000033	0.0000032			
Sodium Na	mg/L				40	34	35	33	33			
Strontium Sr	mg/L				0.040	0.042	0.036	0.040	0.040			
Tellurium Te	mg/L				0.049	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040			
Titanium Ti	mg/L				0.0061	0.0062	0.0063	0.0062	0.0063			
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000032	0.000032			
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002			
Zinc Zn	mg/L				0.0010	0.0032	0.0028	0.0017	0.0017			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

Table H 8-A-3
Scenario 8**Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1936716	1053830	458142	679443	238360				
TSS				54140	49261	21192	31605	11034				
Free CN				0.60	0.05	0.04	0.06	0.02				
Total CN				33	17	7	10	3				
WAD CN				0.80	0.07	0.06	0.08	0.03				
CNO				661	55	49	63	21				
SCN				9	6	3	4	2				
Sulphate				45855	28696	12799	17685	6398				
Chloride				840894	527369	216367	297305	104606				
Total Ammonia				173	239	65	97	34				
Nitrate				610	540	262	406	158				
Nitrite				95	71	29	17	14				
Alkalinity				376185	217118	97296	122641	42913				
OrthoPhosphate-P				22	15	6	9	3				
Phosphate-P				234	158	88	93	33				
Org. Carbon				74681	43490	26624	22911	7997				
Hardness CaCO3				622667	365470	153402	203766	71353				
Total Metals												
Aluminum Al				454	503	286	328	114				
Antimony Sb				5.6	7.8	10.4	2.7	1.0				
Arsenic As				6.7	3.6	1.4	1.8	0.6				
Barium Ba				39	27	11	14	5				
Beryllium Be				0.17	0.10	0.05	0.06	0.02				
Bismuth Bi				1.10	1.10	0.54	0.78	0.30				
Boron B				465	191	83	102	36				
Cadmium Cd				0.04	0.03	0.01	0.01	0.00				
Calcium Ca				136604	81068	33940	43987	15940				
Chromium Cr				9	3	2	1	1				
Cobalt Co				1.57	1.80	3.41	0.81	0.31				
Copper Cu				17	13	5	7	3				
Iron Fe				693	1046	300	410	143				
Lead Pb				0.29	0.55	0.15	0.19	0.07				
Lithium Li				38	24	10	13	5				
Magnesium Mg				98965	55518	23625	29661	10372				
Manganese Mn				91	174	47	47	16				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.92	1.84	0.90	1.12	0.41				
Nickel Ni				6.21	5.32	1.89	2.35	0.84				
Phosphorus P				244	165	92	99	35				
Potassium K				41655	22842	9655	12368	4414				
Selenium Se				12.12	4.83	2.20	2.54	0.89				
Silicon SiO2				7221	4552	1926	2492	879				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				531663	279333	122340	146773	51325				
Strontium Sr				554	357	129	184	64				
Tellurium Te				678	423	178	228	80				
Thallium Tl				0.41	0.26	0.11	0.14	0.05				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				5.49	3.47	1.48	1.91	0.67				
Titanium Ti				81	51	21	27	10				
Uranium U				0.35	0.26	0.14	0.15	0.05				
Vanadium V				7.69	0.68	0.96	0.82	0.30				
Zinc Zn				14.22	27.79	10.65	8.68	3.10				
Zirconium Zr				68	42	18	23	8				

Table H 8-A-3
Scenario 8

Solute Loadings in DSolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1181536	641665	278626	409970	144199				
TSS				29811	26855	11559	17224	6015				
Free CN				1.20		0.04	0.05	0.02				
Total CN				26	9	4	5	2				
WAD CN				1.60		0.05	0.07	0.02				
CNO				1316		45	59	20				
SCN				30	17	7	10	4				
Sulphate				48028	28178	12356	17064	6164				
Chloride				539133	331023	136817	188163	66452				
Total Ammonia				275	327	33	69	24				
Nitrate				1758	1164	520	754	278				
Nitrite				201	51	25	11	12				
Alkalinity				216570	124271	55583	70455	24689				
OrthoPhosphate-P				45	26	11	15	6				
Phosphate-P				159	103	55	61	22				
Org. Carbon				40983	23779	14503	12571	4389				
Hardness CaCO3				362938	211478	88931	118468	41559				
Total Metals												
Aluminum Al				259	279	157	181	63				
Antimony Sb				6.0	5.9	6.3	2.5	0.9				
Arsenic As				4.3	2.3	0.9	1.2	0.4				
Barium Ba				24	16	6	9	3				
Beryllium Be				0.23	0.13	0.06	0.08	0.03				
Bismuth Bi				3.41	2.19	0.99	1.40	0.52				
Boron B				258	107	46	58	20				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				136799	77958	32942	43914	15867				
Chromium Cr				7	2	1	1	0				
Cobalt Co				3.49	2.41	2.45	1.28	0.47				
Copper Cu				12	9	3	5	2				
Iron Fe				388	570	165	225	79				
Lead Pb				0.27	0.36	0.11	0.14	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55623	31130	13260	16717	5852				
Manganese Mn				56	98	27	27	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.86	2.23	1.01	1.33	0.48				
Nickel Ni				5.45	4.01	1.51	1.95	0.70				
Phosphorus P				188	120	63	71	25				
Potassium K				32930	17985	7631	10014	3584				
Selenium Se				6.65	2.67	1.21	1.41	0.49				
Silicon SiO2				4909	3001	1274	1669	591				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				298216	156736	68608	82807	28991				
Strontium Sr				321	204	75	106	37				
Tellurium Te				371	231	97	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.42	2.13	0.91	1.18	0.42				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				4.93	0.80	0.71	0.71	0.25				
Zinc Zn				13.57	18.18	7.11	6.57	2.35				
Zirconium Zr				37	23	10	13	4				

Table H 8-A-3
Scenario 8**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1255744	679574	292696	427130	149645				
TSS				29947	26920	11579	17243	6018				
Free CN				0.76								
Total CN				22	9	4	5	2				
WAD CN				1.01								
CNO				836								
SCN				41	21	9	11	4				
Sulphate				58516	32809	13724	18235	6347				
Chloride				596806	362286	149355	204772	72223				
Total Ammonia				228	223	33	42	15				
Nitrate				2490	1488	619	847	299				
Nitrite				186	44	24	9	4				
Alkalinity				221210	126283	56137	70858	24713				
OrthoPhosphate-P				67	38	16	22	8				
Phosphate-P				182	115	60	67	24				
Org. Carbon				41024	23814	14520	12595	4398				
Hardness CaCO3				372847	215713	90077	119261	41581				
Total Metals												
Aluminum Al				264	281	158	182	64				
Antimony Sb				8.0	7.0	6.8	3.1	1.1				
Arsenic As				4.7	2.5	1.0	1.3	0.4				
Barium Ba				25	16	7	9	3				
Beryllium Be				0.29	0.17	0.07	0.10	0.03				
Bismuth Bi				5.40	3.26	1.43	1.97	0.72				
Boron B				261	108	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.00				
Calcium Ca				163069	88944	35836	45764	15819				
Chromium Cr				7	3	1	1	0				
Cobalt Co				4.63	2.89	2.58	1.38	0.48				
Copper Cu				13	9	3	5	2				
Iron Fe				391	572	165	226	79				
Lead Pb				0.32	0.38	0.12	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56479	31524	13383	16834	5877				
Manganese Mn				59	99	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.82	2.63	1.12	1.40	0.48				
Nickel Ni				6.39	4.43	1.63	2.06	0.72				
Phosphorus P				221	137	69	79	28				
Potassium K				37248	19790	8104	10313	3574				
Selenium Se				6.68	2.68	1.22	1.41	0.49				
Silicon SiO2				5296	3166	1320	1702	593				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				302434	158545	69100	83152	29004				
Strontium Sr				329	208	76	107	37				
Tellurium Te				372	231	97	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.72	2.30	0.98	1.27	0.45				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.35	1.01	0.79	0.80	0.28				
Zinc Zn				16.10	19.28	7.43	6.83	2.38				
Zirconium Zr				38	23	10	13	4				

Table H 8-A-3
Scenario 8**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1277311	721899	323512	487503	177581				
TSS				29943	26983	11618	17302	6042				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				31	16	6	8	3				
Sulphate				53018	29234	12139	16092	5569				
Chloride				637066	399891	171820	245269	90094				
Total Ammonia				81	54	34	40	14				
Nitrate				2288	1286	524	693	242				
Nitrite				70	12	5	7	2				
Alkalinity				218253	124652	55491	70053	24443				
OrthoPhosphate-P				82	43	17	22	8				
Phosphate-P				197	121	62	68	24				
Org. Carbon				41227	23930	14569	12664	4423				
Hardness CaCO3				365749	211783	88509	117279	40911				
Total Metals												
Aluminum Al				264	287	161	186	65				
Antimony Sb				9.6	7.3	6.8	3.0	1.0				
Arsenic As				4.5	2.4	0.9	1.2	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.33	0.17	0.07	0.09	0.03				
Bismuth Bi				6.95	3.63	1.44	1.88	0.65				
Boron B				261	109	47	58	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.00				
Calcium Ca				141213	78952	32725	43106	15384				
Chromium Cr				7	2	1	1	0				
Cobalt Co				3.81	2.42	2.39	1.12	0.39				
Copper Cu				12	9	3	5	2				
Iron Fe				391	577	168	230	81				
Lead Pb				0.32	0.38	0.11	0.14	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56252	31423	13344	16786	5860				
Manganese Mn				57	98	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.02	2.19	0.94	1.17	0.40				
Nickel Ni				5.93	4.13	1.50	1.88	0.65				
Phosphorus P				233	140	69	78	27				
Potassium K				33617	17823	7320	9309	3232				
Selenium Se				6.68	2.70	1.23	1.43	0.50				
Silicon SiO2				5040	3034	1268	1638	571				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				299497	170233	79305	104034	38905				
Strontium Sr				324	205	75	106	37				
Tellurium Te				373	232	98	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.97	2.36	0.98	1.26	0.44				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.16	0.08	0.09	0.03				
Vanadium V				5.50	1.07	0.80	0.81	0.28				
Zinc Zn				14.63	18.41	7.06	6.34	2.21				
Zirconium Zr				38	23	10	13	4				

Table H 8-A-3
Scenario 8**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1548543	817372	343615	491861	170763				
TSS				30172	27108	11669	17373	6066				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				24	12	5	6	2				
Sulphate				46038	25211	10482	13930	4817				
Chloride				795510	454112	182446	245825	85210				
Total Ammonia				61	57	34	40	14				
Nitrate				1786	978	400	533	187				
Nitrite				19	13	5	7	2				
Alkalinity				216402	123540	55035	69478	24243				
OrthoPhosphate-P				65	33	13	17	6				
Phosphate-P				181	112	58	64	22				
Org. Carbon				41473	24063	14624	12741	4449				
Hardness CaCO3				360895	208920	87333	115771	40388				
Total Metals												
Aluminum Al				279	295	165	191	67				
Antimony Sb				8.1	6.4	6.4	2.5	0.9				
Arsenic As				4.4	2.3	0.9	1.2	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.29	0.15	0.06	0.08	0.03				
Bismuth Bi				5.47	2.78	1.09	1.43	0.49				
Boron B				262	109	47	59	21				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				143094	76458	30566	39000	13465				
Chromium Cr				7	2	1	1	0				
Cobalt Co				3.07	1.99	2.21	0.89	0.31				
Copper Cu				11	8	3	4	2				
Iron Fe				407	586	172	235	82				
Lead Pb				0.30	0.36	0.11	0.14	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56095	31321	13302	16736	5843				
Manganese Mn				55	97	27	27	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				3.41	1.84	0.80	0.98	0.34				
Nickel Ni				5.34	3.79	1.36	1.69	0.59				
Phosphorus P				210	127	64	71	25				
Potassium K				30992	16307	6696	8496	2949				
Selenium Se				6.75	2.74	1.25	1.45	0.51				
Silicon SiO2				4880	2939	1229	1588	554				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				406697	211790	90038	110794	38491				
Strontium Sr				320	203	74	105	37				
Tellurium Te				375	233	98	126	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.76	2.24	0.93	1.20	0.42				
Titanium Ti				46	29	12	16	6				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.36	0.98	0.76	0.76	0.27				
Zinc Zn				13.17	17.56	6.70	5.88	2.06				
Zirconium Zr				38	24	10	13	4				

Table H 8-A-3
Scenario 8**Solute Loadings in DSolute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1421105	745216	314147	453362	157403				
TSS				30382	27219	11713	17435	6088				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				18	9	3	4	1				
Sulphate				39513	21509	8970	11953	4131				
Chloride				711723	406636	163060	220514	76426				
Total Ammonia				37	44	28	32	12				
Nitrate				1105	601	248	337	119				
Nitrite				15	10	4	5	2				
Alkalinity				214729	122538	54628	68970	24067				
OrthoPhosphate-P				50	25	10	13	4				
Phosphate-P				167	104	55	59	21				
Org. Carbon				41698	24179	14671	12809	4472				
Hardness CaCO3				356500	206348	86287	114436	39926				
Total Metals												
Aluminum Al				288	299	166	194	68				
Antimony Sb				6.7	5.7	6.1	2.1	0.7				
Arsenic As				4.1	2.2	0.8	1.1	0.4				
Barium Ba				23	15	6	8	3				
Beryllium Be				0.24	0.12	0.05	0.06	0.02				
Bismuth Bi				4.10	2.00	0.77	1.01	0.34				
Boron B				262	109	47	59	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				122469	64777	25794	32761	11299				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.37	1.59	2.05	0.68	0.23				
Copper Cu				11	8	3	4	1				
Iron Fe				420	593	175	239	84				
Lead Pb				0.25	0.34	0.10	0.12	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55924	31209	13255	16682	5824				
Manganese Mn				54	96	26	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.85	1.53	0.67	0.81	0.28				
Nickel Ni				4.77	3.47	1.23	1.52	0.53				
Phosphorus P				186	113	58	64	22				
Potassium K				28598	14949	6140	7772	2698				
Selenium Se				6.79	2.76	1.25	1.46	0.51				
Silicon SiO2				4677	2818	1179	1524	532				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				380004	196632	83842	102725	35691				
Strontium Sr				317	201	73	104	36				
Tellurium Te				377	234	99	127	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.55	2.12	0.88	1.14	0.40				
Titanium Ti				47	29	12	16	6				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.18	0.88	0.72	0.71	0.25				
Zinc Zn				11.73	16.72	6.36	5.44	1.90				
Zirconium Zr				38	24	10	13	4				

Table H 8-A-3
Scenario 8**Solute Loadings in DSolute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1283315	675114	286737	407202	141780				
TSS				30420	27241	11721	17359	6062				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				11	5	2	2	1				
Sulphate				32756	18045	7609	9720	3373				
Chloride				620774	360355	144967	189878	66057				
Total Ammonia				38	36	26	31	11				
Nitrate				623	297	113	128	44				
Nitrite				15	9	4	5	2				
Alkalinity				211974	121139	54088	67605	23604				
OrthoPhosphate-P				34	17	6	7	3				
Phosphate-P				152	96	52	54	19				
Org. Carbon				41704	24185	14675	12700	4435				
Hardness CaCO3				350521	203301	85106	111860	39052				
Total Metals												
Aluminum Al				295	302	167	192	67				
Antimony Sb				5.2	4.9	5.8	1.6	0.6				
Arsenic As				4.0	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.19	0.10	0.04	0.04	0.02				
Bismuth Bi				2.68	1.28	0.49	0.55	0.19				
Boron B				261	109	47	58	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				100865	53740	21467	25663	8895				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.65	1.22	1.90	0.44	0.15				
Copper Cu				10	8	3	4	1				
Iron Fe				427	597	176	237	83				
Lead Pb				0.22	0.32	0.09	0.11	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55528	31006	13175	16433	5739				
Manganese Mn				52	95	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.26	1.22	0.55	0.62	0.21				
Nickel Ni				4.18	3.16	1.11	1.32	0.46				
Phosphorus P				163	101	53	56	19				
Potassium K				25972	13613	5618	6870	2393				
Selenium Se				6.81	2.77	1.26	1.45	0.51				
Silicon SiO2				4469	2706	1133	1425	498				
Silver Ag				0.05	0.03	0.01	0.01	0.00				
Sodium Na				350274	181514	77932	92356	32180				
Strontium Sr				312	199	72	102	35				
Tellurium Te				377	234	99	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.34	2.01	0.84	1.06	0.37				
Titanium Ti				48	30	13	16	6				
Uranium U				0.21	0.15	0.08	0.08	0.03				
Vanadium V				4.97	0.77	0.67	0.60	0.21				
Zinc Zn				10.22	15.93	6.05	4.88	1.71				
Zirconium Zr				38	24	10	13	4				

Table H 8-A-3
Scenario 8**Solute Loadings in D**
Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1162968	619895	266106	390291	134993				
TSS				30225	27148	11686	17402	6063				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				6	3	1	1	0				
Sulphate				26916	15369	6610	8850	3036				
Chloride				540906	323707	131273	178791	61576				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				208425	119498	53470	67462	23464				
OrthoPhosphate-P				20	10	4	5	2				
Phosphate-P				138	90	49	52	18				
Org. Carbon				41424	24053	14625	12750	4434				
Hardness CaCO3				343814	200209	83945	111376	38752				
Total Metals												
Aluminum Al				290	300	166	194	67				
Antimony Sb				4.0	4.4	5.6	1.4	0.5				
Arsenic As				3.7	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.14	0.07	0.03	0.04	0.01				
Bismuth Bi				1.49	0.73	0.28	0.37	0.12				
Boron B				259	107	47	58	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				82329	45243	18294	22905	7824				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.03	0.94	1.80	0.35	0.12				
Copper Cu				10	7	3	4	1				
Iron Fe				423	595	175	240	83				
Lead Pb				0.19	0.30	0.08	0.10	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				54877	30703	13061	16430	5718				
Manganese Mn				51	94	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.75	0.99	0.46	0.54	0.18				
Nickel Ni				3.64	2.92	1.02	1.24	0.43				
Phosphorus P				142	91	50	53	18				
Potassium K				23619	12533	5214	6556	2263				
Selenium Se				6.77	2.75	1.25	1.46	0.51				
Silicon SiO2				4205	2584	1088	1403	485				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				323246	169098	73291	88885	30712				
Strontium Sr				307	196	71	101	35				
Tellurium Te				375	233	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.14	1.92	0.81	1.03	0.36				
Titanium Ti				47	30	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.69	0.64	0.63	0.59	0.20				
Zinc Zn				8.77	15.26	5.80	4.70	1.64				
Zirconium Zr				38	23	10	13	4				

Table H 8-A-3
Scenario 8**Solute Loadings in D**
Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1106933	593394	256067	377112	130836				
TSS				30185	27131	11680	17395	6061				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				3	2	1	1	0				
Sulphate				24162	14064	6115	8201	2831				
Chloride				503816	306166	124629	170072	58825				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				207028	118844	53225	67143	23362				
OrthoPhosphate-P				14	7	3	4	1				
Phosphate-P				132	87	48	51	18				
Org. Carbon				41358	24023	14614	12737	4430				
Hardness CaCO3				341024	198896	83451	110732	38547				
Total Metals												
Aluminum Al				290	300	166	194	67				
Antimony Sb				3.4	4.1	5.5	1.3	0.4				
Arsenic As				3.6	1.9	0.7	1.0	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.11	0.06	0.02	0.03	0.01				
Bismuth Bi				0.92	0.46	0.18	0.24	0.08				
Boron B				258	107	46	58	20				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				73587	41105	16726	20845	7174				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.74	0.80	1.75	0.28	0.10				
Copper Cu				9	7	3	4	1				
Iron Fe				423	595	175	240	83				
Lead Pb				0.17	0.30	0.08	0.10	0.03				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54638	30592	13019	16377	5700				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.51	0.87	0.42	0.49	0.17				
Nickel Ni				3.39	2.80	0.97	1.19	0.41				
Phosphorus P				133	87	48	50	17				
Potassium K				22536	12021	5020	6302	2182				
Selenium Se				6.76	2.74	1.25	1.45	0.51				
Silicon SiO2				4094	2532	1068	1378	477				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				310899	163266	71083	85990	29797				
Strontium Sr				305	195	71	101	35				
Tellurium Te				374	233	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.05	1.87	0.79	1.01	0.35				
Titanium Ti				47	30	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.58	0.58	0.61	0.56	0.19				
Zinc Zn				8.11	14.95	5.68	4.54	1.59				
Zirconium Zr				38	23	10	13	4				

Table H 8-A-3
Scenario 8**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1938747	1047515	455046	669580	233889				
TSS				54824	49816	21478	31912	11148				
Free CN												
Total CN				27	17	7	9	3				
WAD CN												
CNO												
SCN				2	1	0	0	0				
Sulphate				39915	23806	10486	13973	4881				
Chloride				856075	531522	217511	294789	103042				
Total Ammonia				67	67	49	58	20				
Nitrate				80	50	21	27	10				
Nitrite				27	17	7	9	3				
Alkalinity				375794	216690	97341	122073	42655				
OrthoPhosphate-P				15	9	4	4	2				
Phosphate-P				230	155	87	90	32				
Org. Carbon				75230	43887	26867	23154	8090				
Hardness CaCO3				619989	363193	152663	201705	70477				
Total Metals												
Aluminum Al				494	536	301	346	121				
Antimony Sb				5.3	7.1	10.0	2.2	0.8				
Arsenic As				6.5	3.4	1.3	1.7	0.6				
Barium Ba				39	27	11	14	5				
Beryllium Be				0.13	0.07	0.03	0.04	0.01				
Bismuth Bi				0.78	0.43	0.17	0.21	0.07				
Boron B				469	194	85	104	36				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				120919	68988	28294	34717	12125				
Chromium Cr				9	2	2	1	0				
Cobalt Co				0.86	1.25	3.15	0.39	0.14				
Copper Cu				17	13	5	7	2				
Iron Fe				738	1082	317	430	151				
Lead Pb				0.27	0.53	0.14	0.17	0.06				
Lithium Li				39	24	10	13	5				
Magnesium Mg				99512	55909	23839	29815	10420				
Manganese Mn				90	174	47	46	16				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.34	1.41	0.70	0.79	0.27				
Nickel Ni				5.75	4.94	1.71	2.05	0.72				
Phosphorus P				229	153	86	89	31				
Potassium K				39317	21144	8879	11021	3853				
Selenium Se				12.29	4.98	2.27	2.62	0.92				
Silicon SiO2				7114	4476	1898	2415	846				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				546291	288753	126577	151212	52871				
Strontium Sr				554	357	129	183	64				
Tellurium Te				682	426	180	230	80				
Thallium Tl				0.41	0.26	0.11	0.14	0.05				
Thorium Th				0.01	0.01	0.01	0.01	0.00				
Tin Sn				5.47	3.38	1.43	1.83	0.64				
Titanium Ti				84	53	23	29	10				
Uranium U				0.35	0.26	0.14	0.15	0.05				
Vanadium V				7.90	0.81	1.02	0.86	0.30				
Zinc Zn				13.29	26.94	10.24	7.96	2.81				
Zirconium Zr				68	43	18	23	8				

Scenario 8

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate Degradation Field(age)		1000000 m3/year Tail Lk Cu < CME Year	9				
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1296	203	192	
TSS	mg/L			4.7	6.9	8.1	
Free CN	mg/L		0.005	0.0028	0.00016	0.00008	3%
Total CN	mg/L	1.0		0.027	0.003	0.003	
WAD CN	mg/L			0.0037	0.0002	0.0001	
CNO	mg/L			3.1	0.17	0.09	
SCN	mg/L			0.098	0.005	0.003	
Sulphate	mg/L			90	7.7	6.8	
Chloride	mg/L			863	104	87	
Total Ammonia	mg/L		0.97	1.04	0.069	0.037	7%
Nitrate	mg/L		2.9	5.6	0.34	0.18	11%
Nitrite	mg/L		0.018	0.42	0.026	0.015	144%
Alkalinity	mg/L			56	29	26	
OrthoPhosphate-P	mg/L			0.1814	0.0108	0.0062	
Phosphate-P	mg/L			0.1847	0.0309	0.0293	
Org. Carbon	mg/L			6.1	7.5	7.2	
Hardness CaCO3	mg/L			109	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.17	0.08	0.25	85%
Antimony Sb	mg/L			0.0164	0.0034	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	12%
Barium Ba	mg/L			0.0106	0.0035	0.0054	
Beryllium Be	mg/L			0.00063	0.00004	0.00003	
Bismuth Bi	mg/L			0.01587	0.00091	0.00056	
Boron B	mg/L			0.035	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000055	0.0000061	0.0000162	16%
Calcium Ca	mg/L			245	21	15	
Chromium Cr	mg/L		0.001	0.0065	0.001	0.001	97%
Cobalt Co	mg/L			0.0102	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.009	0.0019	0.0021	94%
Iron Fe	mg/L		0.3	0.19	0.13	0.28	43%
Lead Pb	mg/L	0.2	0.002	0.00040	0.00008	0.00026	4%
Lithium Li	mg/L			0.0051	0.0029	0.0029	
Magnesium Mg	mg/L			9.3	7.4	7.3	
Manganese Mn	mg/L			0.028	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000132	0.0000013	0.0000010	1%
Molybdenum Mo	mg/L		0.073	0.0089	0.00063	0.00044	1%
Nickel Ni	mg/L	0.5	0.025	0.008	0.0009	0.0009	4%
Phosphorus P	mg/L			0.261	0.035	0.032	
Potassium K	mg/L			41	4.9	3.8	
Selenium Se	mg/L		0.001	0.00102	0.00090	0.00085	90%
Silicon SiO2	mg/L			3.9	0.69	0.62	
Silver Ag	mg/L		0.0001	0.00012	0.0000082	0.0000071	8%
Sodium Na	mg/L			297	53	46	
Strontium Sr	mg/L			0.089	0.044	0.047	
Tellurium Te	mg/L			0.049	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000043	0.000031	0.002001	4%
Thorium Th	mg/L			0.000062	0.0000044	0.0000023	
Tin Sn	mg/L			0.00252	0.00052	0.00007	
Titanium Ti	mg/L			0.0146	0.0065	0.0064	
Uranium U	mg/L			0.000089	0.000041	0.000045	
Vanadium V	mg/L			0.0035	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.023	0.0041	0.0057	14%
Zirconium Zr	mg/L			0.0051	0.0050	0.0052	

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				152	153	143	163	164				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L				0.00002	0.00000	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.02	0.00	0.01	0.01	0.01				
SCN	mg/L				0.000	0.000	0.000	0.000	0.001				
Sulphate	mg/L				4.1	4.0	5.1	4.9	5.0				
Chloride	mg/L				62	60	59	67	67				
Total Ammonia	mg/L				0.009	0.015	0.002	0.011	0.011				
Nitrate	mg/L				0.03	0.03	0.03	0.05	0.05				
Nitrite	mg/L				0.004	0.005	0.003	0.003	0.005				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0014	0.0015	0.0015	0.0016	0.0017				
Phosphate-P	mg/L				0.0245	0.0166	0.0076	0.0197	0.0198				
Org. Carbon	mg/L				6.0	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00013	0.00015	0.00016	0.00017	0.00018				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.027				
Cadmium Cd	mg/L				0.0000028	0.0000044	0.0000150	0.0000025	0.0000026				
Calcium Ca	mg/L				9	8	8	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00021	0.00020	0.00027	0.00024	0.00025				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.8	2.3	2.3	2.7	2.7				
Selenium Se	mg/L				0.00064	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.52	0.52	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000044	0.0000020	0.0000045	0.0000028	0.0000029				
Sodium Na	mg/L				38	31	34	36	36				
Strontium Sr	mg/L				0.045	0.037	0.040	0.046	0.046				
Tellurium Te	mg/L				0.050	0.051	0.050	0.051	0.051				
Thallium Tl	mg/L				0.000100	0.000300	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000000	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0050	0.0051	0.0051	0.0051	0.0051				

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				162	161	151	172	173				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00008		0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001		0.0000	0.0000	0.0000				
CNO	mg/L				0.09		0.01	0.01	0.01				
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.7	5.4	6.5	6.4	6.6				
Chloride	mg/L				68	65	64	73	73				
Total Ammonia	mg/L				0.021	0.037	0.002	0.015	0.014				
Nitrate	mg/L				0.12	0.13	0.13	0.16	0.16				
Nitrite	mg/L				0.015	0.007	0.005	0.003	0.008				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0037	0.0034	0.0035	0.0038	0.0039				
Phosphate-P	mg/L				0.0268	0.0185	0.0096	0.0219	0.0220				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0014	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00032	0.00032	0.00034	0.00037	0.00039				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000039	0.0000054	0.0000160	0.0000037	0.0000037				
Calcium Ca	mg/L				13	11	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0003	0.0004				
Copper Cu	mg/L				0.0013	0.0015	0.0018	0.0020	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00037	0.00033	0.00041	0.00039	0.00040				
Nickel Ni	mg/L				0.0008	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.029	0.020	0.012	0.024	0.024				
Potassium K	mg/L				3.5	3.0	3.0	3.3	3.4				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00061	0.00061				
Silicon SiO2	mg/L				0.59	0.58	0.59	0.59	0.60				
Silver Ag	mg/L				0.0000062	0.0000036	0.0000062	0.0000047	0.0000048				
Sodium Na	mg/L				38	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00004	0.00004	0.00004	0.00005	0.00005				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0021	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				167	165	155	176	176				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00005								
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.06								
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.4	5.9	6.8	6.7	6.7				
Chloride	mg/L				72	68	67	76	76				
Total Ammonia	mg/L				0.018	0.026	0.002	0.009	0.009				
Nitrate	mg/L				0.17	0.17	0.16	0.17	0.18				
Nitrite	mg/L				0.014	0.006	0.005	0.003	0.003				
Alkalinity	mg/L				25	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0052	0.0048	0.0048	0.0051	0.0052				
Phosphate-P	mg/L				0.0283	0.0199	0.0109	0.0232	0.0233				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0021	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00045	0.00044	0.00046	0.00048	0.00050				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000044	0.0000057	0.0000162	0.0000038	0.0000038				
Calcium Ca	mg/L				15	13	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.025	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00043	0.00038	0.00044	0.00040	0.00040				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.031	0.022	0.013	0.026	0.026				
Potassium K	mg/L				3.8	3.2	3.1	3.4	3.4				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.62	0.60	0.60	0.60	0.60				
Silver Ag	mg/L				0.0000068	0.0000041	0.0000066	0.0000051	0.0000051				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00006	0.00006	0.00006	0.00006	0.00007				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				168	170	163	188	192				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.6	6.4	6.2	6.2				
Chloride	mg/L				75	72	73	84	87				
Total Ammonia	mg/L				0.008	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.16	0.14	0.13	0.14	0.14				
Nitrite	mg/L				0.006	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0062	0.0054	0.0051	0.0052	0.0051				
Phosphate-P	mg/L				0.0293	0.0205	0.0113	0.0234	0.0233				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00056	0.00048	0.00046	0.00047	0.00046				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000042	0.0000056	0.0000161	0.0000036	0.0000036				
Calcium Ca	mg/L				13	11	11	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00038	0.00033	0.00039	0.00036	0.00035				
Nickel Ni	mg/L				0.0008	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.032	0.023	0.013	0.025	0.025				
Potassium K	mg/L				3.6	2.9	2.9	3.2	3.2				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.60	0.59	0.59	0.59	0.59				
Silver Ag	mg/L				0.0000071	0.0000043	0.0000067	0.0000052	0.0000051				
Sodium Na	mg/L				39	33	37	41	43				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00007	0.00006	0.00006	0.00006	0.00006				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0040	0.0021	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				187	180	168	189	188				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.5	5.1	6.0	5.8	5.8				
Chloride	mg/L				85	78	76	84	84				
Total Ammonia	mg/L				0.007	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.12	0.11	0.10	0.11	0.11				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0051	0.0043	0.0041	0.0041	0.0041				
Phosphate-P	mg/L				0.0282	0.0195	0.0103	0.0224	0.0223				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0020	0.0014	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00046	0.00039	0.00037	0.00037	0.00037				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000041	0.0000055	0.0000160	0.0000035	0.0000035				
Calcium Ca	mg/L				13	11	11	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0015	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00033	0.00029	0.00035	0.00032	0.00031				
Nickel Ni	mg/L				0.0008	0.0006	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.030	0.021	0.012	0.024	0.024				
Potassium K	mg/L				3.4	2.8	2.7	3.0	3.0				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00062	0.00062				
Silicon SiO2	mg/L				0.59	0.58	0.58	0.58	0.58				
Silver Ag	mg/L				0.0000071	0.0000043	0.0000067	0.0000052	0.0000051				
Sodium Na	mg/L				46	38	40	43	43				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005				
Titanium Ti	mg/L				0.0062	0.0062	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0020	0.0019	0.0055	0.0055				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0052				

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				178	172	161	181	181				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.1	4.7	5.6	5.4	5.4				
Chloride	mg/L				80	73	71	79	79				
Total Ammonia	mg/L				0.005	0.006	0.000	0.007	0.007				
Nitrate	mg/L				0.08	0.07	0.06	0.07	0.07				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0040	0.0033	0.0031	0.0032	0.0031				
Phosphate-P	mg/L				0.0273	0.0187	0.0095	0.0215	0.0215				
Org. Carbon	mg/L				6.1	4.1	7.1	5.2	5.2				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.16	0.16				
Antimony Sb	mg/L				0.0007	0.0019	0.0014	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00001	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00036	0.00030	0.00029	0.00029	0.00029				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000035	0.0000049	0.0000155	0.0000030	0.0000030				
Calcium Ca	mg/L				12	10	10	11	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00030	0.00026	0.00032	0.00028	0.00028				
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.029	0.020	0.010	0.022	0.022				
Potassium K	mg/L				3.3	2.6	2.6	2.9	2.9				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00062	0.00062				
Silicon SiO2	mg/L				0.57	0.56	0.56	0.57	0.57				
Silver Ag	mg/L				0.0000065	0.0000037	0.0000062	0.0000046	0.0000046				
Sodium Na	mg/L				44	36	38	41	41				
Strontium Sr	mg/L				0.046	0.038	0.040	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00005	0.00004	0.00003	0.00004	0.00003				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0038	0.0019	0.0018	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				169	165	153	172	172				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.000	0.000				
Sulphate	mg/L				4.6	4.3	5.2	5.0	4.9				
Chloride	mg/L				74	68	66	73	73				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.05	0.04	0.03	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0029	0.0025	0.0023	0.0021	0.0021				
Phosphate-P	mg/L				0.0262	0.0178	0.0087	0.0205	0.0204				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0018	0.0013	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00027	0.00023	0.00021	0.00020	0.00020				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000034	0.0000047	0.0000152	0.0000026	0.0000026				
Calcium Ca	mg/L				10	9	9	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00026	0.00022	0.00029	0.00024	0.00024				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.018	0.009	0.021	0.021				
Potassium K	mg/L				3.1	2.5	2.4	2.7	2.7				
Selenium Se	mg/L				0.00066	0.00039	0.00085	0.00061	0.00061				
Silicon SiO2	mg/L				0.56	0.55	0.55	0.54	0.55				
Silver Ag	mg/L				0.0000062	0.0000034	0.0000058	0.0000038	0.0000037				
Sodium Na	mg/L				42	35	37	39	39				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				161	159	148	168	168				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.2	4.0	5.0	4.8	4.7				
Chloride	mg/L				68	64	63	71	70				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0020	0.0018	0.0017	0.0017	0.0016				
Phosphate-P	mg/L				0.0253	0.0171	0.0080	0.0201	0.0200				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.16	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00019	0.00017	0.00016	0.00016	0.00015				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000030	0.0000044	0.0000149	0.0000025	0.0000024				
Calcium Ca	mg/L				9	8	8	9	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.2	5.3	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00022	0.00020	0.00027	0.00023	0.00023				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.4	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00062	0.00061				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000055	0.0000028	0.0000053	0.0000037	0.0000035				
Sodium Na	mg/L				40	33	36	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				157	156	145	166	165				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.0	3.9	4.9	4.6	4.6				
Chloride	mg/L				66	62	61	69	69				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0016	0.0014	0.0014	0.0014	0.0014				
Phosphate-P	mg/L				0.0249	0.0168	0.0078	0.0198	0.0197				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.16	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00015	0.00014	0.00013	0.00013	0.00013				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000028	0.0000043	0.0000148	0.0000023	0.0000023				
Calcium Ca	mg/L				9	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.3	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00021	0.00018	0.00025	0.00022	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00062	0.00061				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.54	0.53				
Silver Ag	mg/L				0.0000052	0.0000026	0.0000051	0.0000035	0.0000033				
Sodium Na	mg/L				39	33	35	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-8-A-2
Scenario 8

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				152	153	143	162	162			
TSS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.9	3.8	4.7	4.5	4.5			
Chloride	mg/L				63	60	59	67	67			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				23	23	24	25	25			
OrthoPhosphate-P	mg/L				0.0012	0.0011	0.0011	0.0011	0.0011			
Phosphate-P	mg/L				0.0243	0.0164	0.0074	0.0194	0.0194			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				43	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00011	0.00011	0.00011	0.00011	0.00011			
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000026	0.0000041	0.0000147	0.0000022	0.0000022			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0028	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.0	5.1	5.3	7.2	7.2			
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008			
Mercury Hg	mg/L				0.0000007	0.0000008	0.0000008	0.0000008	0.0000008			
Molybdenum Mo	mg/L				0.00019	0.00017	0.00024	0.00020	0.00020			
Nickel Ni	mg/L				0.0007	0.0005	0.0006	0.0006	0.0006			
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5			
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061			
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52			
Silver Ag	mg/L				0.0000042	0.0000018	0.0000044	0.0000026	0.0000026			
Sodium Na	mg/L				38	32	34	37	37			
Strontium Sr	mg/L				0.045	0.037	0.040	0.046	0.046			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000			
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062			
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043			
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0051	0.0052			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table H 8-A-3
Scenario 8

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				140	123	127	147	148				
TSS				3.9	5.8	5.9	6.9	6.9				
Free CN				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.05	0.01	0.01	0.01	0.01				
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				3.3	3.4	3.6	3.8	4.0				
Chloride				61	62	60	64	65				
Total Ammonia				0.013	0.028	0.018	0.021	0.021				
Nitrate				0.04	0.06	0.07	0.09	0.10				
Nitrite				0.007	0.008	0.008	0.004	0.009				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0016	0.0017	0.0018	0.0020	0.0022				
Phosphate-P				0.0170	0.0184	0.0244	0.0203	0.0204				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				45	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0009	0.0029	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00008	0.00013	0.00015	0.00017	0.00019				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000032	0.0000033	0.0000029	0.0000030	0.0000031				
Calcium Ca				10	9	9	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0002	0.0002				
Copper Cu				0.0012	0.0016	0.0013	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.6	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00021	0.00022	0.00025	0.00024	0.00026				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.025	0.021	0.022				
Potassium K				3.0	2.7	2.7	2.7	2.7				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.52	0.53	0.53	0.54	0.55				
Silver Ag				0.0000031	0.0000040	0.0000038	0.0000038	0.0000038				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.040	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000009	0.0000011	0.0000012	0.0000012	0.0000013				
Tin Sn				0.00040	0.00041	0.00041	0.00041	0.00042				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0032	0.0030	0.0019	0.0019				
Zirconium Zr				0.0049	0.0050	0.0050	0.0050	0.0050				

Table H 8-A-3
Scenario 8

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				155	136	140	161	162				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00016		0.00002	0.00002	0.00002				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0002		0.0000	0.0000	0.0000				
CNO				0.17		0.02	0.02	0.02				
SCN				0.004	0.004	0.004	0.004	0.004				
Sulphate				6.3	6.0	6.2	6.7	6.9				
Chloride				71	70	69	74	75				
Total Ammonia				0.036	0.069	0.016	0.027	0.027				
Nitrate				0.23	0.25	0.26	0.30	0.31				
Nitrite				0.026	0.011	0.012	0.004	0.014				
Alkalinity				28	26	28	28	28				
OrthoPhosphate-P				0.0059	0.0054	0.0055	0.0060	0.0064				
Phosphate-P				0.0209	0.0218	0.0277	0.0239	0.0242				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	46	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0008	0.0012	0.0032	0.0010	0.0010				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0031	0.0034	0.0032	0.0034	0.0034				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00045	0.00046	0.00050	0.00055	0.00058				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000053	0.0000052	0.0000049	0.0000051	0.0000053				
Calcium Ca				18	16	17	17	18				
Chromium Cr				0.001	0.000	0.001	0.001	0.001				
Cobalt Co				0.0005	0.0005	0.0012	0.0005	0.0005				
Copper Cu				0.0015	0.0018	0.0016	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000008	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00051	0.00047	0.00051	0.00052	0.00054				
Nickel Ni				0.0007	0.0008	0.0008	0.0008	0.0008				
Phosphorus P				0.025	0.025	0.031	0.028	0.029				
Potassium K				4.3	3.8	3.8	3.9	4.0				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.64	0.63	0.64	0.65	0.66				
Silver Ag				0.0000066	0.0000070	0.0000070	0.0000073	0.0000074				
Sodium Na				39	33	34	32	33				
Strontium Sr				0.042	0.043	0.037	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000022	0.0000024	0.0000025	0.0000026	0.0000027				
Tin Sn				0.00045	0.00045	0.00046	0.00046	0.00047				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0018	0.0038	0.0036	0.0026	0.0026				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table H 8-A-3
Scenario 8

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				165	144	147	168	168				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00010								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001								
CNO				0.11								
SCN				0.005	0.005	0.004	0.004	0.004				
Sulphate				7.7	6.9	6.9	7.2	7.1				
Chloride				78	77	75	80	81				
Total Ammonia				0.030	0.047	0.016	0.017	0.017				
Nitrate				0.33	0.31	0.31	0.33	0.34				
Nitrite				0.024	0.009	0.012	0.004	0.004				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0088	0.0080	0.0080	0.0086	0.0089				
Phosphate-P				0.0239	0.0244	0.0301	0.0265	0.0268				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				49	46	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0011	0.0015	0.0034	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0033	0.0035	0.0033	0.0034	0.0034				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00071	0.00069	0.00072	0.00077	0.00081				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000061	0.0000058	0.0000052	0.0000053	0.0000053				
Calcium Ca				21	19	18	18	18				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0005	0.0005				
Copper Cu				0.0016	0.0019	0.0016	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00063	0.00056	0.00056	0.00055	0.00054				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P				0.029	0.029	0.035	0.031	0.031				
Potassium K				4.9	4.2	4.1	4.0	4.0				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.69	0.67	0.66	0.67	0.67				
Silver Ag				0.0000077	0.0000079	0.0000077	0.0000080	0.0000080				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000026	0.0000027	0.0000027	0.0000028	0.0000029				
Tin Sn				0.00049	0.00049	0.00049	0.00050	0.00050				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0021	0.0041	0.0037	0.0027	0.0027				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Table H 8-A-3
Scenario 8

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				168	153	162	191	200				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.004	0.003	0.003	0.003	0.003				
Sulphate				7.0	6.2	6.1	6.3	6.3				
Chloride				84	85	86	96	101				
Total Ammonia				0.011	0.011	0.017	0.016	0.016				
Nitrate				0.30	0.27	0.26	0.27	0.27				
Nitrite				0.009	0.002	0.003	0.003	0.003				
Alkalinity				29	26	28	27	27				
OrthoPhosphate-P				0.0108	0.0091	0.0086	0.0088	0.0087				
Phosphate-P				0.0258	0.0256	0.0309	0.0268	0.0267				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0013	0.0015	0.0034	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00091	0.00077	0.00072	0.00074	0.00073				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000057	0.0000055	0.0000049	0.0000050	0.0000051				
Calcium Ca				19	17	16	17	17				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00053	0.00046	0.00047	0.00046	0.00045				
Nickel Ni				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P				0.031	0.030	0.035	0.031	0.031				
Potassium K				4.4	3.8	3.7	3.7	3.6				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.66	0.64	0.64	0.64	0.64				
Silver Ag				0.0000082	0.0000082	0.0000080	0.0000082	0.0000082				
Sodium Na				39	36	40	41	44				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000028	0.0000032	0.0000034	0.0000035	0.0000036				
Tin Sn				0.00052	0.00050	0.00049	0.00050	0.00049				
Titanium Ti				0.0059	0.0060	0.0060	0.0061	0.0061				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0019	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 8-A-3
Scenario 8

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				203	173	172	193	192				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.003	0.002	0.002	0.002				
Sulphate				6.0	5.3	5.3	5.5	5.4				
Chloride				104	96	92	96	96				
Total Ammonia				0.008	0.012	0.017	0.016	0.016				
Nitrate				0.23	0.21	0.20	0.21	0.21				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0086	0.0071	0.0066	0.0068	0.0066				
Phosphate-P				0.0238	0.0237	0.0290	0.0250	0.0249				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.08				
Antimony Sb				0.0011	0.0014	0.0032	0.0010	0.0010				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0031	0.0033	0.0032	0.0033	0.0033				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00072	0.00059	0.00055	0.00056	0.00055				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000055	0.0000052	0.0000047	0.0000048	0.0000048				
Calcium Ca				19	16	15	15	15				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0004	0.0003				
Copper Cu				0.0015	0.0017	0.0015	0.0017	0.0017				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000011	0.0000011	0.0000011	0.0000012				
Molybdenum Mo				0.00045	0.00039	0.00040	0.00039	0.00038				
Nickel Ni				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P				0.028	0.027	0.032	0.028	0.028				
Potassium K				4.1	3.4	3.4	3.3	3.3				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.64	0.62	0.62	0.62	0.62				
Silver Ag				0.0000082	0.0000082	0.0000080	0.0000082	0.0000081				
Sodium Na				53	45	45	43	43				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000037	0.0000039	0.0000041	0.0000043	0.0000044				
Tin Sn				0.00049	0.00047	0.00047	0.00047	0.00047				
Titanium Ti				0.0061	0.0061	0.0062	0.0062	0.0062				
Uranium U				0.000029	0.000034	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0017	0.0037	0.0034	0.0023	0.0023				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 8-A-3
Scenario 8

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				186	158	158	178	177				
TSS				4.0	5.8	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				5.2	4.5	4.5	4.7	4.6				
Chloride				93	86	82	86	86				
Total Ammonia				0.005	0.009	0.014	0.013	0.013				
Nitrate				0.14	0.13	0.12	0.13	0.13				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0065	0.0053	0.0048	0.0049	0.0048				
Phosphate-P				0.0219	0.0220	0.0274	0.0233	0.0232				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	43	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0009	0.0012	0.0031	0.0008	0.0008				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00003	0.00003	0.00002	0.00003	0.00002				
Bismuth Bi				0.00054	0.00042	0.00039	0.00040	0.00039				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000045	0.0000043	0.0000037	0.0000039	0.0000039				
Calcium Ca				16	14	13	13	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0014	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000012	0.0000012	0.0000012				
Molybdenum Mo				0.00037	0.00032	0.00033	0.00032	0.00031				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.024	0.024	0.029	0.025	0.025				
Potassium K				3.8	3.2	3.1	3.0	3.0				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.61	0.60	0.59	0.60	0.60				
Silver Ag				0.0000072	0.0000072	0.0000069	0.0000072	0.0000071				
Sodium Na				50	42	42	40	40				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000030	0.000030	0.000031	0.000031				
Thorium Th				0.0000028	0.0000030	0.0000031	0.0000033	0.0000035				
Tin Sn				0.00047	0.00045	0.00044	0.00045	0.00044				
Titanium Ti				0.0062	0.0062	0.0063	0.0063	0.0063				
Uranium U				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0015	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 8-A-3
Scenario 8

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				168	143	144	160	159				
TSS				4.0	5.8	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.3	3.8	3.8	3.8	3.8				
Chloride				81	76	73	74	74				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.08	0.06	0.06	0.05	0.05				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0044	0.0035	0.0032	0.0029	0.0029				
Phosphate-P				0.0199	0.0204	0.0259	0.0212	0.0212				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0007	0.0010	0.0029	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00035	0.00027	0.00024	0.00022	0.00021				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000042	0.0000038	0.0000032	0.0000031	0.0000031				
Calcium Ca				13	11	11	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.6	6.4	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000012	0.0000012	0.0000012	0.0000011	0.0000011				
Molybdenum Mo				0.00030	0.00026	0.00028	0.00024	0.00024				
Nickel Ni				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.021	0.021	0.027	0.022	0.022				
Potassium K				3.4	2.9	2.8	2.7	2.7				
Selenium Se				0.00089	0.00059	0.00063	0.00057	0.00057				
Silicon SiO2				0.59	0.57	0.57	0.56	0.56				
Silver Ag				0.0000066	0.0000065	0.0000062	0.0000055	0.0000054				
Sodium Na				46	38	39	36	36				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.050	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000032	0.0000029	0.0000029	0.0000026	0.0000026				
Tin Sn				0.00044	0.00042	0.00042	0.00042	0.00042				
Titanium Ti				0.0063	0.0063	0.0063	0.0062	0.0063				
Uranium U				0.000028	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0007	0.0002	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0034	0.0030	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 8-A-3
Scenario 8

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				153	131	134	153	152				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.000				
Sulphate				3.5	3.3	3.3	3.5	3.4				
Chloride				71	68	66	70	69				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0026	0.0022	0.0021	0.0021	0.0020				
Phosphate-P				0.0181	0.0190	0.0247	0.0205	0.0203				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				45	42	42	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0005	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0030	0.0031	0.0030				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00019	0.00015	0.00014	0.00014	0.00013				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000034	0.0000033	0.0000027	0.0000028	0.0000027				
Calcium Ca				11	10	9	9	9				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.5	6.6	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo				0.00023	0.00021	0.00023	0.00021	0.00021				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.019	0.025	0.021	0.020				
Potassium K				3.1	2.7	2.6	2.6	2.5				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.55	0.55	0.55	0.55	0.55				
Silver Ag				0.0000051	0.0000054	0.0000052	0.0000054	0.0000049				
Sodium Na				42	36	37	35	35				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000024	0.0000023	0.0000023	0.0000025	0.0000024				
Tin Sn				0.00041	0.00041	0.00040	0.00041	0.00040				
Titanium Ti				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U				0.000027	0.000032	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0049				

Table H 8-A-3
Scenario 8

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				145	126	129	148	147				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.2	3.0	3.1	3.2	3.2				
Chloride				66	65	63	67	66				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0018	0.0016	0.0015	0.0015	0.0014				
Phosphate-P				0.0173	0.0184	0.0241	0.0199	0.0198				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0004	0.0009	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00012	0.00010	0.00009	0.00009	0.00009				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000031	0.0000030	0.0000025	0.0000025	0.0000025				
Calcium Ca				10	9	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.5	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo				0.00020	0.00018	0.00021	0.00019	0.00019				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				3.0	2.5	2.5	2.5	2.5				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.54	0.54	0.54	0.54	0.54				
Silver Ag				0.0000045	0.0000050	0.0000048	0.0000049	0.0000045				
Sodium Na				41	35	36	34	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000021	0.0000021	0.0000021	0.0000023	0.0000022				
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U				0.000026	0.000031	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0049				

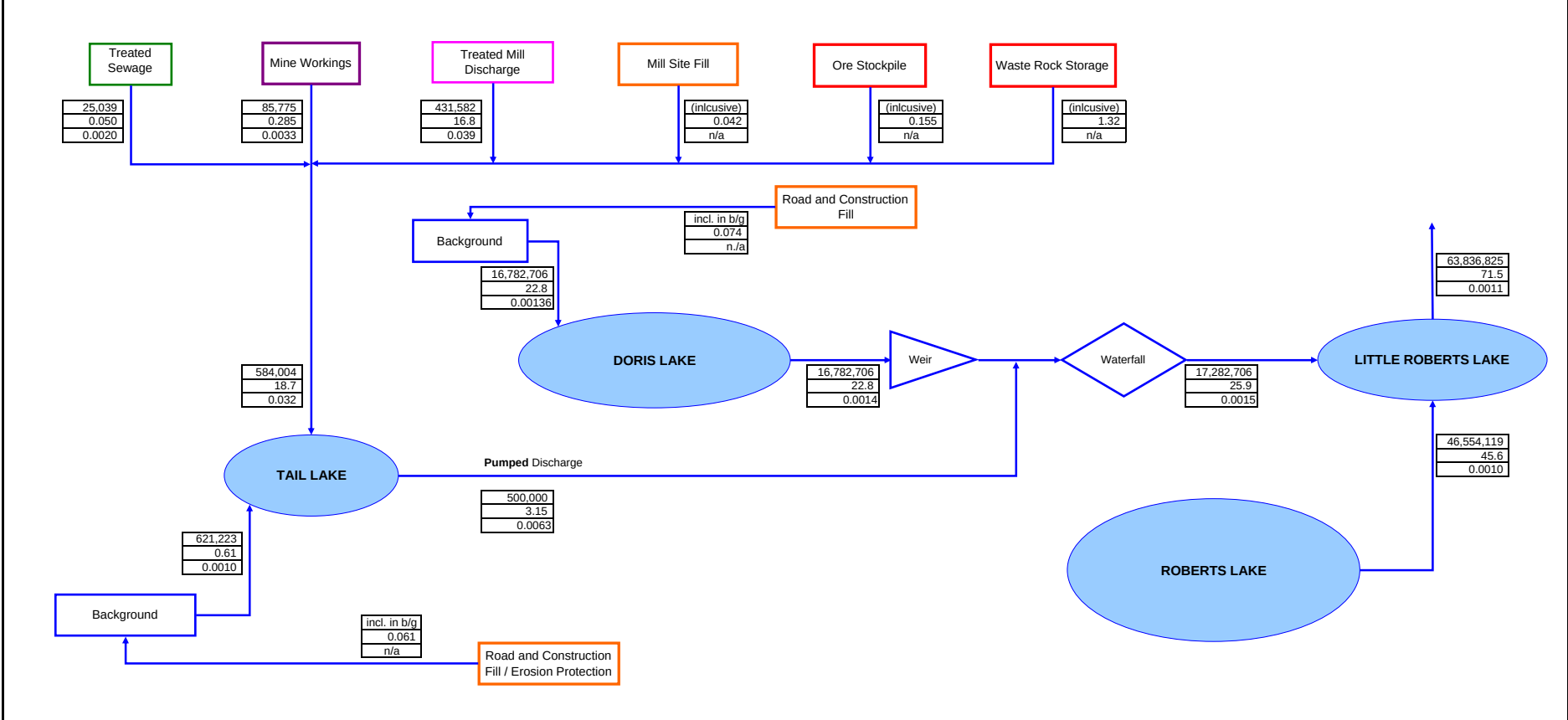
Table H 8-A-3
Scenario 8

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				141	122	126	145	145				
TSS				4.0	5.8	6.0	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				2.9	2.8	2.9	3.0	3.0				
Chloride				62	62	60	64	64				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	27				
OrthoPhosphate-P				0.0011	0.0010	0.0010	0.0010	0.0010				
Phosphate-P				0.0167	0.0181	0.0240	0.0196	0.0196				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				45	42	42	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.08				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00006	0.00005	0.00005	0.00005	0.00005				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000027	0.0000027	0.0000023	0.0000022	0.0000023				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.5	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000009	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00017	0.00017	0.00019	0.00017	0.00017				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.019	0.019				
Potassium K				2.9	2.5	2.5	2.4	2.4				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.52	0.52	0.53	0.52	0.53				
Silver Ag				0.0000027	0.0000036	0.0000036	0.0000033	0.0000032				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.040	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000011	0.0000013	0.0000015	0.0000014	0.0000014				
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0061	0.0062	0.0063	0.0062	0.0063				
Uranium U				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

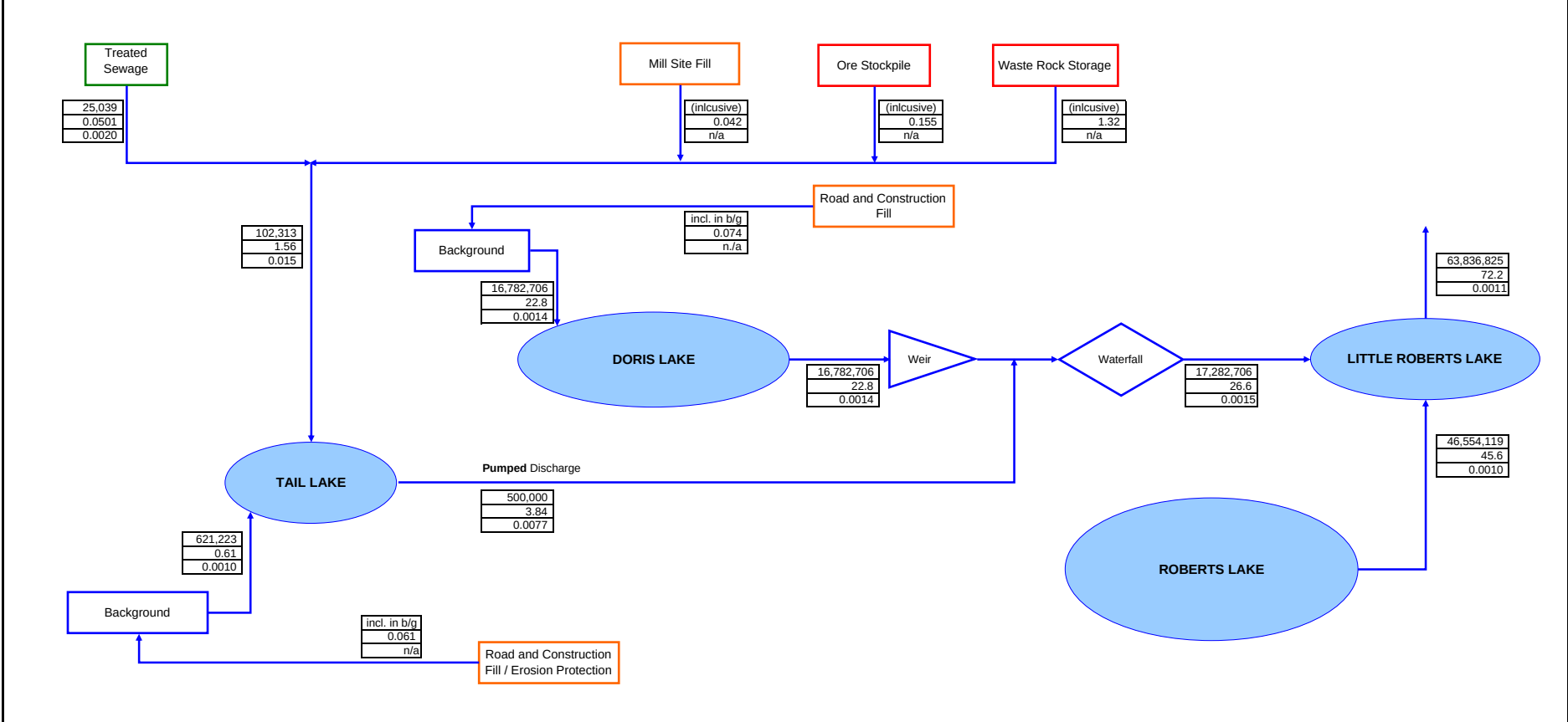
SCENARIO 9 - OPERATIONAL CONDITIONS

Year 2



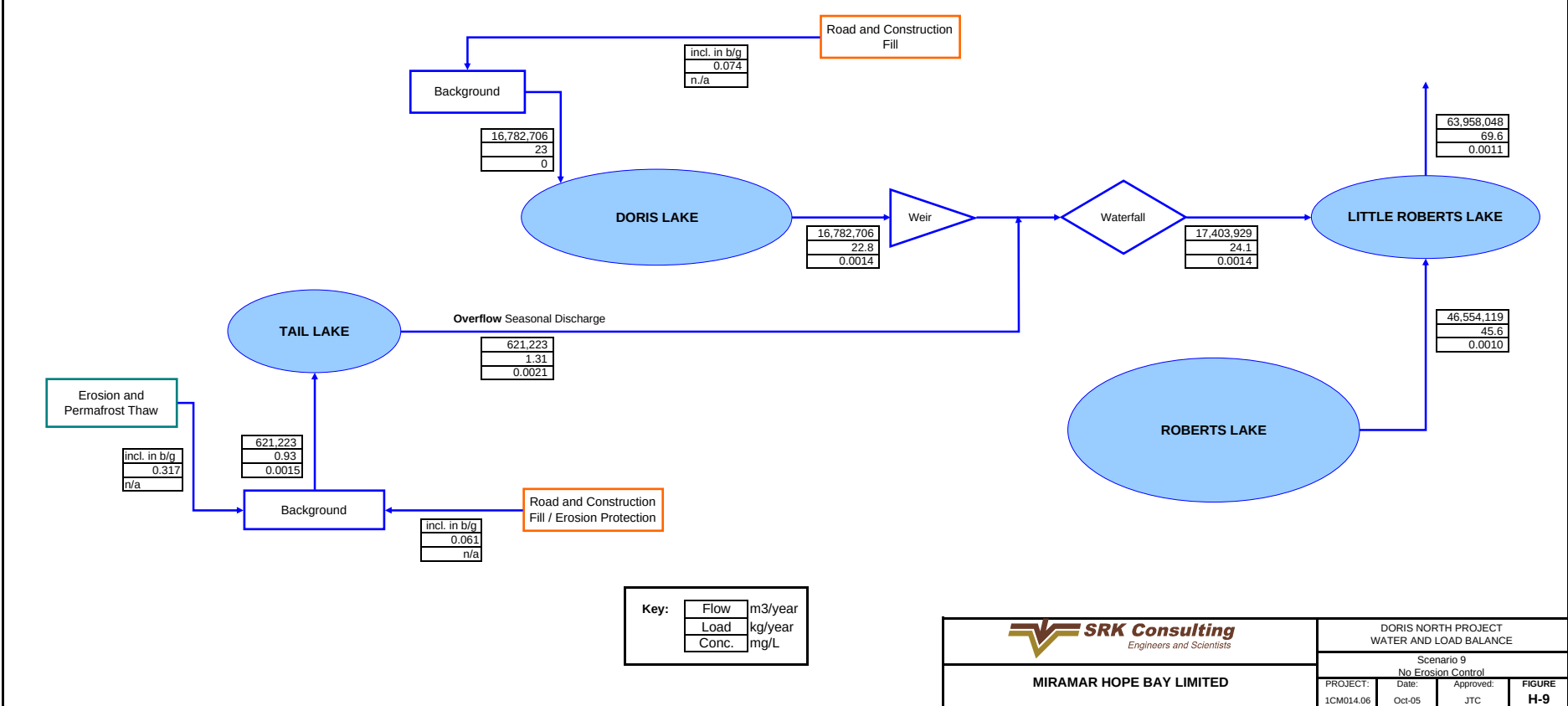
POST MILLING OPERATIONAL CONDITIONS

Year 3

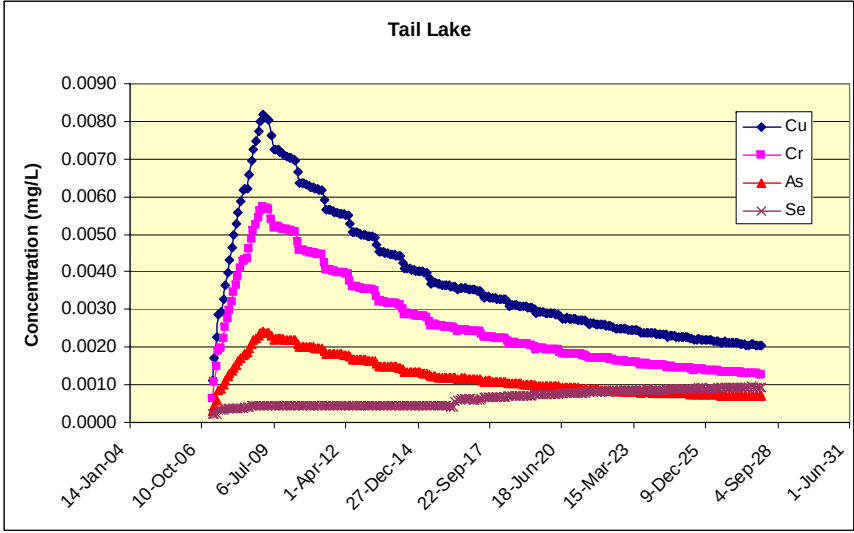
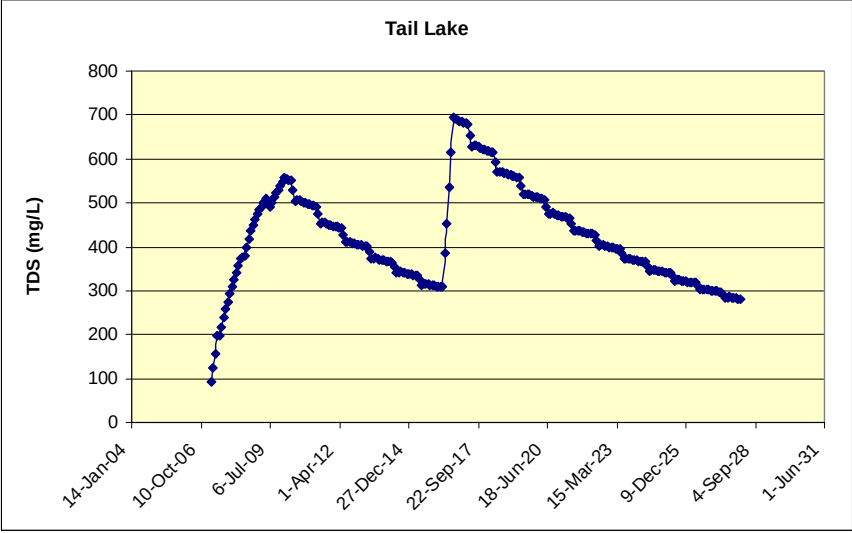
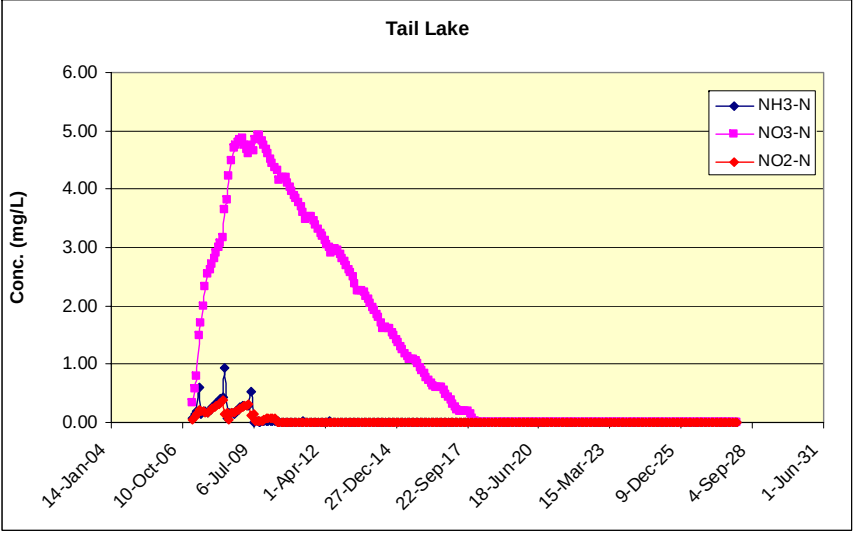
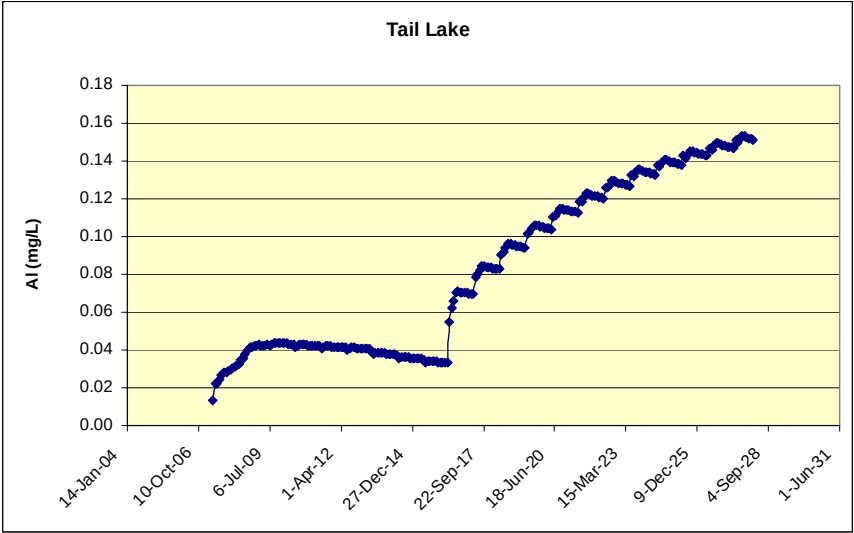
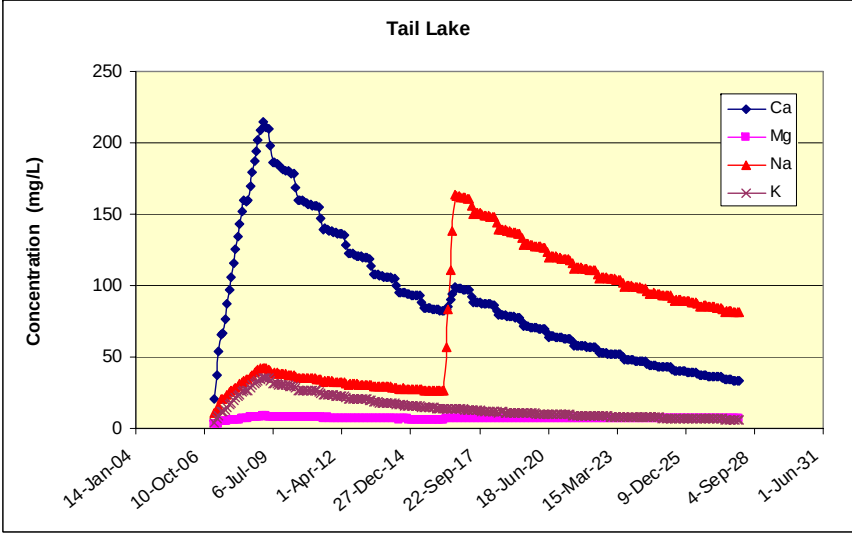
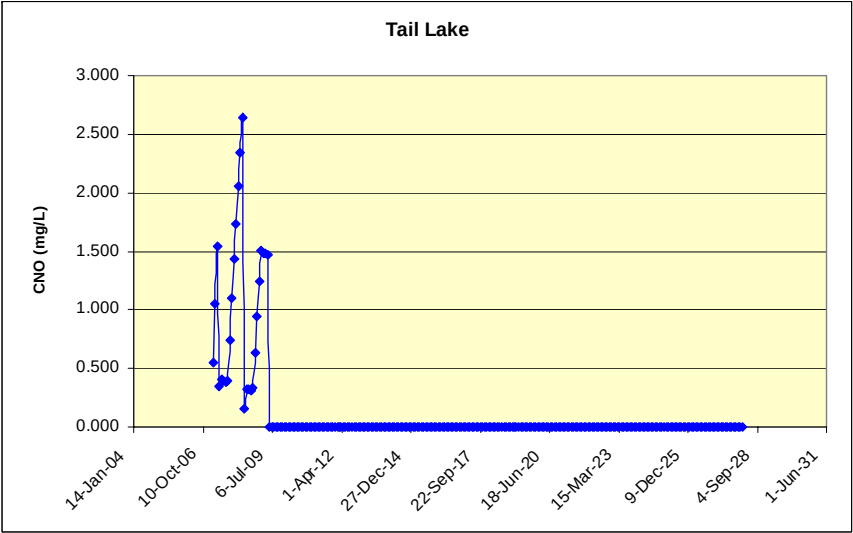
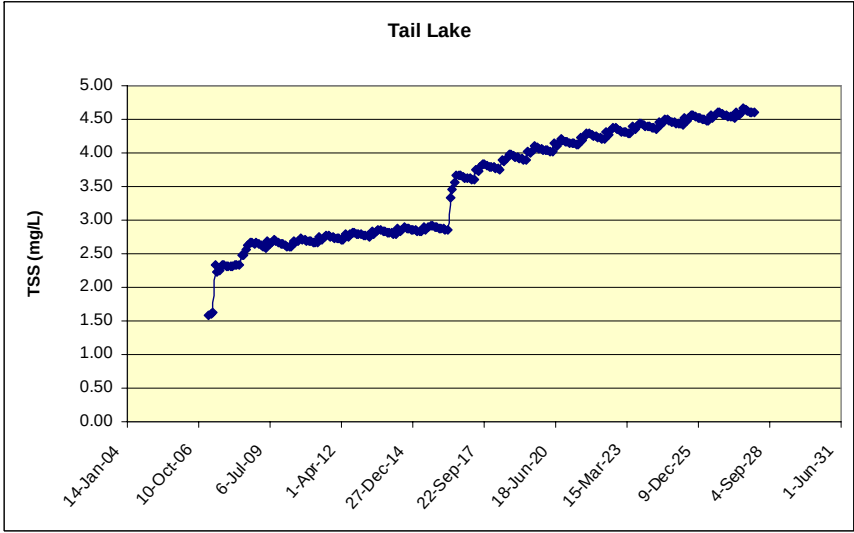
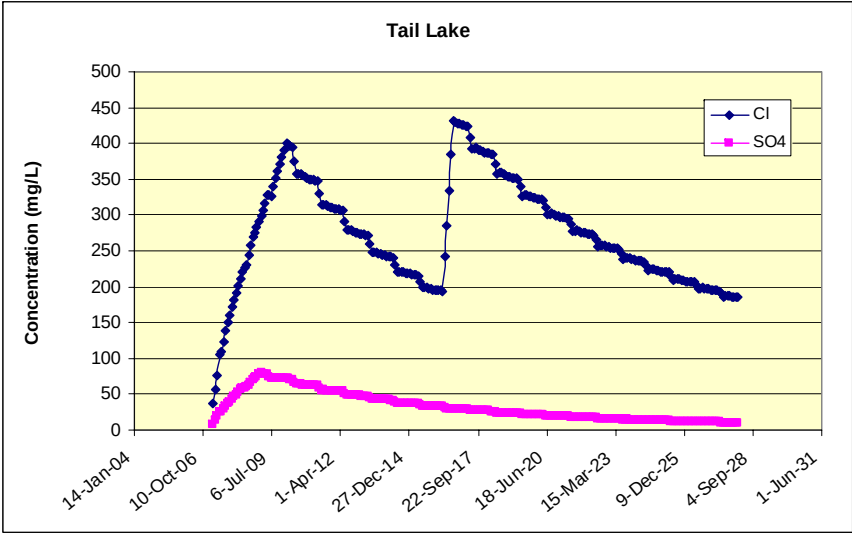
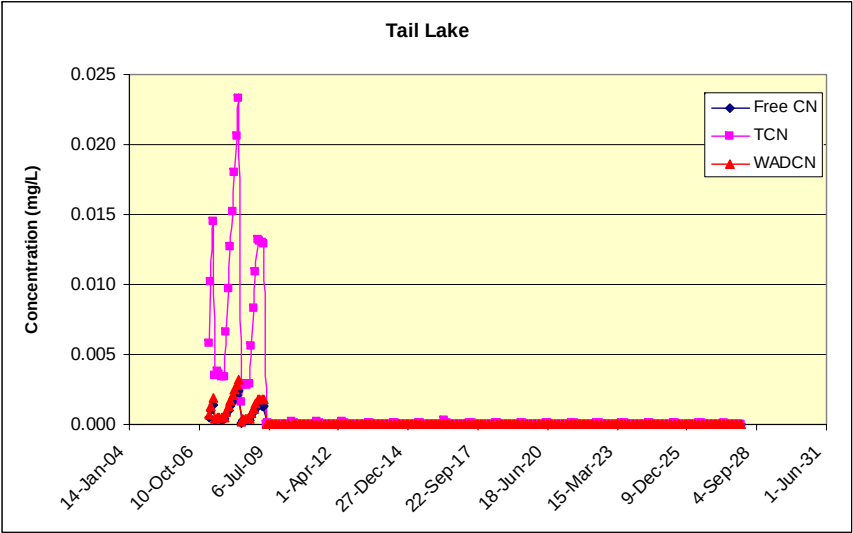


POST CLOSURE CONDITIONS

Year 21



Scenario 9



Scenario 9

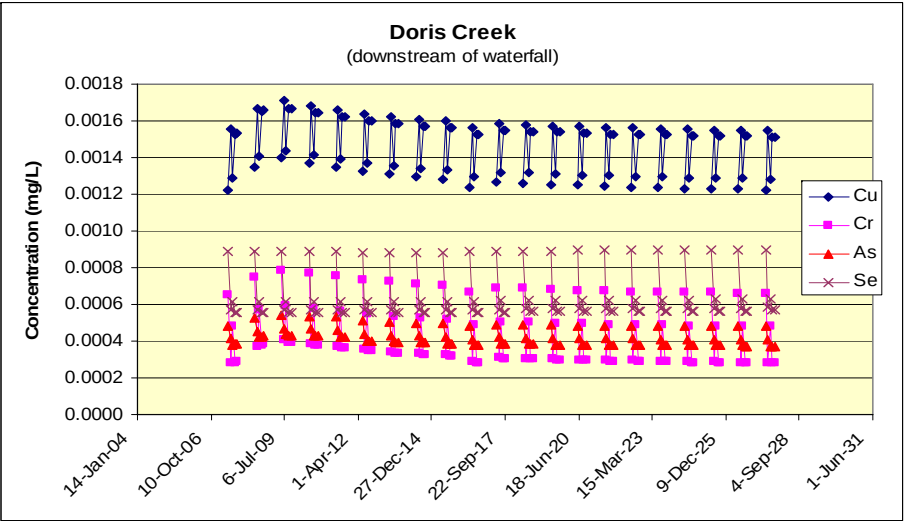
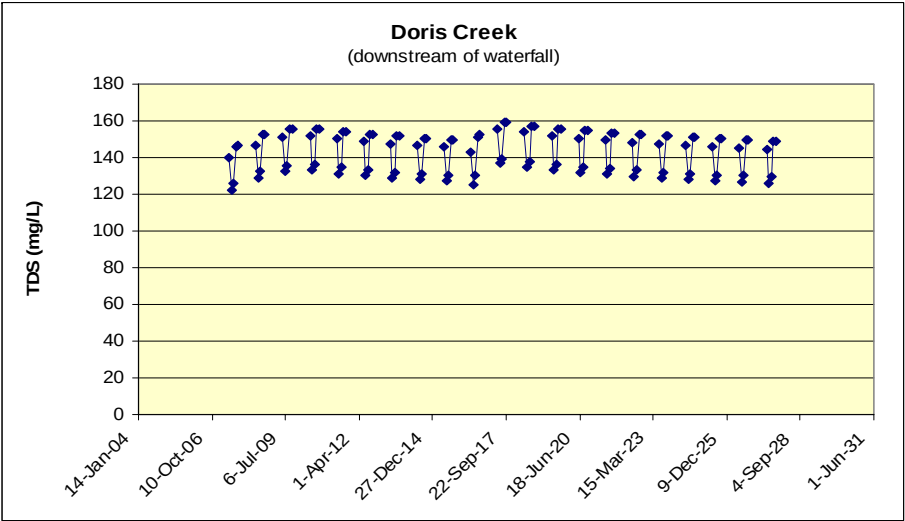
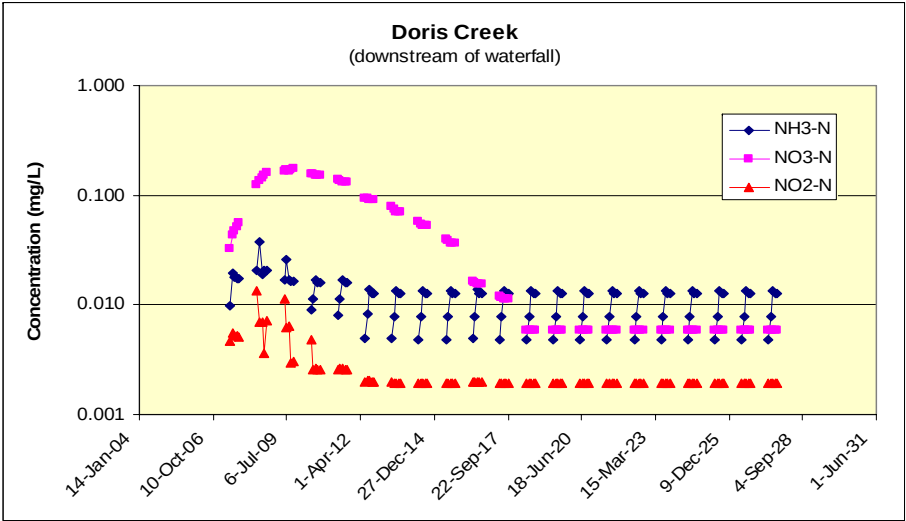
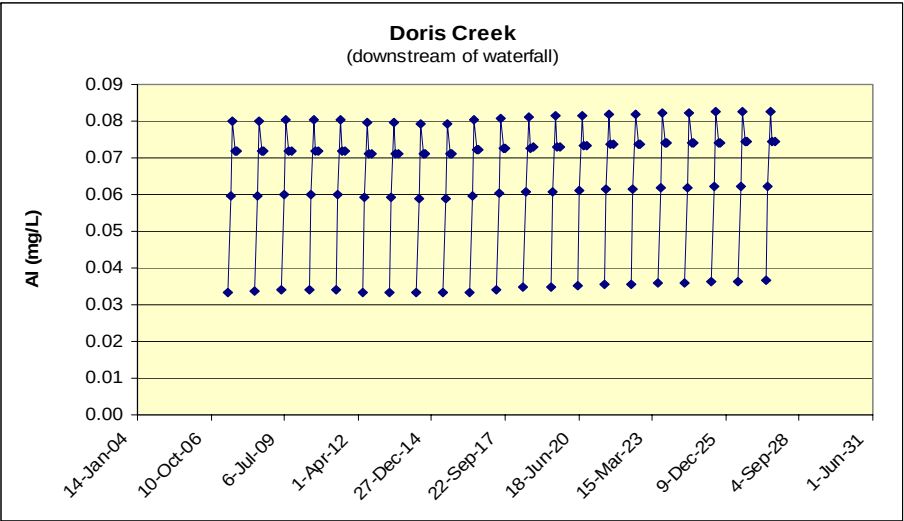
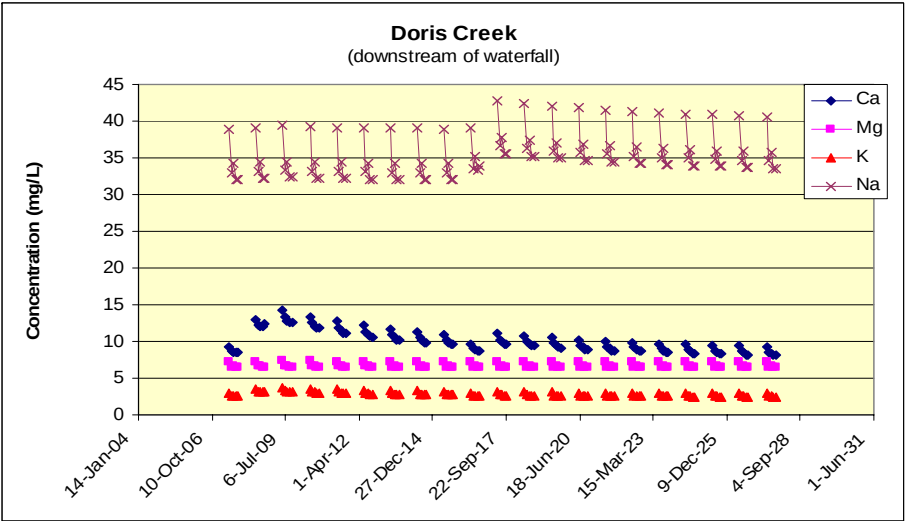
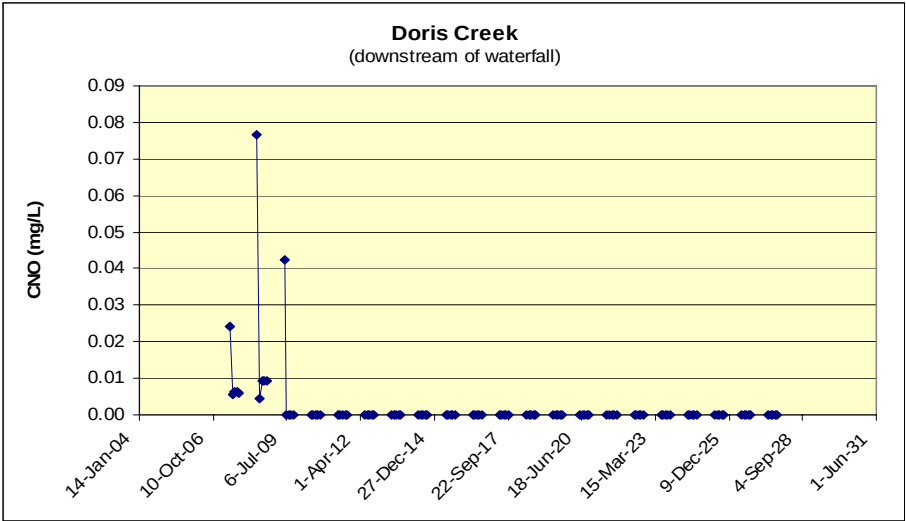
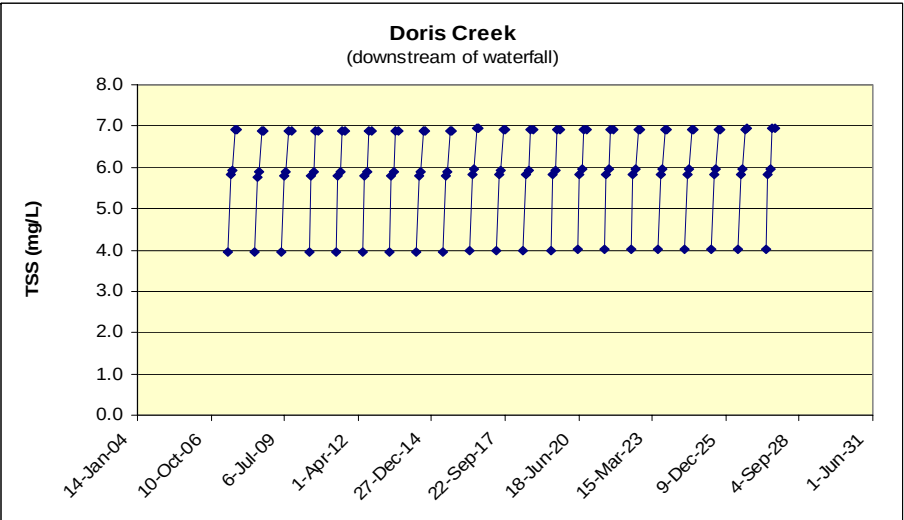
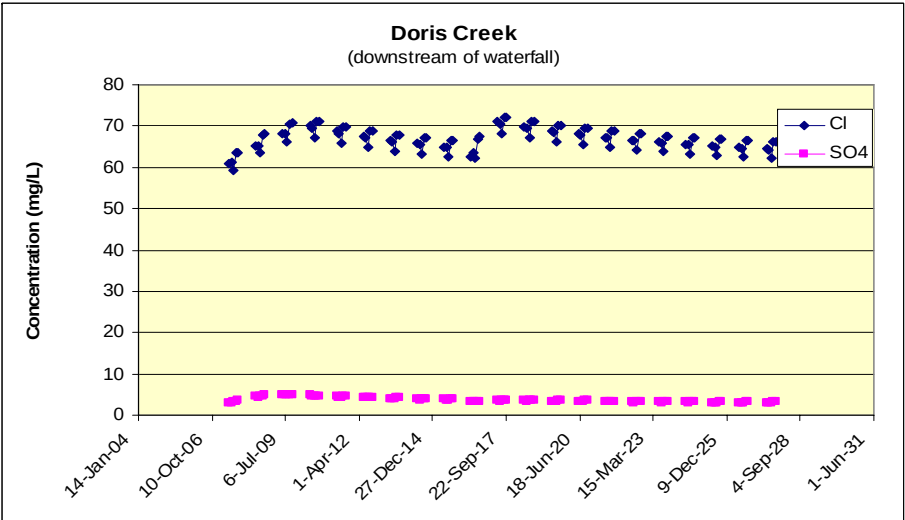
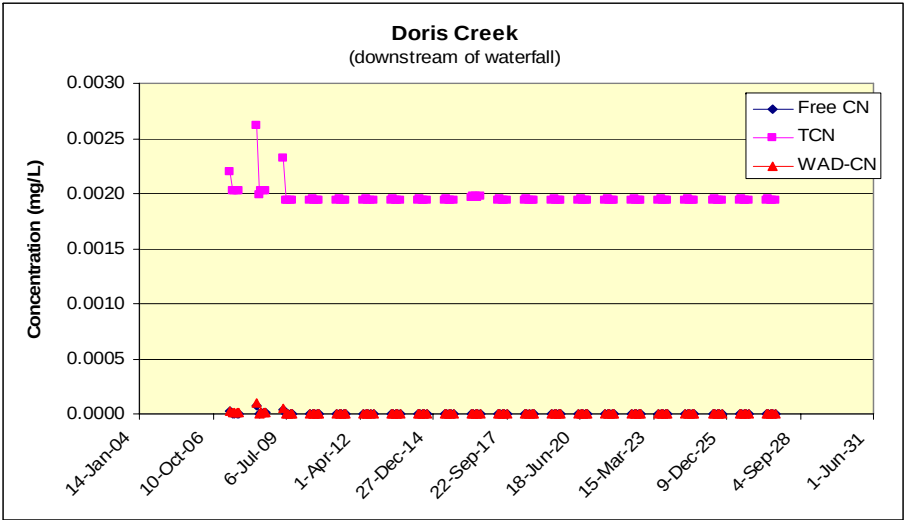


Table H-9-A-1
Scenario 9

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate		500000 m³/year					
Degradation Field(age)		Tail Lk Cu < CME Year 22					
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			694	159	169	
TSS	mg/L			4.7	6.9	8.1	
Free CN	mg/L		0.005	0.0024	0.00007	0.00003	1%
Total CN	mg/L	1.0		0.023	0.003	0.002	
WAD CN	mg/L			0.0032	0.0001	0.0000	
CNO	mg/L			2.6	0.08	0.04	
SCN	mg/L			0.086	0.002	0.001	
Sulphate	mg/L			79	5.0	5.7	
Chloride	mg/L			432	72	71	
Total Ammonia	mg/L		0.97	0.93	0.038	0.020	4%
Nitrate	mg/L		2.9	4.9	0.17	0.09	6%
Nitrite	mg/L		0.018	0.37	0.013	0.008	73%
Alkalinity	mg/L			51	28	26	
OrthoPhosphate-P	mg/L			0.1509	0.0050	0.0032	
Phosphate-P	mg/L			0.1542	0.0273	0.0262	
Org. Carbon	mg/L			6.3	7.5	7.1	
Hardness CaCO3	mg/L			98	47	45	
Total Metals							
Aluminum Al	mg/L		0.1	0.15	0.08	0.25	83%
Antimony Sb	mg/L			0.0138	0.0031	0.0019	
Arsenic As	mg/L	0.5	0.005	0.00	0.0005	0.0006	11%
Barium Ba	mg/L			0.0093	0.0033	0.0052	
Beryllium Be	mg/L			0.00055	0.00002	0.00002	
Bismuth Bi	mg/L			0.01325	0.00041	0.00029	
Boron B	mg/L			0.032	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000048	0.0000046	0.0000155	12%
Calcium Ca	mg/L			215	14	11	
Chromium Cr	mg/L		0.001	0.0057	0.0008	0.001	79%
Cobalt Co	mg/L			0.0089	0.0011	0.0005	
Copper Cu	mg/L	0.3	0.002	0.008	0.00171	0.0019	86%
Iron Fe	mg/L		0.3	0.18	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00036	0.00007	0.00026	4%
Lithium Li	mg/L			0.0049	0.0029	0.0029	
Magnesium Mg	mg/L			8.4	7.3	7.2	
Manganese Mn	mg/L			0.025	0.021	0.024	
Mercury Hg	mg/L		0.0001	0.0000116	0.00000092	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0078	0.00037	0.00033	1%
Nickel Ni	mg/L	0.5	0.025	0.007	0.0008	0.0007	3%
Phosphorus P	mg/L			0.224	0.030	0.027	
Potassium K	mg/L			36	3.8	3.2	
Selenium Se	mg/L		0.001	0.00095	0.0009	0.00083	90%
Silicon SiO2	mg/L			3.5	0.59	0.55	
Silver Ag	mg/L		0.0001	0.00011	0.0000052	0.0000053	5%
Sodium Na	mg/L			164	43	40	
Strontium Sr	mg/L			0.079	0.043	0.046	
Tellurium Te	mg/L			0.051	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000040	0.000031	0.0020	4%
Thorium Th	mg/L			0.000042	0.0000023	0.0000012	
Tin Sn	mg/L			0.00211	0.00045	0.00003	
Titanium Ti	mg/L			0.0136	0.0062	0.0062	
Uranium U	mg/L			0.000071	0.000040	0.000044	
Vanadium V	mg/L			0.0031	0.0006	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.020	0.0036	0.0054	12%
Zirconium Zr	mg/L			0.0052	0.0050	0.0051	

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	155	199	199	216	240	258	274	292	310	325
TSS	mg/L	1.6	1.6	1.6	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Free CN	mg/L	0.00050	0.00096	0.00140	0.00031	0.00037	0.00036	0.00035	0.00035	0.00068	0.00100	0.00131	0.00157
Total CN	mg/L	0.006	0.010	0.014	0.003	0.004	0.004	0.003	0.003	0.007	0.010	0.013	0.015
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0004	0.0005	0.0005	0.0005	0.0005	0.0009	0.0013	0.0017	0.0021
CNO	mg/L	0.55	1.05	1.54	0.35	0.41	0.40	0.38	0.39	0.74	1.10	1.44	1.73
SCN	mg/L	0.008	0.014	0.021	0.025	0.026	0.030	0.034	0.038	0.042	0.046	0.050	0.053
Sulphate	mg/L	7.5	13.4	19.1	24.7	25.7	29.2	33.4	36.8	39.9	43.4	46.7	49.6
Chloride	mg/L	37	57	76	105	110	123	138	150	160	171	182	191
Total Ammonia	mg/L	0.070	0.132	0.193	0.610	0.152	0.192	0.194	0.177	0.217	0.257	0.296	0.330
Nitrate	mg/L	0.35	0.57	0.80	1.48	1.71	1.98	2.32	2.55	2.62	2.72	2.82	2.89
Nitrite	mg/L	0.054	0.102	0.149	0.207	0.185	0.182	0.180	0.179	0.208	0.239	0.268	0.294
Alkalinity	mg/L	16	18	21	28	28	29	31	32	33	35	36	37
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0280	0.0337	0.0344	0.0394	0.0449	0.0501	0.0549	0.0601	0.0651	0.0695
Phosphate-P	mg/L	0.0142	0.0228	0.0313	0.0385	0.0386	0.0433	0.0488	0.0538	0.0584	0.0635	0.0685	0.0728
Org. Carbon	mg/L	3.0	2.9	2.8	4.1	4.0	3.9	4.0	3.9	3.7	3.7	3.6	3.5
Hardness CaCO3	mg/L	23	29	35	45	46	49	54	57	59	63	66	68
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0007	0.0012	0.0017	0.0035	0.0040	0.0045	0.0052	0.0055	0.0057	0.0060	0.0063	0.0065
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0009	0.0010	0.0011	0.0012	0.0013	0.0014	0.0015	0.0015
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0036	0.0036	0.0040	0.0045	0.0049	0.0052	0.0055	0.0059	0.0062
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00026	0.00027	0.00028	0.00030	0.00031	0.00031	0.00032	0.00032	0.00033
Bismuth Bi	mg/L	0.00057	0.00108	0.00158	0.00329	0.00377	0.00423	0.00486	0.00519	0.00539	0.00563	0.00587	0.00608
Boron B	mg/L	0.007	0.008	0.009	0.014	0.014	0.015	0.016	0.017	0.017	0.018	0.018	0.018
Cadmium Cd	mg/L	0.0000044	0.0000074	0.0000104	0.0000162	0.0000175	0.0000197	0.0000224	0.0000243	0.0000257	0.0000274	0.0000290	0.0000304
Calcium Ca	mg/L	21	38	54	66	67	77	87	97	106	116	126	134
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0027	0.0028	0.0032	0.0036	0.0040	0.0044	0.0048	0.0052	0.0056
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0029	0.0029	0.0033	0.0037	0.0040	0.0043	0.0046	0.0050	0.0053
Iron Fe	mg/L	0.02	0.02	0.03	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00014	0.00015	0.00016	0.00018	0.00019	0.00020	0.00021	0.00022	0.00023
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0031	0.0030	0.0031	0.0033	0.0034	0.0034	0.0034	0.0035	0.0036
Magnesium Mg	mg/L	2.5	2.9	3.3	4.6	4.6	4.9	5.3	5.5	5.6	5.8	6.0	6.2
Manganese Mn	mg/L	0.002	0.004	0.006	0.008	0.008	0.009	0.010	0.011	0.012	0.014	0.015	0.016
Mercury Hg	mg/L	0.0000006	0.0000009	0.0000012	0.0000019	0.0000020	0.0000022	0.0000025	0.0000026	0.0000028	0.0000029	0.0000031	0.0000032
Molybdenum Mo	mg/L	0.00072	0.00133	0.00193	0.00233	0.00239	0.00273	0.00312	0.00348	0.00381	0.00417	0.00452	0.00483
Nickel Ni	mg/L	0.0008	0.0013	0.0018	0.0024	0.0025	0.0028	0.0032	0.0035	0.0037	0.0040	0.0043	0.0046
Phosphorus P	mg/L	0.020	0.033	0.047	0.061	0.063	0.071	0.080	0.089	0.096	0.104	0.111	0.118
Potassium K	mg/L	3.8	6.6	9.3	11.3	11.5	13.1	14.9	16.5	17.9	19.6	21.1	22.5
Selenium Se	mg/L	0.00022	0.00022	0.00023	0.00034	0.00034	0.00034	0.00036	0.00036	0.00036	0.00036	0.00036	0.00036
Silicon SiO2	mg/L	0.70	0.92	1.13	1.51	1.51	1.63	1.80	1.93	2.03	2.15	2.27	2.37
Silver Ag	mg/L	0.0000525	0.0000535	0.0000545	0.0000851	0.0000842	0.0000823	0.0000834	0.0000828	0.0000819	0.0000817	0.0000817	0.0000816
Sodium Na	mg/L	11	13	15	20	20	22	24	25	26	28	29	30
Strontium Sr	mg/L	0.017	0.021	0.026	0.034	0.035	0.037	0.041	0.044	0.046	0.049	0.052	0.054
Tellurium Te	mg/L	0.025	0.024	0.023	0.034	0.032	0.032	0.033	0.032	0.031	0.030	0.029	0.029
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000028	0.000027	0.000028	0.000030	0.000030	0.000030	0.000030	0.000031	0.000031
Thorium Th	mg/L				0.000007	0.000009	0.000010	0.000012	0.000012	0.000011	0.000011	0.000011	0.000011
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00057	0.00066	0.00073	0.00084	0.00089	0.00091	0.00095	0.00098	0.00101
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0043	0.0042	0.0041	0.0043	0.0042	0.0041	0.0040	0.0039	0.0039
Uranium U	mg/L	0.000025	0.000024	0.000024	0.000042	0.000042	0.000041	0.000042	0.000041	0.000040	0.000039	0.000038	0.000038
Vanadium V	mg/L	0.0004	0.0005	0.0007	0.0011	0.0012	0.0013	0.0014	0.0015	0.0016	0.0016	0.0017	0.0018
Zinc Zn	mg/L	0.0020	0.0034	0.0048	0.0062	0.0064	0.0073	0.0086	0.0095	0.0102	0.0111	0.0119	0.0126
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0036	0.0034	0.0034	0.0035	0.0034	0.0033	0.0032	0.0032	0.0031

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	342	358	374	377	378	399	418	436	448	461	474	485
TSS	mg/L	2.3	2.3	2.3	2.5	2.5	2.6	2.6	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L	0.00186	0.00213	0.00240	0.00015	0.00029	0.00029	0.00029	0.00030	0.00058	0.00086	0.00113	0.00137
Total CN	mg/L	0.018	0.021	0.023	0.002	0.003	0.003	0.003	0.003	0.006	0.008	0.011	0.013
WAD CN	mg/L	0.0025	0.0028	0.0032	0.0002	0.0004	0.0004	0.0004	0.0004	0.0008	0.0011	0.0015	0.0018
CNO	mg/L	2.05	2.35	2.64	0.16	0.32	0.32	0.31	0.33	0.64	0.95	1.24	1.51
SCN	mg/L	0.057	0.060	0.064	0.063	0.063	0.067	0.071	0.075	0.077	0.080	0.083	0.086
Sulphate	mg/L	52.8	55.7	58.7	59.1	59.6	63.4	67.0	70.2	72.5	74.9	77.3	79.4
Chloride	mg/L	202	212	222	227	230	244	258	269	276	284	292	298
Total Ammonia	mg/L	0.367	0.402	0.436	0.932	0.081	0.158	0.161	0.150	0.186	0.222	0.257	0.288
Nitrate	mg/L	2.99	3.08	3.16	3.66	3.82	4.23	4.49	4.71	4.74	4.79	4.84	4.88
Nitrite	mg/L	0.322	0.348	0.374	0.155	0.157	0.039	0.162	0.160	0.187	0.215	0.241	0.264
Alkalinity	mg/L	38	40	41	42	42	44	46	47	48	49	50	51
OrthoPhosphate-P	mg/L	0.0743	0.0788	0.0833	0.0826	0.0827	0.0879	0.0928	0.0974	0.1010	0.1047	0.1084	0.1116
Phosphate-P	mg/L	0.0776	0.0820	0.0864	0.0861	0.0861	0.0914	0.0962	0.1008	0.1043	0.1080	0.1116	0.1147
Org. Carbon	mg/L	3.4	3.4	3.3	3.6	3.6	3.7	3.7	3.7	3.6	3.6	3.5	3.5
Hardness CaCO3	mg/L	71	74	77	78	78	82	86	89	92	94	96	98
Total Metals													
Aluminum Al	mg/L	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0067	0.0070	0.0072	0.0079	0.0083	0.0089	0.0094	0.0098	0.0099	0.0101	0.0103	0.0104
Arsenic As	mg/L	0.0016	0.0017	0.0018	0.0018	0.0019	0.0020	0.0021	0.0022	0.0022	0.0023	0.0024	0.0024
Barium Ba	mg/L	0.0065	0.0068	0.0071	0.0072	0.0072	0.0077	0.0081	0.0084	0.0086	0.0089	0.0091	0.0093
Beryllium Be	mg/L	0.00034	0.00035	0.00035	0.00039	0.00040	0.00042	0.00044	0.00045	0.00046	0.00046	0.00046	0.00047
Bismuth Bi	mg/L	0.00632	0.00654	0.00676	0.00749	0.00786	0.00838	0.00894	0.00926	0.00939	0.00954	0.00969	0.00982
Boron B	mg/L	0.019	0.019	0.020	0.021	0.021	0.023	0.024	0.024	0.024	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000320	0.0000334	0.0000349	0.0000366	0.0000376	0.0000400	0.0000424	0.0000441	0.0000452	0.0000463	0.0000474	0.0000484
Calcium Ca	mg/L	143	152	160	159	160	170	179	188	194	202	209	215
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.006	0.006
Cobalt Co	mg/L	0.0059	0.0063	0.0066	0.0066	0.0067	0.0071	0.0075	0.0078	0.0081	0.0084	0.0087	0.0089
Copper Cu	mg/L	0.0056	0.0059	0.0062	0.0062	0.0062	0.0066	0.0069	0.0073	0.0075	0.0077	0.0080	0.0082
Iron Fe	mg/L	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00024	0.00025	0.00025	0.00027	0.00028	0.00030	0.00031	0.00032	0.00033	0.00034	0.00034	0.00035
Lithium Li	mg/L	0.0036	0.0037	0.0037	0.0039	0.0040	0.0041	0.0043	0.0044	0.0044	0.0044	0.0045	0.0045
Magnesium Mg	mg/L	6.4	6.5	6.7	7.0	7.0	7.4	7.7	7.9	8.0	8.2	8.3	8.4
Manganese Mn	mg/L	0.017	0.017	0.018	0.018	0.018	0.020	0.021	0.022	0.023	0.023	0.024	0.025
Mercury Hg	mg/L	0.0000034	0.0000035	0.0000037	0.0000039	0.0000040	0.0000042	0.0000044	0.0000046	0.0000047	0.0000048	0.0000049	0.0000050
Molybdenum Mo	mg/L	0.00516	0.00547	0.00579	0.00574	0.00576	0.00612	0.00646	0.00678	0.00703	0.00729	0.00755	0.00777
Nickel Ni	mg/L	0.0048	0.0051	0.0054	0.0054	0.0055	0.0058	0.0061	0.0064	0.0066	0.0068	0.0070	0.0072
Phosphorus P	mg/L	0.125	0.132	0.139	0.141	0.142	0.151	0.159	0.166	0.172	0.177	0.183	0.188
Potassium K	mg/L	24.0	25.4	26.8	26.6	26.7	28.4	29.9	31.4	32.5	33.6	34.8	35.8
Selenium Se	mg/L	0.00037	0.00037	0.00037	0.00040	0.00041	0.00042	0.00043	0.00044	0.00044	0.00044	0.00045	0.00045
Silicon SiO2	mg/L	2.49	2.59	2.70	2.75	2.77	2.92	3.06	3.18	3.26	3.35	3.43	3.51
Silver Ag	mg/L	0.0000818	0.0000819	0.0000821	0.0000915	0.0000941	0.0000963	0.0000987	0.0000997	0.0000992	0.0000990	0.0000988	0.0000986
Sodium Na	mg/L	31	32	34	34	34	36	38	39	40	41	42	42
Strontium Sr	mg/L	0.057	0.059	0.061	0.062	0.062	0.066	0.069	0.072	0.074	0.075	0.077	0.079
Tellurium Te	mg/L	0.028	0.028	0.027	0.030	0.030	0.030	0.031	0.031	0.030	0.030	0.029	0.029
Thallium Tl	mg/L	0.000032	0.000032	0.000033	0.000035	0.000035	0.000037	0.000038	0.000039	0.000039	0.000039	0.000039	0.000040
Thorium Th	mg/L	0.000010	0.000010	0.000010	0.000014	0.000016	0.000017	0.000018	0.000019	0.000018	0.000018	0.000018	0.000017
Tin Sn	mg/L	0.00104	0.00107	0.00110	0.00122	0.00129	0.00137	0.00146	0.00151	0.00152	0.00154	0.00156	0.00158
Titanium Ti	mg/L	0.0038	0.0038	0.0038	0.0041	0.0041	0.0042	0.0043	0.0043	0.0043	0.0042	0.0042	0.0041
Uranium U	mg/L	0.000037	0.000037	0.000036	0.000043	0.000045	0.000046	0.000047	0.000047	0.000046	0.000046	0.000045	0.000044
Vanadium V	mg/L	0.0018	0.0019	0.0020	0.0021	0.0022	0.0023	0.0024	0.0025	0.0026	0.0026	0.0027	0.0027
Zinc Zn	mg/L	0.0133	0.0141	0.0148	0.0148	0.0149	0.0159	0.0168	0.0176	0.0182	0.0188	0.0194	0.0199
Zirconium Zr	mg/L	0.0030	0.0030	0.0029	0.0032	0.0033	0.0034	0.0034	0.0034	0.0034	0.0033	0.0032	0.0032

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	492	501	511	502	490	502	513	521	529	539	548	557
TSS	mg/L	2.6	2.6	2.6	2.7	2.6	2.7	2.7	2.7	2.7	2.7	2.6	2.6
Free CN	mg/L	0.00135	0.00134	0.00134									
Total CN	mg/L	0.013	0.013	0.013			0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0018	0.0018	0.0018									
CNO	mg/L	1.49	1.48	1.47									
SCN	mg/L	0.085	0.084	0.084	0.079	0.074	0.074	0.073	0.073	0.072	0.072	0.071	0.071
Sulphate	mg/L	78.7	78.6	78.5	75.1	71.7	72.1	72.3	72.1	71.9	71.7	71.7	71.6
Chloride	mg/L	307	317	328	329	327	340	352	362	371	381	391	400
Total Ammonia	mg/L	0.290	0.295	0.299	0.517	0.009	0.014	0.017	0.010	0.016	0.022	0.027	0.033
Nitrate	mg/L	4.76	4.68	4.60	4.76	4.65	4.84	4.92	4.92	4.83	4.75	4.67	4.60
Nitrite	mg/L	0.277	0.291	0.306	0.127	0.134	0.016	0.019	0.018	0.033	0.049	0.064	0.078
Alkalinity	mg/L	50	50	50	49	47	47	47	47	47	46	46	46
OrthoPhosphate-P	mg/L	0.1155	0.1201	0.1248	0.1226	0.1207	0.1256	0.1300	0.1341	0.1382	0.1425	0.1469	0.1509
Phosphate-P	mg/L	0.1186	0.1232	0.1279	0.1261	0.1241	0.1290	0.1334	0.1375	0.1415	0.1458	0.1502	0.1542
Org. Carbon	mg/L	3.4	3.4	3.4	3.7	3.7	3.8	3.8	3.8	3.8	3.8	3.7	3.7
Hardness CaCO3	mg/L	97	96	96	93	89	89	89	88	88	87	87	86
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0106	0.0108	0.0111	0.0115	0.0117	0.0122	0.0127	0.0129	0.0131	0.0133	0.0136	0.0138
Arsenic As	mg/L	0.0024	0.0024	0.0024	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Barium Ba	mg/L	0.0092	0.0092	0.0092	0.0088	0.0084	0.0085	0.0085	0.0084	0.0084	0.0083	0.0083	0.0083
Beryllium Be	mg/L	0.00047	0.00047	0.00048	0.00050	0.00050	0.00051	0.00053	0.00053	0.00054	0.00054	0.00054	0.00055
Bismuth Bi	mg/L	0.01000	0.01024	0.01049	0.01098	0.01114	0.01162	0.01213	0.01241	0.01260	0.01282	0.01305	0.01325
Boron B	mg/L	0.025	0.025	0.025	0.025	0.025	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Cadmium Cd	mg/L	0.0000478	0.0000476	0.0000473	0.0000459	0.0000441	0.0000444	0.0000446	0.0000443	0.0000440	0.0000438	0.0000436	0.0000434
Calcium Ca	mg/L	212	211	210	198	187	186	186	184	183	182	181	180
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0088	0.0088	0.0088	0.0083	0.0079	0.0079	0.0079	0.0078	0.0078	0.0077	0.0077	0.0077
Copper Cu	mg/L	0.0081	0.0081	0.0080	0.0076	0.0073	0.0073	0.0072	0.0072	0.0071	0.0071	0.0071	0.0070
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00035	0.00035	0.00035	0.00035	0.00034	0.00035	0.00035	0.00035	0.00035	0.00036	0.00036	0.00036
Lithium Li	mg/L	0.0045	0.0045	0.0045	0.0045	0.0044	0.0045	0.0046	0.0045	0.0045	0.0045	0.0045	0.0045
Magnesium Mg	mg/L	8.4	8.3	8.3	8.3	8.1	8.2	8.2	8.2	8.2	8.2	8.1	8.1
Manganese Mn	mg/L	0.024	0.024	0.024	0.023	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.021
Mercury Hg	mg/L	0.0000050	0.0000049	0.0000049	0.0000048	0.0000046	0.0000047	0.0000047	0.0000047	0.0000046	0.0000046	0.0000046	0.0000046
Molybdenum Mo	mg/L	0.00767	0.00763	0.00759	0.00716	0.00675	0.00674	0.00671	0.00665	0.00660	0.00656	0.00653	0.00650
Nickel Ni	mg/L	0.0071	0.0071	0.0071	0.0069	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066
Phosphorus P	mg/L	0.191	0.196	0.200	0.197	0.192	0.198	0.203	0.207	0.211	0.215	0.220	0.224
Potassium K	mg/L	35.3	35.1	35.0	33.0	31.2	31.1	31.0	30.7	30.5	30.3	30.1	30.0
Selenium Se	mg/L	0.00044	0.00044	0.00044	0.00045	0.00044	0.00044	0.00045	0.00045	0.00044	0.00044	0.00044	0.00044
Silicon SiO2	mg/L	3.46	3.45	3.43	3.32	3.17	3.18	3.19	3.17	3.14	3.13	3.11	3.10
Silver Ag	mg/L	0.0000980	0.0000980	0.0000981	0.0001044	0.0001047	0.0001058	0.0001070	0.0001070	0.0001067	0.0001067	0.0001067	0.0001068
Sodium Na	mg/L	42	42	41	40	39	39	39	39	38	38	38	38
Strontium Sr	mg/L	0.078	0.078	0.077	0.075	0.072	0.072	0.072	0.072	0.071	0.071	0.071	0.070
Tellurium Te	mg/L	0.028	0.028	0.028	0.030	0.030	0.031	0.032	0.031	0.031	0.031	0.031	0.031
Thallium Tl	mg/L	0.000039	0.000039	0.000039	0.000039	0.000039	0.000039	0.000039	0.000039	0.000039	0.000039	0.000038	0.000038
Thorium Th	mg/L	0.000017	0.000017	0.000017	0.000018	0.000019	0.000019	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020
Tin Sn	mg/L	0.00160	0.00164	0.00168	0.00176	0.00179	0.00186	0.00194	0.00199	0.00202	0.00205	0.00208	0.00211
Titanium Ti	mg/L	0.0041	0.0041	0.0041	0.0044	0.0044	0.0045	0.0046	0.0046	0.0046	0.0045	0.0045	0.0045
Uranium U	mg/L	0.000044	0.000044	0.000044	0.000048	0.000048	0.000049	0.000050	0.000050	0.000050	0.000049	0.000049	0.000049
Vanadium V	mg/L	0.0027	0.0028	0.0028	0.0028	0.0028	0.0029	0.0030	0.0030	0.0030	0.0030	0.0031	0.0031
Zinc Zn	mg/L	0.0197	0.0196	0.0196	0.0187	0.0178	0.0178	0.0180	0.0179	0.0178	0.0178	0.0177	0.0177
Zirconium Zr	mg/L	0.0031	0.0031	0.0031	0.0034	0.0034	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0034

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	554	553	551	529	505	506	506	503	501	499	497	496
TSS	mg/L	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.071	0.071	0.070	0.066	0.063	0.063	0.063	0.062	0.062	0.062	0.061	0.061
Sulphate	mg/L	71.3	71.1	70.9	67.2	63.7	63.7	63.6	63.1	62.8	62.6	62.4	62.3
Chloride	mg/L	398	397	395	376	357	358	357	355	353	352	350	350
Total Ammonia	mg/L	0.033	0.033	0.032	0.013	0.008	0.004	0.005	0.002	0.002	0.002	0.002	0.002
Nitrate	mg/L	4.52	4.44	4.37	4.31	4.15	4.18	4.21	4.19	4.11	4.04	3.97	3.90
Nitrite	mg/L	0.078	0.078	0.077	0.002	0.003	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	46	46	45	45	44	44	44	44	44	44	43	43
OrthoPhosphate-P	mg/L	0.1503	0.1498	0.1494	0.1413	0.1338	0.1338	0.1334	0.1325	0.1318	0.1313	0.1309	0.1306
Phosphate-P	mg/L	0.1536	0.1531	0.1526	0.1449	0.1373	0.1374	0.1370	0.1360	0.1354	0.1349	0.1344	0.1342
Org. Carbon	mg/L	3.7	3.7	3.7	4.0	4.0	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Hardness CaCO3	mg/L	86	86	85	83	80	81	81	81	80	80	80	80
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0137	0.0137	0.0136	0.0129	0.0122	0.0122	0.0122	0.0121	0.0121	0.0120	0.0120	0.0119
Arsenic As	mg/L	0.0022	0.0022	0.0022	0.0021	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Barium Ba	mg/L	0.0082	0.0082	0.0082	0.0079	0.0075	0.0076	0.0076	0.0075	0.0075	0.0075	0.0074	0.0074
Beryllium Be	mg/L	0.00055	0.00054	0.00054	0.00053	0.00052	0.00052	0.00052	0.00051	0.00051	0.00051	0.00051	0.00051
Bismuth Bi	mg/L	0.01320	0.01316	0.01312	0.01240	0.01174	0.01174	0.01171	0.01162	0.01157	0.01152	0.01149	0.01146
Boron B	mg/L	0.026	0.026	0.026	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000432	0.0000431	0.0000430	0.0000419	0.0000405	0.0000408	0.0000411	0.0000410	0.0000408	0.0000406	0.0000405	0.0000404
Calcium Ca	mg/L	179	179	178	169	160	160	160	159	158	157	157	156
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004
Cobalt Co	mg/L	0.0077	0.0076	0.0076	0.0072	0.0068	0.0068	0.0068	0.0068	0.0067	0.0067	0.0067	0.0067
Copper Cu	mg/L	0.0070	0.0070	0.0070	0.0067	0.0063	0.0064	0.0063	0.0063	0.0063	0.0063	0.0062	0.0062
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00036	0.00036	0.00035	0.00034	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033
Lithium Li	mg/L	0.0045	0.0045	0.0044	0.0045	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044
Magnesium Mg	mg/L	8.1	8.1	8.1	7.9	7.7	7.7	7.8	7.8	7.7	7.7	7.7	7.6
Manganese Mn	mg/L	0.021	0.021	0.021	0.020	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Mercury Hg	mg/L	0.0000045	0.0000045	0.0000045	0.0000044	0.0000043	0.0000043	0.0000043	0.0000043	0.0000043	0.0000043	0.0000042	0.0000042
Molybdenum Mo	mg/L	0.00648	0.00646	0.00644	0.00609	0.00577	0.00577	0.00575	0.00571	0.00568	0.00566	0.00564	0.00563
Nickel Ni	mg/L	0.0065	0.0065	0.0065	0.0062	0.0059	0.0059	0.0059	0.0058	0.0058	0.0058	0.0058	0.0058
Phosphorus P	mg/L	0.223	0.222	0.222	0.211	0.200	0.200	0.200	0.199	0.198	0.197	0.196	0.196
Potassium K	mg/L	29.9	29.8	29.7	28.2	26.7	26.8	26.7	26.5	26.4	26.3	26.2	26.1
Selenium Se	mg/L	0.00043	0.00043	0.00043	0.00044	0.00044	0.00044	0.00045	0.00045	0.00044	0.00044	0.00044	0.00044
Silicon SiO2	mg/L	3.09	3.08	3.07	2.98	2.86	2.88	2.88	2.87	2.85	2.84	2.83	2.83
Silver Ag	mg/L	0.0001063	0.0001060	0.0001057	0.0001093	0.0001080	0.0001084	0.0001087	0.0001081	0.0001076	0.0001072	0.0001069	0.0001066
Sodium Na	mg/L	38	37	37	36	35	35	36	35	35	35	35	35
Strontium Sr	mg/L	0.070	0.070	0.070	0.068	0.065	0.065	0.065	0.065	0.065	0.065	0.064	0.064
Tellurium Te	mg/L	0.031	0.031	0.030	0.033	0.033	0.033	0.034	0.034	0.034	0.034	0.034	0.033
Thallium Tl	mg/L	0.000038	0.000038	0.000038	0.000039	0.000038	0.000038	0.000039	0.000039	0.000039	0.000038	0.000038	0.000038
Thorium Th	mg/L	0.000020	0.000020	0.000020	0.000021	0.000021	0.000022	0.000023	0.000023	0.000023	0.000022	0.000022	0.000022
Tin Sn	mg/L	0.00210	0.00210	0.00209	0.00199	0.00189	0.00190	0.00190	0.00189	0.00188	0.00187	0.00186	0.00186
Titanium Ti	mg/L	0.0045	0.0045	0.0045	0.0047	0.0047	0.0047	0.0048	0.0048	0.0048	0.0048	0.0048	0.0047
Uranium U	mg/L	0.000049	0.000049	0.000049	0.000052	0.000053	0.000053	0.000054	0.000054	0.000054	0.000053	0.000053	0.000053
Vanadium V	mg/L	0.0031	0.0031	0.0031	0.0029	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0027	0.0027
Zinc Zn	mg/L	0.0176	0.0176	0.0175	0.0166	0.0158	0.0158	0.0159	0.0158	0.0157	0.0157	0.0156	0.0156
Zirconium Zr	mg/L	0.0034	0.0034	0.0034	0.0037	0.0037	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	495	494	492	474	454	455	455	453	450	449	447	446
TSS	mg/L	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.7	2.7	2.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.061	0.061	0.061	0.058	0.055	0.055	0.054	0.054	0.054	0.054	0.053	0.053
Sulphate	mg/L	62.1	62.0	61.8	58.6	55.7	55.7	55.6	55.2	54.9	54.7	54.6	54.5
Chloride	mg/L	349	348	347	330	315	315	315	313	311	310	309	308
Total Ammonia	mg/L	0.002	0.002	0.002	0.014	0.008	0.004	0.005	0.002	0.002	0.002	0.002	0.002
Nitrate	mg/L	3.83	3.76	3.69	3.60	3.48	3.51	3.54	3.53	3.45	3.38	3.31	3.25
Nitrite	mg/L	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	43	43	43	43	41	42	42	42	42	41	41	41
OrthoPhosphate-P	mg/L	0.1304	0.1300	0.1296	0.1227	0.1164	0.1164	0.1161	0.1153	0.1148	0.1143	0.1140	0.1138
Phosphate-P	mg/L	0.1339	0.1335	0.1331	0.1266	0.1201	0.1202	0.1199	0.1191	0.1185	0.1181	0.1177	0.1175
Org. Carbon	mg/L	4.1	4.0	4.0	4.3	4.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Hardness CaCO3	mg/L	79	79	79	77	75	75	76	75	75	74	74	74
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0119	0.0119	0.0118	0.0112	0.0106	0.0107	0.0106	0.0106	0.0105	0.0105	0.0104	0.0104
Arsenic As	mg/L	0.0020	0.0020	0.0020	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Barium Ba	mg/L	0.0074	0.0074	0.0074	0.0071	0.0068	0.0068	0.0068	0.0068	0.0068	0.0067	0.0067	0.0067
Beryllium Be	mg/L	0.00051	0.00050	0.00050	0.00049	0.00048	0.00048	0.00048	0.00048	0.00048	0.00047	0.00047	0.00047
Bismuth Bi	mg/L	0.01144	0.01141	0.01137	0.01076	0.01020	0.01021	0.01018	0.01011	0.01006	0.01002	0.00999	0.00997
Boron B	mg/L	0.025	0.025	0.025	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
Cadmium Cd	mg/L	0.0000403	0.0000402	0.0000401	0.0000392	0.0000379	0.0000383	0.0000386	0.0000384	0.0000382	0.0000381	0.0000380	0.0000379
Calcium Ca	mg/L	156	156	155	147	140	140	140	139	138	137	137	137
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0067	0.0066	0.0066	0.0063	0.0060	0.0060	0.0059	0.0059	0.0059	0.0059	0.0058	0.0058
Copper Cu	mg/L	0.0062	0.0062	0.0062	0.0059	0.0056	0.0057	0.0056	0.0056	0.0056	0.0056	0.0055	0.0055
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00033	0.00032	0.00032	0.00031	0.00030	0.00030	0.00031	0.00030	0.00030	0.00030	0.00030	0.00030
Lithium Li	mg/L	0.0043	0.0043	0.0043	0.0044	0.0042	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0042
Magnesium Mg	mg/L	7.6	7.6	7.6	7.5	7.3	7.3	7.4	7.3	7.3	7.3	7.3	7.2
Manganese Mn	mg/L	0.019	0.019	0.018	0.018	0.017	0.017	0.017	0.017	0.016	0.016	0.016	0.016
Mercury Hg	mg/L	0.0000042	0.0000042	0.0000042	0.0000041	0.0000040	0.0000040	0.0000040	0.0000040	0.0000040	0.0000040	0.0000040	0.0000040
Molybdenum Mo	mg/L	0.00562	0.00560	0.00559	0.00529	0.00502	0.00502	0.00501	0.00497	0.00495	0.00493	0.00492	0.00491
Nickel Ni	mg/L	0.0057	0.0057	0.0057	0.0054	0.0052	0.0052	0.0052	0.0051	0.0051	0.0051	0.0051	0.0051
Phosphorus P	mg/L	0.196	0.195	0.194	0.185	0.176	0.176	0.176	0.175	0.174	0.174	0.173	0.173
Potassium K	mg/L	26.1	26.0	25.9	24.7	23.4	23.5	23.4	23.3	23.1	23.1	23.0	22.9
Selenium Se	mg/L	0.00044	0.00044	0.00044	0.00045	0.00044	0.00045	0.00045	0.00045	0.00045	0.00045	0.00044	0.00044
Silicon SiO2	mg/L	2.82	2.81	2.81	2.73	2.63	2.64	2.65	2.64	2.63	2.62	2.61	2.60
Silver Ag	mg/L	0.0001064	0.0001061	0.0001058	0.0001093	0.0001081	0.0001085	0.0001088	0.0001082	0.0001077	0.0001073	0.0001070	0.0001067
Sodium Na	mg/L	35	35	35	34	33	33	33	33	33	33	33	33
Strontium Sr	mg/L	0.064	0.064	0.064	0.062	0.060	0.060	0.060	0.060	0.060	0.059	0.059	0.059
Tellurium Te	mg/L	0.033	0.033	0.033	0.035	0.035	0.036	0.036	0.036	0.036	0.036	0.036	0.036
Thallium Tl	mg/L	0.000038	0.000038	0.000038	0.000039	0.000038	0.000038	0.000039	0.000039	0.000039	0.000038	0.000038	0.000038
Thorium Th	mg/L	0.000022	0.000022	0.000022	0.000023	0.000023	0.000024	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025
Tin Sn	mg/L	0.00186	0.00185	0.00185	0.00176	0.00168	0.00168	0.00169	0.00168	0.00167	0.00166	0.00166	0.00165
Titanium Ti	mg/L	0.0047	0.0047	0.0047	0.0049	0.0049	0.0049	0.0050	0.0050	0.0050	0.0050	0.0049	0.0049
Uranium U	mg/L	0.000053	0.000053	0.000053	0.000056	0.000056	0.000057	0.000058	0.000058	0.000057	0.000057	0.000057	0.000057
Vanadium V	mg/L	0.0027	0.0027	0.0027	0.0026	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Zinc Zn	mg/L	0.0156	0.0155	0.0155	0.0147	0.0140	0.0140	0.0141	0.0140	0.0140	0.0139	0.0139	0.0138
Zirconium Zr	mg/L	0.0038	0.0038	0.0037	0.0040	0.0040	0.0040	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	445	444	443	428	410	411	412	409	407	406	405	404
TSS	mg/L	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.053	0.053	0.053	0.050	0.048	0.048	0.047	0.047	0.047	0.047	0.047	0.046
Sulphate	mg/L	54.3	54.2	54.0	51.4	48.8	48.9	48.8	48.5	48.3	48.1	47.9	47.8
Chloride	mg/L	308	307	306	292	278	279	279	277	275	274	274	273
Total Ammonia	mg/L	0.002	0.002	0.002	0.014	0.008	0.003	0.005	0.002	0.002	0.002	0.002	0.002
Nitrate	mg/L	3.18	3.11	3.05	2.99	2.91	2.94	2.97	2.96	2.89	2.82	2.75	2.69
Nitrite	mg/L	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	41	41	41	41	40	40	40	40	40	40	40	39
OrthoPhosphate-P	mg/L	0.1135	0.1132	0.1128	0.1070	0.1016	0.1017	0.1014	0.1008	0.1003	0.0999	0.0996	0.0994
Phosphate-P	mg/L	0.1172	0.1169	0.1165	0.1110	0.1055	0.1056	0.1054	0.1047	0.1042	0.1038	0.1035	0.1033
Org. Carbon	mg/L	4.3	4.3	4.3	4.5	4.6	4.6	4.7	4.7	4.6	4.6	4.6	4.6
Hardness CaCO3	mg/L	74	74	74	72	70	70	71	70	70	70	70	69
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0104	0.0104	0.0103	0.0098	0.0093	0.0093	0.0093	0.0093	0.0092	0.0092	0.0091	0.0091
Arsenic As	mg/L	0.0018	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
Barium Ba	mg/L	0.0067	0.0067	0.0067	0.0064	0.0062	0.0062	0.0062	0.0062	0.0062	0.0061	0.0061	0.0061
Beryllium Be	mg/L	0.00047	0.00047	0.00047	0.00046	0.00045	0.00045	0.00045	0.00045	0.00045	0.00044	0.00044	0.00044
Bismuth Bi	mg/L	0.00995	0.00992	0.00989	0.00938	0.00890	0.00891	0.00888	0.00882	0.00878	0.00875	0.00872	0.00871
Boron B	mg/L	0.024	0.024	0.024	0.024	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Cadmium Cd	mg/L	0.0000378	0.0000377	0.0000376	0.0000369	0.0000358	0.0000361	0.0000364	0.0000363	0.0000361	0.0000360	0.0000359	0.0000358
Calcium Ca	mg/L	136	136	136	129	123	123	122	122	121	121	120	120
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0058	0.0058	0.0058	0.0055	0.0052	0.0052	0.0052	0.0052	0.0051	0.0051	0.0051	0.0051
Copper Cu	mg/L	0.0055	0.0055	0.0055	0.0053	0.0050	0.0051	0.0051	0.0050	0.0050	0.0050	0.0050	0.0050
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00030	0.00030	0.00030	0.00029	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028
Lithium Li	mg/L	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042
Magnesium Mg	mg/L	7.2	7.2	7.2	7.1	6.9	7.0	7.0	7.0	7.0	6.9	6.9	6.9
Manganese Mn	mg/L	0.016	0.016	0.016	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.014
Mercury Hg	mg/L	0.0000040	0.0000039	0.0000039	0.0000039	0.0000037	0.0000038	0.0000038	0.0000038	0.0000038	0.0000038	0.0000037	0.0000037
Molybdenum Mo	mg/L	0.00489	0.00488	0.00487	0.00462	0.00438	0.00439	0.00438	0.00435	0.00433	0.00431	0.00430	0.00429
Nickel Ni	mg/L	0.0051	0.0050	0.0050	0.0048	0.0046	0.0046	0.0046	0.0046	0.0045	0.0045	0.0045	0.0045
Phosphorus P	mg/L	0.172	0.172	0.171	0.164	0.156	0.156	0.156	0.155	0.154	0.154	0.153	0.153
Potassium K	mg/L	22.9	22.8	22.8	21.7	20.6	20.7	20.6	20.5	20.4	20.3	20.3	20.2
Selenium Se	mg/L	0.00044	0.00044	0.00044	0.00045	0.00044	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	2.60	2.59	2.58	2.52	2.43	2.45	2.46	2.44	2.43	2.42	2.42	2.41
Silver Ag	mg/L	0.0001065	0.0001062	0.0001059	0.0001093	0.0001081	0.0001086	0.0001088	0.0001083	0.0001078	0.0001074	0.0001070	0.0001068
Sodium Na	mg/L	33	32	32	32	31	31	31	31	31	31	31	31
Strontium Sr	mg/L	0.059	0.059	0.059	0.057	0.055	0.056	0.056	0.056	0.055	0.055	0.055	0.055
Tellurium Te	mg/L	0.036	0.036	0.035	0.037	0.037	0.038	0.038	0.038	0.038	0.038	0.038	0.038
Thallium Tl	mg/L	0.000038	0.000038	0.000038	0.000039	0.000038	0.000038	0.000039	0.000039	0.000039	0.000039	0.000038	0.000038
Thorium Th	mg/L	0.000025	0.000024	0.000024	0.000025	0.000025	0.000026	0.000027	0.000027	0.000027	0.000027	0.000027	0.000026
Tin Sn	mg/L	0.00165	0.00164	0.00164	0.00156	0.00150	0.00150	0.00150	0.00150	0.00149	0.00148	0.00148	0.00148
Titanium Ti	mg/L	0.0049	0.0049	0.0049	0.0051	0.0050	0.0051	0.0052	0.0052	0.0051	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000057	0.000057	0.000056	0.000059	0.000060	0.000060	0.000061	0.000061	0.000061	0.000060	0.000060	0.000060
Vanadium V	mg/L	0.0025	0.0024	0.0024	0.0024	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022
Zinc Zn	mg/L	0.0138	0.0138	0.0137	0.0131	0.0125	0.0125	0.0126	0.0125	0.0125	0.0124	0.0124	0.0124
Zirconium Zr	mg/L	0.0040	0.0040	0.0040	0.0042	0.0042	0.0043	0.0044	0.0043	0.0043	0.0043	0.0043	0.0043

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	403	402	401	388	373	374	375	373	371	370	369	368
TSS	mg/L	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.8	2.8	2.8	2.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.046	0.046	0.046	0.044	0.042	0.042	0.041	0.041	0.041	0.041	0.041	0.041
Sulphate	mg/L	47.7	47.6	47.5	45.2	43.0	43.0	43.0	42.7	42.5	42.3	42.2	42.1
Chloride	mg/L	273	272	271	259	247	248	248	246	245	244	244	243
Total Ammonia	mg/L	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	2.63	2.56	2.50	2.37	2.25	2.25	2.25	2.23	2.16	2.10	2.04	1.98
Nitrite	mg/L	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	39	39	39	39	38	38	39	38	38	38	38	38
OrthoPhosphate-P	mg/L	0.0992	0.0989	0.0986	0.0937	0.0891	0.0891	0.0889	0.0884	0.0879	0.0876	0.0874	0.0872
Phosphate-P	mg/L	0.1031	0.1028	0.1025	0.0978	0.0931	0.0932	0.0930	0.0924	0.0920	0.0916	0.0914	0.0912
Org. Carbon	mg/L	4.6	4.6	4.6	4.8	4.8	4.8	4.9	4.9	4.9	4.8	4.8	4.8
Hardness CaCO3	mg/L	69	69	69	68	66	66	67	66	66	66	66	65
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0091	0.0091	0.0091	0.0086	0.0082	0.0082	0.0082	0.0081	0.0081	0.0081	0.0080	0.0080
Arsenic As	mg/L	0.0017	0.0016	0.0016	0.0016	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Barium Ba	mg/L	0.0061	0.0061	0.0061	0.0059	0.0056	0.0057	0.0057	0.0057	0.0056	0.0056	0.0056	0.0056
Beryllium Be	mg/L	0.00044	0.00044	0.00044	0.00043	0.00042	0.00042	0.00041	0.00041	0.00041	0.00041	0.00041	0.00041
Bismuth Bi	mg/L	0.00869	0.00866	0.00864	0.00819	0.00779	0.00779	0.00777	0.00772	0.00768	0.00765	0.00763	0.00762
Boron B	mg/L	0.023	0.023	0.023	0.023	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022
Cadmium Cd	mg/L	0.0000357	0.0000356	0.0000355	0.0000338	0.0000322	0.0000323	0.0000322	0.0000320	0.0000318	0.0000317	0.0000316	0.0000316
Calcium Ca	mg/L	120	119	119	113	108	108	108	107	107	106	106	106
Chromium Cr	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0051	0.0051	0.0051	0.0048	0.0046	0.0046	0.0046	0.0045	0.0045	0.0045	0.0045	0.0045
Copper Cu	mg/L	0.0049	0.0049	0.0049	0.0047	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0044
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00028	0.00028	0.00027	0.00026	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Lithium Li	mg/L	0.0041	0.0041	0.0041	0.0042	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041
Magnesium Mg	mg/L	6.9	6.9	6.8	6.8	6.6	6.7	6.7	6.7	6.7	6.6	6.6	6.6
Manganese Mn	mg/L	0.014	0.014	0.014	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Mercury Hg	mg/L	0.0000037	0.0000037	0.0000037	0.0000036	0.0000034	0.0000034	0.0000034	0.0000034	0.0000034	0.0000034	0.0000034	0.0000033
Molybdenum Mo	mg/L	0.00428	0.00427	0.00425	0.00404	0.00384	0.00385	0.00384	0.00381	0.00379	0.00378	0.00377	0.00376
Nickel Ni	mg/L	0.0045	0.0045	0.0045	0.0043	0.0041	0.0041	0.0041	0.0041	0.0040	0.0040	0.0040	0.0040
Phosphorus P	mg/L	0.153	0.152	0.152	0.145	0.137	0.138	0.137	0.136	0.136	0.135	0.135	0.135
Potassium K	mg/L	20.2	20.1	20.1	19.1	18.2	18.3	18.2	18.1	18.0	18.0	17.9	17.9
Selenium Se	mg/L	0.00045	0.00044	0.00044	0.00045	0.00044	0.00044	0.00045	0.00045	0.00044	0.00044	0.00044	0.00044
Silicon SiO2	mg/L	2.41	2.40	2.39	2.33	2.25	2.26	2.27	2.25	2.24	2.23	2.23	2.22
Silver Ag	mg/L	0.0001066	0.0001063	0.0001060	0.0001078	0.0001059	0.0001059	0.0001057	0.0001050	0.0001045	0.0001041	0.0001038	0.0001036
Sodium Na	mg/L	31	31	30	30	29	29	30	29	29	29	29	29
Strontium Sr	mg/L	0.055	0.055	0.054	0.053	0.051	0.052	0.052	0.052	0.051	0.051	0.051	0.051
Tellurium Te	mg/L	0.038	0.038	0.037	0.039	0.039	0.039	0.040	0.040	0.040	0.040	0.040	0.039
Thallium Tl	mg/L	0.000038	0.000038	0.000038	0.000038	0.000037	0.000038	0.000038	0.000038	0.000038	0.000038	0.000037	0.000037
Thorium Th	mg/L	0.000026	0.000026	0.000026	0.000025	0.000024	0.000024	0.000024	0.000023	0.000023	0.000023	0.000023	0.000023
Tin Sn	mg/L	0.00147	0.00147	0.00146	0.00140	0.00134	0.00134	0.00134	0.00133	0.00133	0.00132	0.00132	0.00132
Titanium Ti	mg/L	0.0051	0.0051	0.0051	0.0052	0.0052	0.0053	0.0053	0.0053	0.0053	0.0053	0.0052	0.0052
Uranium U	mg/L	0.000060	0.000060	0.000060	0.000060	0.000059	0.000059	0.000059	0.000058	0.000058	0.000058	0.000058	0.000058
Vanadium V	mg/L	0.0022	0.0022	0.0022	0.0021	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Zinc Zn	mg/L	0.0123	0.0123	0.0123	0.0117	0.0111	0.0112	0.0112	0.0112	0.0112	0.0111	0.0111	0.0111
Zirconium Zr	mg/L	0.0043	0.0043	0.0043	0.0044	0.0044	0.0044	0.0045	0.0045	0.0044	0.0044	0.0044	0.0044

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	367	366	365	354	341	342	343	341	340	338	337	337
TSS	mg/L	2.8	2.8	2.8	2.9	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.041	0.040	0.040	0.038	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036
Sulphate	mg/L	42.0	41.9	41.8	39.8	38.0	38.0	38.0	37.7	37.5	37.4	37.3	37.2
Chloride	mg/L	243	242	241	231	221	222	222	220	219	218	218	217
Total Ammonia	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.92	1.85	1.79	1.70	1.62	1.62	1.62	1.61	1.54	1.48	1.42	1.36
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	38	38	38	38	37	37	37	37	37	37	37	37
OrthoPhosphate-P	mg/L	0.0870	0.0868	0.0865	0.0823	0.0783	0.0784	0.0782	0.0777	0.0774	0.0771	0.0769	0.0767
Phosphate-P	mg/L	0.0910	0.0908	0.0905	0.0865	0.0825	0.0826	0.0824	0.0819	0.0815	0.0812	0.0810	0.0808
Org. Carbon	mg/L	4.8	4.8	4.8	5.0	5.0	5.0	5.1	5.1	5.0	5.0	5.0	5.0
Hardness CaCO3	mg/L	65	65	65	64	62	63	63	63	62	62	62	62
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0080	0.0080	0.0080	0.0076	0.0072	0.0072	0.0072	0.0072	0.0071	0.0071	0.0071	0.0071
Arsenic As	mg/L	0.0015	0.0015	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Barium Ba	mg/L	0.0056	0.0056	0.0055	0.0054	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0051	0.0051
Beryllium Be	mg/L	0.00041	0.00040	0.00040	0.00040	0.00038	0.00038	0.00038	0.00038	0.00038	0.00038	0.00038	0.00038
Bismuth Bi	mg/L	0.00760	0.00758	0.00756	0.00718	0.00683	0.00683	0.00682	0.00677	0.00674	0.00672	0.00670	0.00668
Boron B	mg/L	0.022	0.022	0.022	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021
Cadmium Cd	mg/L	0.0000315	0.0000314	0.0000313	0.0000299	0.0000285	0.0000285	0.0000285	0.0000283	0.0000282	0.0000281	0.0000280	0.0000279
Calcium Ca	mg/L	105	105	105	100	95	95	95	95	94	94	94	93
Chromium Cr	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0045	0.0044	0.0044	0.0042	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0039	0.0039
Copper Cu	mg/L	0.0044	0.0044	0.0044	0.0043	0.0041	0.0041	0.0041	0.0041	0.0040	0.0040	0.0040	0.0040
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00025	0.00025	0.00025	0.00024	0.00023	0.00023	0.00023	0.00023	0.00023	0.00022	0.00022	0.00022
Lithium Li	mg/L	0.0041	0.0040	0.0040	0.0041	0.0040	0.0040	0.0041	0.0040	0.0040	0.0040	0.0040	0.0040
Magnesium Mg	mg/L	6.6	6.6	6.5	6.5	6.3	6.4	6.4	6.4	6.4	6.4	6.3	6.3
Manganese Mn	mg/L	0.013	0.013	0.013	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011
Mercury Hg	mg/L	0.0000033	0.0000033	0.0000033	0.0000032	0.0000031	0.0000031	0.0000031	0.0000031	0.0000030	0.0000030	0.0000030	0.0000030
Molybdenum Mo	mg/L	0.00375	0.00374	0.00373	0.00355	0.00338	0.00338	0.00338	0.00336	0.00334	0.00333	0.00332	0.00331
Nickel Ni	mg/L	0.0040	0.0040	0.0040	0.0038	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036
Phosphorus P	mg/L	0.134	0.134	0.134	0.127	0.121	0.122	0.121	0.120	0.120	0.119	0.119	0.119
Potassium K	mg/L	17.9	17.8	17.8	17.0	16.2	16.2	16.2	16.1	16.0	16.0	15.9	15.9
Selenium Se	mg/L	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00043
Silicon SiO2	mg/L	2.22	2.21	2.21	2.16	2.08	2.09	2.10	2.09	2.08	2.07	2.07	2.06
Silver Ag	mg/L	0.0001034	0.0001031	0.0001028	0.0001048	0.0001030	0.0001031	0.0001029	0.0001022	0.0001017	0.0001014	0.0001011	0.0001009
Sodium Na	mg/L	29	29	29	28	28	28	28	28	28	28	28	28
Strontium Sr	mg/L	0.051	0.051	0.051	0.050	0.048	0.048	0.049	0.048	0.048	0.048	0.048	0.048
Tellurium Te	mg/L	0.039	0.039	0.039	0.041	0.040	0.041	0.042	0.041	0.041	0.041	0.041	0.041
Thallium Tl	mg/L	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037
Thorium Th	mg/L	0.000023	0.000023	0.000023	0.000022	0.000021	0.000021	0.000021	0.000021	0.000020	0.000020	0.000020	0.000020
Tin Sn	mg/L	0.00131	0.00131	0.00131	0.00125	0.00120	0.00120	0.00120	0.00119	0.00119	0.00118	0.00118	0.00118
Titanium Ti	mg/L	0.0052	0.0052	0.0052	0.0054	0.0053	0.0054	0.0054	0.0054	0.0054	0.0054	0.0054	0.0053
Uranium U	mg/L	0.000058	0.000057	0.000057	0.000058	0.000057	0.000057	0.000057	0.000056	0.000056	0.000056	0.000056	0.000056
Vanadium V	mg/L	0.0020	0.0020	0.0020	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Zinc Zn	mg/L	0.0110	0.0110	0.0110	0.0105	0.0100	0.0100	0.0101	0.0101	0.0100	0.0100	0.0100	0.0099
Zirconium Zr	mg/L	0.0044	0.0044	0.0044	0.0045	0.0044	0.0045	0.0046	0.0045	0.0045	0.0045	0.0045	0.0045

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	336	335	334	325	314	315	316	314	313	312	311	310
TSS	mg/L	2.8	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.036	0.035	0.035	0.034	0.032	0.032	0.032	0.032	0.032	0.031	0.031	0.031
Sulphate	mg/L	37.2	37.1	36.9	35.2	33.7	33.7	33.7	33.5	33.3	33.2	33.1	33.0
Chloride	mg/L	217	216	216	207	198	199	199	198	197	196	196	195
Total Ammonia	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.30	1.25	1.19	1.13	1.07	1.08	1.07	1.07	1.01	0.95	0.89	0.83
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	37	36	36	36	36	36	36	36	36	36	36	36
OrthoPhosphate-P	mg/L	0.0766	0.0764	0.0761	0.0725	0.0691	0.0692	0.0690	0.0686	0.0683	0.0681	0.0679	0.0677
Phosphate-P	mg/L	0.0807	0.0805	0.0802	0.0769	0.0734	0.0735	0.0733	0.0729	0.0726	0.0723	0.0721	0.0720
Org. Carbon	mg/L	5.0	5.0	5.0	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.1
Hardness CaCO3	mg/L	62	62	61	61	59	60	60	60	59	59	59	59
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0071	0.0070	0.0070	0.0067	0.0064	0.0064	0.0064	0.0063	0.0063	0.0063	0.0063	0.0062
Arsenic As	mg/L	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Barium Ba	mg/L	0.0051	0.0051	0.0051	0.0050	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048
Beryllium Be	mg/L	0.00038	0.00037	0.00037	0.00037	0.00036	0.00036	0.00036	0.00036	0.00035	0.00035	0.00035	0.00035
Bismuth Bi	mg/L	0.00667	0.00665	0.00663	0.00630	0.00601	0.00601	0.00600	0.00596	0.00593	0.00591	0.00589	0.00588
Boron B	mg/L	0.021	0.021	0.021	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Cadmium Cd	mg/L	0.0000279	0.0000278	0.0000277	0.0000265	0.0000253	0.0000253	0.0000253	0.0000251	0.0000250	0.0000249	0.0000249	0.0000248
Calcium Ca	mg/L	93	93	93	88	84	85	84	84	84	83	83	83
Chromium Cr	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0039	0.0039	0.0039	0.0037	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
Copper Cu	mg/L	0.0040	0.0040	0.0040	0.0038	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0036
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00022	0.00022	0.00022	0.00021	0.00021	0.00021	0.00021	0.00021	0.00020	0.00020	0.00020	0.00020
Lithium Li	mg/L	0.0040	0.0040	0.0040	0.0040	0.0039	0.0040	0.0040	0.0040	0.0040	0.0039	0.0039	0.0039
Magnesium Mg	mg/L	6.3	6.3	6.3	6.3	6.1	6.2	6.2	6.2	6.2	6.1	6.1	6.1
Manganese Mn	mg/L	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Mercury Hg	mg/L	0.0000030	0.0000030	0.0000030	0.0000029	0.0000028	0.0000028	0.0000028	0.0000028	0.0000027	0.0000027	0.0000027	0.0000027
Molybdenum Mo	mg/L	0.00331	0.00330	0.00329	0.00313	0.00298	0.00299	0.00298	0.00296	0.00295	0.00294	0.00293	0.00293
Nickel Ni	mg/L	0.0036	0.0036	0.0035	0.0034	0.0033	0.0033	0.0033	0.0032	0.0032	0.0032	0.0032	0.0032
Phosphorus P	mg/L	0.119	0.118	0.118	0.113	0.108	0.108	0.107	0.107	0.106	0.106	0.106	0.105
Potassium K	mg/L	15.9	15.8	15.8	15.1	14.4	14.5	14.5	14.4	14.3	14.3	14.2	14.2
Selenium Se	mg/L	0.00043	0.00043	0.00043	0.00044	0.00043	0.00043	0.00044	0.00044	0.00043	0.00043	0.00043	0.00043
Silicon SiO2	mg/L	2.06	2.05	2.05	2.01	1.94	1.95	1.96	1.95	1.94	1.94	1.93	1.93
Silver Ag	mg/L	0.0001007	0.0001004	0.0001001	0.0001022	0.0001005	0.0001006	0.0001004	0.0000998	0.0000994	0.0000990	0.0000987	0.0000985
Sodium Na	mg/L	28	27	27	27	26	27	27	27	27	26	26	26
Strontium Sr	mg/L	0.048	0.048	0.047	0.047	0.045	0.046	0.046	0.046	0.045	0.045	0.045	0.045
Tellurium Te	mg/L	0.041	0.041	0.041	0.042	0.042	0.042	0.043	0.043	0.042	0.042	0.042	0.042
Thallium Tl	mg/L	0.000036	0.000036	0.000036	0.000037	0.000036	0.000036	0.000036	0.000036	0.000036	0.000036	0.000036	0.000036
Thorium Th	mg/L	0.000020	0.000020	0.000020	0.000019	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018
Tin Sn	mg/L	0.00118	0.00117	0.00117	0.00112	0.00107	0.00108	0.00108	0.00107	0.00107	0.00107	0.00106	0.00106
Titanium Ti	mg/L	0.0053	0.0053	0.0053	0.0055	0.0054	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0054
Uranium U	mg/L	0.000056	0.000055	0.000055	0.000056	0.000055	0.000055	0.000055	0.000055	0.000054	0.000054	0.000054	0.000054
Vanadium V	mg/L	0.0018	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0016	0.0016	0.0016	0.0016	0.0016
Zinc Zn	mg/L	0.0099	0.0099	0.0099	0.0094	0.0090	0.0090	0.0091	0.0091	0.0090	0.0090	0.0090	0.0090
Zirconium Zr	mg/L	0.0045	0.0045	0.0044	0.0046	0.0045	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046

Table H-9-A-2
Scenario 9

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	310	309	308	386	454	535	617	694	690	688	686
TSS	mg/L	2.9	2.9	2.9	3.3	3.5	3.6	3.7	3.7	3.7	3.6	3.6
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.031	0.031	0.031	0.030	0.028	0.028	0.028	0.028	0.028	0.028	0.028
Sulphate	mg/L	33.0	32.9	32.8	31.4	30.1	30.2	30.2	30.0	29.9	29.8	29.7
Chloride	mg/L	195	194	194	243	285	335	385	432	430	428	427
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L	0.78	0.72	0.66	0.63	0.60	0.60	0.60	0.60	0.54	0.49	0.43
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	35	35	35	37	37	37	38	38	38	38	37
OrthoPhosphate-P	mg/L	0.0676	0.0674	0.0672	0.0642	0.0613	0.0614	0.0613	0.0610	0.0607	0.0605	0.0603
Phosphate-P	mg/L	0.0718	0.0716	0.0714	0.0706	0.0683	0.0687	0.0689	0.0686	0.0683	0.0680	0.0679
Org. Carbon	mg/L	5.1	5.1	5.1	5.6	5.8	5.9	6.0	6.0	6.0	5.9	5.9
Hardness CaCO3	mg/L	59	59	59	60	60	60	61	61	61	61	60
Total Metals												
Aluminum Al	mg/L	0.03	0.03	0.03	0.05	0.06	0.07	0.07	0.07	0.07	0.07	0.07
Antimony Sb	mg/L	0.0062	0.0062	0.0062	0.0059	0.0057	0.0057	0.0057	0.0057	0.0056	0.0056	0.0056
Arsenic As	mg/L	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Barium Ba	mg/L	0.0047	0.0047	0.0047	0.0047	0.0046	0.0046	0.0047	0.0047	0.0047	0.0046	0.0046
Beryllium Be	mg/L	0.00035	0.00035	0.00035	0.00036	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035
Bismuth Bi	mg/L	0.00587	0.00585	0.00584	0.00556	0.00530	0.00531	0.00530	0.00526	0.00524	0.00522	0.00521
Boron B	mg/L	0.020	0.020	0.020	0.023	0.024	0.025	0.025	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000248	0.0000247	0.0000246	0.0000245	0.0000239	0.0000241	0.0000242	0.0000241	0.0000240	0.0000239	0.0000238
Calcium Ca	mg/L	83	82	82	84	85	90	94	99	98	98	98
Chromium Cr	mg/L	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0035	0.0035	0.0034	0.0033	0.0032	0.0032	0.0032	0.0031	0.0031	0.0031	0.0031
Copper Cu	mg/L	0.0036	0.0036	0.0036	0.0036	0.0035	0.0036	0.0036	0.0036	0.0036	0.0035	0.0035
Iron Fe	mg/L	0.05	0.05	0.05	0.07	0.08	0.08	0.09	0.09	0.09	0.09	0.09
Lead Pb	mg/L	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020
Lithium Li	mg/L	0.0039	0.0039	0.0039	0.0043	0.0044	0.0045	0.0046	0.0046	0.0046	0.0046	0.0046
Magnesium Mg	mg/L	6.1	6.1	6.1	6.6	6.7	6.8	6.9	6.9	6.9	6.9	6.9
Manganese Mn	mg/L	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Mercury Hg	mg/L	0.0000027	0.0000027	0.0000027	0.0000043	0.0000049	0.0000052	0.0000055	0.0000055	0.0000055	0.0000055	0.0000055
Molybdenum Mo	mg/L	0.00292	0.00291	0.00290	0.00280	0.00269	0.00270	0.00270	0.00268	0.00267	0.00266	0.00265
Nickel Ni	mg/L	0.0032	0.0032	0.0032	0.0031	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
Phosphorus P	mg/L	0.105	0.105	0.105	0.101	0.096	0.096	0.096	0.096	0.095	0.095	0.095
Potassium K	mg/L	14.2	14.1	14.1	13.8	13.4	13.4	13.5	13.4	13.4	13.3	13.3
Selenium Se	mg/L	0.00043	0.00043	0.00043	0.00054	0.00058	0.00060	0.00062	0.00062	0.00062	0.00062	0.00061
Silicon SiO2	mg/L	1.92	1.92	1.91	1.98	1.97	1.99	2.02	2.02	2.01	2.00	1.99
Silver Ag	mg/L	0.0000983	0.0000981	0.0000978	0.0001066	0.0001080	0.0001082	0.0001082	0.0001076	0.0001071	0.0001067	0.0001064
Sodium Na	mg/L	26	26	26	57	83	110	138	164	163	163	162
Strontium Sr	mg/L	0.045	0.045	0.045	0.047	0.047	0.047	0.048	0.048	0.048	0.048	0.048
Tellurium Te	mg/L	0.042	0.042	0.042	0.046	0.047	0.048	0.049	0.049	0.049	0.049	0.049
Thallium Tl	mg/L	0.000036	0.000036	0.000036	0.000038	0.000038	0.000039	0.000039	0.000039	0.000039	0.000039	0.000039
Thorium Th	mg/L	0.000018	0.000018	0.000018	0.000023	0.000025	0.000025	0.000026	0.000027	0.000026	0.000026	0.000026
Tin Sn	mg/L	0.00106	0.00106	0.00105	0.00102	0.00099	0.00100	0.00100	0.00100	0.00099	0.00099	0.00099
Titanium Ti	mg/L	0.0054	0.0054	0.0054	0.0071	0.0076	0.0079	0.0083	0.0083	0.0083	0.0082	0.0082
Uranium U	mg/L	0.000054	0.000054	0.000054	0.000061	0.000063	0.000064	0.000065	0.000064	0.000064	0.000064	0.000064
Vanadium V	mg/L	0.0016	0.0016	0.0016	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Zinc Zn	mg/L	0.0090	0.0089	0.0089	0.0087	0.0084	0.0084	0.0086	0.0086	0.0086	0.0086	0.0086
Zirconium Zr	mg/L	0.0046	0.0045	0.0045	0.0049	0.0050	0.0051	0.0052	0.0052	0.0052	0.0052	0.0052

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	150703	117552	90530	92583	84839	78530	81148	81148	73295
TSS	183	177	183	2146	1093	465	529	276	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	12	11	11	11	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18918	17420	15483	15447	14833	13840	14302	14302	12918
Chloride	49110	47526	49110	91129	76487	58722	60079	53117	47526	49110	49110	44357
Total Ammonia	149	145	149	289	239	187	195	167	145	149	149	135
Nitrate	758	733	758	1857	1454	1051	1108	889	733	758	758	684
Nitrite	116	112	116	139	133	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	23107	16332	9461	9632	7697	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	22	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	26	23	22	21	21	21	21	21	19
Org. Carbon				3936.71	2123.60	562.95	585.54	153.82				
Hardness CaCO3	14992	14508	14992	36160	28037	18463	18958	16161	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	24.30	13.66	11.15	9.97	6.22	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.71	3.48	2.25	2.47	1.73	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.75	0.63	0.48	0.49	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.79	2.27	1.87	1.85	1.66	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.29	0.18	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.56	3.31	2.11	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	13.93	9.43	5.16	5.44	3.62	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	43723	42960	41456	40333	40821	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.43	1.37	1.15	1.07	1.05	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.88	1.83	1.73	1.70	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	2.11	1.83	1.56	1.53	1.49	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	34.23	16.30	12.58	12.72	6.86	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.15	0.11	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	2.86	1.61	0.83	0.91	0.59	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	4100	2716	1684	1698	1264	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.41	5.07	4.90	4.89	4.70	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.53	1.53	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.93	1.65	1.40	1.39	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	48	41	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7597	7271	6854	6726	6763	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.33	0.18	0.08	0.08	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	1235	895	668	679	596	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.09	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	16493	12084	8063	8294	6918	6148	6353	6353	5739
Strontium Sr	12	12	12	27	21	15	16	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	32.86	15.21	4.72	5.88	1.56	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.03	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.77	0.60	0.35	0.39	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	4.23	2.04	0.71	0.86	0.30	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.23	0.86	0.53	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.7	4.2	3.9	4.6	3.9	3.4	3.5	3.5	3.2
Zirconium Zr				3.61	1.72	0.56	0.70	0.19				

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	115515	100117	86066	85913	83093	78530	81148	81148	73295
TSS	183	177	183	1186	658	331	362	232	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18288	17051	15391	15285	14791	13840	14302	14302	12918
Chloride	49110	47526	49110	81852	70675	57204	58023	52578	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15110	11828	8256	8242	7333	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2017.37	1106.54	295.10	307.62	81.04				
Hardness CaCO3	14992	14508	14992	25604	21789	16812	16846	15608	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.02	11.98	9.11	8.75	5.90	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.47	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.26	1.98	1.75	1.72	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.09	7.25	4.46	4.68	3.42	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42066	42115	41136	39967	40725	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.31	1.26	1.11	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.82	1.68	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	20.79	11.36	9.07	9.16	5.93	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.78	1.12	0.68	0.72	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2794	2045	1444	1449	1198	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.16	4.96	4.80	4.74	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.76	1.57	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7092	7019	6789	6622	6736	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.20	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	947	764	628	629	583	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11471	9352	7255	7283	6653	6148	6353	6353	5739
Strontium Sr	12	12	12	20	17	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	16.86	7.94	2.49	3.11	0.83	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.31	1.17	0.44	0.53	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.08	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.01	1.00	0.33	0.42	0.12				

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	85541	69407	55524	56328	52586	49028	50662	50662	45759
TSS				996	469	146	183	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5585	3971	2351	2657	1766	1247	1289	1289	1164
Chloride	49110	47526	49110	81728	70600	57185	57997	52572	47526	49110	49110	44357
Total Ammonia	25	24	25	153	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1036	654	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				8299	4842	1313	1521	401				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				1991.64	1093.45	291.72	304.19	80.17				
Hardness CaCO3				10954	6717	1799	2312	609				
Total Metals												
Aluminum Al	0.81	0.78	0.81	12.45	6.46	4.65	4.20	1.88	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.55	3.32	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.27	0.18	0.08	0.10	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.79	0.47	0.24	0.26	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.20	0.13	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.52	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.23	4.60	2.07	2.31	1.13	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	2947	1775	866	981	482	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.37	0.30	0.16	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.28	0.19	0.11	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.42	0.24	0.09	0.10	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	15.67	6.47	4.45	4.63	1.44	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.36	0.70	0.27	0.33	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1830	1065	476	510	235	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.88	0.56	0.39	0.48	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.64	0.43	0.24	0.26	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	33	29	25	25	24	22	23	23	21
Potassium K	25	24	25	624	342	116	163	64	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.15	0.08	0.02	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	382	196	73	89	33	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5262	2973	902	1132	309	12	12	12	11
Strontium Sr	0	0	0	9	5	2	2	1	0	0	0	0
Tellurium Te				16.62	7.82	2.44	3.05	0.80				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.55	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.24	1.11	0.40	0.49	0.18	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.87	0.59	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.1	0.8	0.5	0.9	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.86	0.90	0.29	0.37	0.10				

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				36373	18679	4846	7277	1918				
TSS				992	467	145	182	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				798	486	138	226	64				
Chloride				9589	6226	1648	2244	592				
Total Ammonia				61	37	16	21	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8267	4825	1308	1516	400				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1983.99	1089.60	290.74	303.22	79.93				
Hardness CaCO3				10912	6693	1793	2304	607				
Total Metals												
Aluminum Al				9.74	4.46	3.33	2.77	0.85				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.16	0.10	0.04	0.05	0.01				
Barium Ba				0.56	0.31	0.14	0.14	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				4.97	2.96	1.03	1.17	0.34				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1964	1062	413	484	135				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.05	0.03	0.01	0.01	0.00				
Copper Cu				0.32	0.17	0.04	0.05	0.01				
Iron Fe				14.89	5.91	4.07	4.22	1.14				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				1.13	0.54	0.17	0.21	0.06				
Magnesium Mg				1374	735	267	281	75				
Manganese Mn				0.29	0.12	0.12	0.18	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.19	0.10	0.03	0.03	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				529	273	72	116	31				
Selenium Se				0.15	0.07	0.02	0.03	0.01				
Silicon SiO2				345	170	56	70	20				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				5198	2930	879	1106	292				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.55	7.80	2.43	3.04	0.80				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.05	0.06	0.02	0.02	0.01				
Titanium Ti				2.00	0.95	0.30	0.37	0.10				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.20	0.10	0.02	0.01	0.00				
Zinc Zn				0.4	0.2	0.1	0.5	0.1				
Zirconium Zr				1.85	0.90	0.29	0.37	0.10				

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				36301	18643	4836	7263	1915				
TSS				990	466	145	182	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				797	486	138	225	64				
Chloride				9570	6214	1644	2239	590				
Total Ammonia				61	37	16	21	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8250	4816	1306	1513	399				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1980.07	1087.51	290.18	302.63	79.78				
Hardness CaCO3				10890	6680	1789	2300	606				
Total Metals												
Aluminum Al				9.73	4.46	3.33	2.77	0.85				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.16	0.10	0.04	0.05	0.01				
Barium Ba				0.56	0.31	0.14	0.14	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				4.96	2.95	1.03	1.16	0.34				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1961	1060	412	483	134				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.05	0.03	0.01	0.01	0.00				
Copper Cu				0.32	0.17	0.04	0.05	0.01				
Iron Fe				14.86	5.90	4.06	4.21	1.14				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				1.13	0.54	0.17	0.21	0.06				
Magnesium Mg				1372	733	266	280	75				
Manganese Mn				0.29	0.12	0.12	0.17	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.19	0.10	0.03	0.03	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				528	273	72	115	31				
Selenium Se				0.15	0.07	0.02	0.03	0.01				
Silicon SiO2				344	169	56	70	20				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				5187	2925	877	1104	291				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.52	7.78	2.42	3.03	0.80				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.05	0.06	0.02	0.02	0.01				
Titanium Ti				2.00	0.94	0.30	0.37	0.10				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.20	0.10	0.02	0.01	0.00				
Zinc Zn				0.4	0.2	0.1	0.5	0.1				
Zirconium Zr				1.85	0.90	0.29	0.37	0.10				

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				36232	18609	4827	7250	1911				
TSS				988	465	145	181	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				796	485	137	225	63				
Chloride				9552	6203	1641	2235	589				
Total Ammonia				61	37	16	21	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8235	4807	1303	1510	398				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1976.30	1085.50	289.64	302.07	79.63				
Hardness CaCO3				10870	6668	1786	2296	605				
Total Metals												
Aluminum Al				9.72	4.46	3.33	2.77	0.85				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.16	0.10	0.04	0.05	0.01				
Barium Ba				0.56	0.31	0.14	0.14	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				4.95	2.95	1.02	1.16	0.33				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1958	1058	412	482	134				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.05	0.03	0.01	0.01	0.00				
Copper Cu				0.32	0.17	0.04	0.05	0.01				
Iron Fe				14.83	5.89	4.06	4.21	1.14				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				1.13	0.53	0.17	0.21	0.06				
Magnesium Mg				1369	732	266	280	74				
Manganese Mn				0.29	0.12	0.12	0.17	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.19	0.10	0.03	0.03	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				527	272	72	115	31				
Selenium Se				0.15	0.07	0.02	0.03	0.01				
Silicon SiO2				344	169	56	70	20				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				5177	2919	875	1102	291				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.49	7.77	2.42	3.03	0.80				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.05	0.06	0.02	0.02	0.01				
Titanium Ti				2.00	0.94	0.29	0.37	0.10				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.20	0.10	0.02	0.01	0.00				
Zinc Zn				0.4	0.2	0.1	0.5	0.1				
Zirconium Zr				1.84	0.90	0.29	0.37	0.10				

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				36165	18575	4819	7236	1908				
TSS				986	464	145	181	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				648	393	99	175	46				
Chloride				9535	6192	1638	2231	588				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8219	4799	1301	1508	397				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1972.66	1083.55	289.12	301.52	79.48				
Hardness CaCO3				10850	6656	1783	2292	604				
Total Metals												
Aluminum Al				5.42	1.80	2.20	1.33	0.35				
Antimony Sb				0.04	0.04	0.03	0.04	0.01				
Arsenic As				0.07	0.04	0.01	0.01	0.00				
Barium Ba				0.55	0.30	0.13	0.14	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				3.95	2.32	0.76	0.83	0.22				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1703	901	346	397	105				
Chromium Cr				0.12	0.11	0.04	0.01	0.00				
Cobalt Co				0.03	0.02	0.00	0.01	0.00				
Copper Cu				0.30	0.15	0.03	0.04	0.01				
Iron Fe				13.81	5.26	3.79	3.87	1.02				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.11	0.52	0.16	0.20	0.05				
Magnesium Mg				1341	715	259	271	71				
Manganese Mn				0.26	0.11	0.11	0.17	0.04				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.17	0.08	0.02	0.02	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				519	268	70	113	30				
Selenium Se				0.13	0.06	0.02	0.02	0.01				
Silicon SiO2				296	139	43	54	14				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				5162	2910	872	1098	289				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.44	7.74	2.41	3.02	0.79				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.03	0.05	0.01	0.02	0.00				
Titanium Ti				1.97	0.93	0.29	0.36	0.10				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.16	0.07	0.01	0.00	0.00				
Zinc Zn				0.3	0.1	0.1	0.5	0.1				
Zirconium Zr				1.64	0.77	0.24	0.30	0.08				

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				36101	18543	4810	7224	1904				
TSS				985	464	144	181	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				647	392	99	175	46				
Chloride				9518	6181	1635	2227	587				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8205	4790	1299	1505	397				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1969.14	1081.66	288.62	300.99	79.34				
Hardness CaCO3				10830	6644	1780	2287	603				
Total Metals												
Aluminum Al				5.42	1.79	2.20	1.33	0.35				
Antimony Sb				0.04	0.04	0.03	0.04	0.01				
Arsenic As				0.07	0.04	0.01	0.01	0.00				
Barium Ba				0.54	0.30	0.13	0.14	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				3.94	2.32	0.76	0.82	0.22				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1700	899	345	397	105				
Chromium Cr				0.12	0.11	0.04	0.01	0.00				
Cobalt Co				0.03	0.02	0.00	0.01	0.00				
Copper Cu				0.30	0.15	0.03	0.04	0.01				
Iron Fe				13.78	5.25	3.78	3.86	1.02				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.11	0.52	0.16	0.20	0.05				
Magnesium Mg				1339	714	258	270	71				
Manganese Mn				0.26	0.11	0.11	0.17	0.04				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.17	0.08	0.02	0.02	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				519	267	70	113	30				
Selenium Se				0.13	0.06	0.02	0.02	0.01				
Silicon SiO2				295	139	43	54	14				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				5153	2905	871	1096	289				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.41	7.73	2.41	3.01	0.79				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.03	0.05	0.01	0.02	0.00				
Titanium Ti				1.97	0.93	0.29	0.36	0.10				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.16	0.07	0.01	0.00	0.00				
Zinc Zn				0.3	0.1	0.1	0.5	0.1				
Zirconium Zr				1.64	0.77	0.24	0.30	0.08				

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				36038	18511	4802	7211	1901				
TSS				983	463	144	180	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				645	392	98	175	46				
Chloride				9501	6170	1633	2223	586				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8191	4782	1297	1502	396				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1965.73	1079.83	288.13	300.47	79.21				
Hardness CaCO3				10811	6633	1777	2284	602				
Total Metals												
Aluminum Al				5.41	1.79	2.19	1.33	0.35				
Antimony Sb				0.04	0.04	0.03	0.04	0.01				
Arsenic As				0.07	0.04	0.01	0.01	0.00				
Barium Ba				0.54	0.30	0.13	0.14	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				3.93	2.31	0.76	0.82	0.22				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1697	898	344	396	104				
Chromium Cr				0.12	0.11	0.04	0.01	0.00				
Cobalt Co				0.03	0.02	0.00	0.01	0.00				
Copper Cu				0.29	0.15	0.03	0.04	0.01				
Iron Fe				13.76	5.24	3.77	3.85	1.02				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.10	0.52	0.16	0.20	0.05				
Magnesium Mg				1337	713	258	270	71				
Manganese Mn				0.26	0.11	0.11	0.17	0.04				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.17	0.08	0.02	0.02	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				518	267	70	112	30				
Selenium Se				0.13	0.06	0.02	0.02	0.01				
Silicon SiO2				295	139	43	54	14				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				5144	2900	869	1094	288				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.38	7.71	2.40	3.00	0.79				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.03	0.05	0.01	0.02	0.00				
Titanium Ti				1.97	0.93	0.29	0.36	0.10				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.16	0.07	0.01	0.00	0.00				
Zinc Zn				0.3	0.1	0.1	0.5	0.1				
Zirconium Zr				1.64	0.77	0.24	0.30	0.08				

Table H 9-A-3
Scenario 9

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				445022	412531	387115	391582	381737				
TSS				2954	1391	433	542	143				
Free CN												
Total CN				1	1	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				1197	726	183	324	85				
Chloride				278677	256274	237915	240141	232962				
Total Ammonia				3	1	0	3	1				
Nitrate				4	2	1	1	0				
Nitrite				1	1	0	0	0				
Alkalinity				15184	8866	2404	2785	734				
OrthoPhosphate-P				1	1	0	0	0				
Phosphate-P				13	5	2	2	0				
Org. Carbon				3644.17	2001.92	534.16	557.04	146.85				
Hardness CaCO3				20043	12298	3294	4234	1116				
Total Metals												
Aluminum Al				108.13	49.51	18.45	20.46	5.39				
Antimony Sb				0.11	0.09	0.06	0.08	0.02				
Arsenic As				0.28	0.16	0.05	0.05	0.01				
Barium Ba				1.01	0.55	0.24	0.26	0.07				
Beryllium Be				0.12	0.06	0.00	0.00	0.00				
Bismuth Bi				0.02	0.01	0.00	0.00	0.00				
Boron B				19.53	10.05	3.20	3.77	0.99				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				26352	24378	23050	23180	22513				
Chromium Cr				0.42	0.30	0.10	0.05	0.01				
Cobalt Co				0.11	0.05	0.01	0.02	0.00				
Copper Cu				0.86	0.43	0.11	0.14	0.04				
Iron Fe				120.88	54.63	20.98	24.64	6.49				
Lead Pb				0.05	0.02	0.01	0.00	0.00				
Lithium Li				2.95	1.39	0.43	0.54	0.14				
Magnesium Mg				3780	1934	669	739	195				
Manganese Mn				2.76	1.27	0.54	0.73	0.19				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.19	0.09	0.02	0.03	0.01				
Nickel Ni				0.42	0.20	0.06	0.06	0.02				
Phosphorus P				5	1	0	0	0				
Potassium K				1981	976	280	396	104				
Selenium Se				0.64	0.30	0.09	0.11	0.03				
Silicon SiO2				786	370	115	144	38				
Silver Ag				0.06	0.03	0.00	0.00	0.00				
Sodium Na				153288	139495	129825	130913	126960				
Strontium Sr				20	11	3	4	1				
Tellurium Te				30.37	14.30	4.45	5.57	1.47				
Thallium Tl				0.02	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.00	0.01	0.00				
Tin Sn				0.08	0.09	0.03	0.04	0.01				
Titanium Ti				9.21	4.34	1.35	1.69	0.45				
Uranium U				0.05	0.02	0.00	0.00	0.00				
Vanadium V				1.11	0.52	0.14	0.15	0.04				
Zinc Zn				1.0	0.5	0.3	1.0	0.3				
Zirconium Zr				3.07	1.44	0.45	0.56	0.15				

Table H-9-A-1
Scenario 9

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)		
Discharge rate		500000 m3/year						
Degradation Field(age)		Tail Lk Cu < CME Year		22				
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3		
Maximum Concentration								
pH			6 to 9	7 to 8	7 to 8	7 to 8	1%	
TDS	mg/L			694	159	169		
TSS	mg/L			4.7	6.9	8.1		
Free CN	mg/L		0.005	0.0024	0.00007	0.00003		
Total CN	mg/L	1.0		0.023	0.003	0.002		
WAD CN	mg/L			0.0032	0.0001	0.0000		
CNO	mg/L			2.6	0.08	0.04		
SCN	mg/L			0.086	0.002	0.001		
Sulphate	mg/L			79	5.0	5.7		
Chloride	mg/L			432	72	71		
Total Ammonia	mg/L		0.97	0.93	0.038	0.020		4%
Nitrate	mg/L		2.9	4.9	0.17	0.09		6%
Nitrite	mg/L		0.018	0.37	0.013	0.008		73%
Alkalinity	mg/L			51	28	26		
OrthoPhosphate-P	mg/L			0.1509	0.0050	0.0032		
Phosphate-P	mg/L			0.1542	0.0273	0.0262		
Org. Carbon	mg/L			6.3	7.5	7.1		
Hardness CaCO3	mg/L			98	47	45		
Total Metals								
Aluminum Al	mg/L		0.1	0.15	0.08	0.25	83%	
Antimony Sb	mg/L			0.0138	0.0031	0.0019	11%	
Arsenic As	mg/L	0.5	0.005	0.00	0.0005	0.0006		
Barium Ba	mg/L			0.0093	0.0033	0.0052		
Beryllium Be	mg/L			0.00055	0.00002	0.00002		
Bismuth Bi	mg/L			0.01325	0.00041	0.00029		
Boron B	mg/L			0.032	0.034	0.030	12%	
Cadmium Cd	mg/L		0.000038	0.000048	0.0000046	0.0000155		
Calcium Ca	mg/L			215	14	11		
Chromium Cr	mg/L		0.001	0.0057	0.001	0.001		79%
Cobalt Co	mg/L			0.0089	0.0011	0.0005		
Copper Cu	mg/L	0.3	0.002	0.008	0.0017	0.0019	86%	
Iron Fe	mg/L		0.3	0.18	0.13	0.28	42%	
Lead Pb	mg/L	0.2	0.002	0.00036	0.00007	0.00026	4%	
Lithium Li	mg/L			0.0049	0.0029	0.0029	1%	
Magnesium Mg	mg/L			8.4	7.3	7.2		
Manganese Mn	mg/L			0.025	0.021	0.024		
Mercury Hg	mg/L		0.0001	0.0000116	0.0000009	0.0000008		
Molybdenum Mo	mg/L		0.073	0.0078	0.00037	0.00033		1%
Nickel Ni	mg/L	0.5	0.025	0.007	0.0008	0.0007	3%	
Phosphorus P	mg/L			0.224	0.030	0.027	90%	
Potassium K	mg/L			36	3.8	3.2		
Selenium Se	mg/L		0.001	0.00095	0.00090	0.00083		
Silicon SiO2	mg/L			3.5	0.59	0.55		
Silver Ag	mg/L		0.0001	0.00011	0.0000052	0.0000053		5%
Sodium Na	mg/L			164	43	40	4%	
Strontium Sr	mg/L			0.079	0.043	0.046		
Tellurium Te	mg/L			0.051	0.050	0.051		
Thallium Tl	mg/L		0.0008	0.000040	0.000031	0.002001		
Thorium Th	mg/L			0.000042	0.0000023	0.0000012		
Tin Sn	mg/L			0.00211	0.00045	0.00003	12%	
Titanium Ti	mg/L			0.0136	0.0062	0.0062		
Uranium U	mg/L			0.000071	0.000040	0.000044		
Vanadium V	mg/L			0.0031	0.0006	0.0005		
Zinc Zn	mg/L	0.5	0.03	0.020	0.0036	0.0054		
Zirconium Zr	mg/L			0.0052	0.0050	0.0051		

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				140	122	126	146	146				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L				0.00002	0.00000	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.02	0.01	0.01	0.01	0.01				
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.1	3.1	3.2	3.4	3.5				
Chloride	mg/L				61	61	59	63	64				
Total Ammonia	mg/L				0.010	0.019	0.018	0.018	0.018				
Nitrate	mg/L				0.03	0.04	0.05	0.05	0.06				
Nitrite	mg/L				0.005	0.006	0.005	0.005	0.005				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0012	0.0013	0.0013	0.0014	0.0014				
Phosphate-P	mg/L				0.0167	0.0182	0.0242	0.0199	0.0200				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				45	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0009	0.0029	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00006	0.00008	0.00009	0.00010	0.00011				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000031	0.0000032	0.0000027	0.0000027	0.0000028				
Calcium Ca	mg/L				9	9	9	8	9				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0016	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000006	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00019	0.00022	0.00020	0.00021				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.017	0.019	0.025	0.021	0.021				
Potassium K	mg/L				2.9	2.6	2.5	2.5	2.5				
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00055	0.00055				
Silicon SiO2	mg/L				0.51	0.52	0.52	0.52	0.52				
Silver Ag	mg/L				0.0000023	0.0000029	0.0000026	0.0000025	0.0000026				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.040	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00040	0.00040	0.00041	0.00041	0.00041				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0010	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				147	129	132	152	153				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L				0.00007	0.00000	0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.08	0.00	0.01	0.01	0.01				
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				4.4	4.4	4.5	4.8	4.9				
Chloride	mg/L				65	65	63	68	68				
Total Ammonia	mg/L				0.021	0.038	0.019	0.020	0.020				
Nitrate	mg/L				0.12	0.14	0.14	0.15	0.16				
Nitrite	mg/L				0.013	0.007	0.007	0.004	0.007				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0031	0.0031	0.0031	0.0033	0.0034				
Phosphate-P	mg/L				0.0185	0.0198	0.0258	0.0216	0.0217				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0010	0.0030	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00023	0.00025	0.00026	0.00027	0.00029				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.023				
Cadmium Cd	mg/L				0.0000042	0.0000043	0.0000038	0.0000039	0.0000040				
Calcium Ca	mg/L				13	12	12	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0017	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00032	0.00031	0.00034	0.00033	0.00034				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.021	0.022	0.028	0.024	0.024				
Potassium K	mg/L				3.5	3.1	3.1	3.1	3.1				
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00055	0.00056				
Silicon SiO2	mg/L				0.57	0.57	0.57	0.58	0.58				
Silver Ag	mg/L				0.0000043	0.0000047	0.0000044	0.0000045	0.0000046				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00042	0.00043	0.00043	0.00043	0.00043				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				151	132	136	155	156				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L				0.00004								
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.04								
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.0	4.8	4.9	5.0	5.0				
Chloride	mg/L				68	68	66	71	71				
Total Ammonia	mg/L				0.017	0.026	0.017	0.016	0.016				
Nitrate	mg/L				0.16	0.17	0.17	0.17	0.17				
Nitrite	mg/L				0.011	0.006	0.006	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0043	0.0043	0.0042	0.0044	0.0045				
Phosphate-P	mg/L				0.0197	0.0210	0.0269	0.0227	0.0228				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0007	0.0011	0.0031	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0032	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00034	0.00035	0.00035	0.00037	0.00038				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000046	0.0000046	0.0000040	0.0000040	0.0000040				
Calcium Ca	mg/L				14	13	13	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0017	0.0014	0.0017	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.014	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00037	0.00036	0.00037	0.00035	0.00035				
Nickel Ni	mg/L				0.0006	0.0008	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.022	0.024	0.029	0.025	0.025				
Potassium K	mg/L				3.8	3.3	3.2	3.2	3.2				
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.59	0.59	0.59	0.59	0.59				
Silver Ag	mg/L				0.0000047	0.0000051	0.0000047	0.0000048	0.0000048				
Sodium Na	mg/L				39	33	35	32	32				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00044	0.00044	0.00044	0.00045	0.00045				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0015	0.0036	0.0033	0.0022	0.0022				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				152	133	136	155	155				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				4.8	4.6	4.6	4.8	4.8				
Chloride	mg/L				70	70	67	71	71				
Total Ammonia	mg/L				0.009	0.011	0.017	0.016	0.016				
Nitrate	mg/L				0.16	0.16	0.15	0.15	0.15				
Nitrite	mg/L				0.005	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0050	0.0048	0.0046	0.0046	0.0046				
Phosphate-P	mg/L				0.0204	0.0215	0.0273	0.0229	0.0229				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0007	0.0012	0.0031	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00041	0.00039	0.00037	0.00037	0.00037				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000045	0.0000044	0.0000039	0.0000039	0.0000039				
Calcium Ca	mg/L				13	13	12	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0003	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0028	0.0028	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00034	0.00032	0.00034	0.00032	0.00032				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.023	0.024	0.030	0.025	0.025				
Potassium K	mg/L				3.6	3.2	3.1	3.0	3.0				
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.58	0.58	0.58	0.58	0.58				
Silver Ag	mg/L				0.0000049	0.0000052	0.0000048	0.0000049	0.0000049				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00045	0.00045	0.00045	0.00045	0.00045				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0014	0.0036	0.0032	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				150	131	135	154	154				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				4.5	4.4	4.4	4.5	4.5				
Chloride	mg/L				69	68	66	70	70				
Total Ammonia	mg/L				0.008	0.011	0.017	0.016	0.016				
Nitrate	mg/L				0.14	0.14	0.13	0.13	0.13				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0045	0.0043	0.0041	0.0041	0.0041				
Phosphate-P	mg/L				0.0199	0.0210	0.0268	0.0224	0.0224				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	44	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0007	0.0011	0.0031	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00036	0.00034	0.00033	0.00033	0.00033				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000044	0.0000044	0.0000038	0.0000039	0.0000039				
Calcium Ca	mg/L				13	12	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00031	0.00030	0.00032	0.00030	0.00030				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.022	0.023	0.029	0.025	0.025				
Potassium K	mg/L				3.5	3.1	3.0	3.0	3.0				
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.57	0.57	0.57	0.57	0.57				
Silver Ag	mg/L				0.0000049	0.0000052	0.0000048	0.0000049	0.0000049				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00045	0.00044	0.00044	0.00044	0.00044				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				149	130	133	153	153				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.1	4.2	4.3	4.3				
Chloride	mg/L				68	67	65	69	69				
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate	mg/L				0.09	0.09	0.09	0.09	0.09				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0040	0.0038	0.0037	0.0037	0.0037				
Phosphate-P	mg/L				0.0194	0.0206	0.0264	0.0220	0.0220				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	44	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0011	0.0030	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00032	0.00030	0.00029	0.00029	0.00029				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000035	0.0000035	0.0000030	0.0000030	0.0000030				
Calcium Ca	mg/L				12	11	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00029	0.00028	0.00030	0.00028	0.00028				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.021	0.022	0.028	0.023	0.023				
Potassium K	mg/L				3.4	3.0	2.9	2.9	2.9				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.56	0.56	0.56	0.56	0.56				
Silver Ag	mg/L				0.0000039	0.0000041	0.0000038	0.0000038	0.0000038				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00044	0.00043	0.00043	0.00043	0.00043				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				148	129	132	152	152				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.1	3.9	4.0	4.1	4.1				
Chloride	mg/L				67	66	64	68	68				
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate	mg/L				0.08	0.07	0.07	0.07	0.07				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0036	0.0034	0.0033	0.0033	0.0033				
Phosphate-P	mg/L				0.0190	0.0202	0.0260	0.0216	0.0216				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0011	0.0030	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00028	0.00027	0.00025	0.00025	0.00025				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000035	0.0000034	0.0000029	0.0000029	0.0000029				
Calcium Ca	mg/L				12	11	11	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00028	0.00027	0.00029	0.00027	0.00027				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.020	0.022	0.027	0.023	0.023				
Potassium K	mg/L				3.3	2.9	2.9	2.8	2.8				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000039	0.0000041	0.0000037	0.0000037	0.0000037				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00043	0.00043	0.00043	0.00043	0.00043				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				147	128	131	151	151				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				3.9	3.8	3.9	4.0	4.0				
Chloride	mg/L				66	65	63	67	67				
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate	mg/L				0.06	0.06	0.05	0.05	0.05				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0032	0.0031	0.0030	0.0030	0.0030				
Phosphate-P	mg/L				0.0186	0.0199	0.0257	0.0213	0.0213				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0010	0.0030	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00025	0.00024	0.00023	0.00023	0.00023				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000033	0.0000033	0.0000028	0.0000028	0.0000028				
Calcium Ca	mg/L				11	10	10	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00026	0.00025	0.00027	0.00025	0.00025				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.020	0.021	0.027	0.022	0.022				
Potassium K	mg/L				3.3	2.8	2.8	2.7	2.7				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000038	0.0000040	0.0000036	0.0000036	0.0000036				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00043	0.00042	0.00042	0.00042	0.00042				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0034	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				146	127	130	150	150				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				3.8	3.7	3.7	3.9	3.9				
Chloride	mg/L				65	65	63	66	66				
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate	mg/L				0.04	0.04	0.04	0.04	0.04				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0029	0.0028	0.0027	0.0027	0.0027				
Phosphate-P	mg/L				0.0183	0.0196	0.0254	0.0211	0.0211				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0010	0.0029	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00022	0.00021	0.00020	0.00020	0.00020				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000032	0.0000032	0.0000027	0.0000027	0.0000027				
Calcium Ca	mg/L				11	10	10	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0002	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00025	0.00024	0.00026	0.00024	0.00024				
Nickel Ni	mg/L				0.0005	0.0007	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.021	0.026	0.022	0.022				
Potassium K	mg/L				3.2	2.8	2.8	2.7	2.7				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000037	0.0000039	0.0000035	0.0000035	0.0000035				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00042	0.00042	0.00042	0.00042	0.00042				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in DORIS CREEK (d/s of tWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				143	125	130	151	152			
TSS	mg/L				4.0	5.8	6.0	6.9	6.9			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.3	3.2	3.3	3.4	3.4			
Chloride	mg/L				63	63	62	67	68			
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013			
Nitrate	mg/L				0.02	0.02	0.02	0.02	0.02			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				28	26	27	27	27			
OrthoPhosphate-P	mg/L				0.0018	0.0018	0.0017	0.0017	0.0017			
Phosphate-P	mg/L				0.0174	0.0187	0.0247	0.0203	0.0203			
Org. Carbon	mg/L				5.5	5.1	7.5	5.0	5.0			
Hardness CaCO3	mg/L				46	43	43	44	44			
Total Metals												
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0005	0.0009	0.0029	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00012	0.00012	0.00011	0.00011	0.00011			
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000028	0.0000028	0.0000023	0.0000023	0.0000024			
Calcium Ca	mg/L				10	9	9	9	9			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0016	0.0013	0.0015	0.0015			
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5			
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000006	0.0000007	0.0000007	0.0000007	0.0000007			
Molybdenum Mo	mg/L				0.00020	0.00019	0.00022	0.00020	0.00020			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005			
Phosphorus P	mg/L				0.018	0.019	0.025	0.021	0.021			
Potassium K	mg/L				3.0	2.6	2.6	2.5	2.5			
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00056	0.00056			
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52			
Silver Ag	mg/L				0.0000024	0.0000027	0.0000023	0.0000024	0.0000024			
Sodium Na	mg/L				39	33	35	33	34			
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000			
Tin Sn	mg/L				0.00041	0.00041	0.00041	0.00041	0.00041			
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060			
Uranium U	mg/L				0.000025	0.000030	0.000038	0.000032	0.000032			
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002			
Zinc Zn	mg/L				0.0010	0.0032	0.0029	0.0018	0.0018			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

Table H 9-A-3
Scenario 9

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1903548	1031093	447548	663482	232109				
TSS				53790	48990	21073	31442	10974				
Free CN				0.30	0.04	0.02	0.03	0.01				
Total CN				30	17	7	9	3				
WAD CN				0.40	0.06	0.03	0.03	0.01				
CNO				330	46	23	29	10				
SCN				5	3	1	2	1				
Sulphate				41753	25869	11419	15494	5510				
Chloride				824583	515240	210402	288087	100924				
Total Ammonia				132	162	64	80	28				
Nitrate				439	363	166	232	89				
Nitrite				63	47	18	23	8				
Alkalinity				371790	213931	95813	120504	42106				
OrthoPhosphate-P				16	11	5	6	2				
Phosphate-P				227	153	86	90	32				
Org. Carbon				74080	43011	26408	22625	7897				
Hardness CaCO3				615270	360258	150946	200143	69957				
Total Metals												
Aluminum Al				452	501	284	326	114				
Antimony Sb				5.2	7.3	10.2	2.4	0.8				
Arsenic As				6.5	3.5	1.4	1.7	0.6				
Barium Ba				39	27	11	14	5				
Beryllium Be				0.13	0.07	0.03	0.04	0.01				
Bismuth Bi				0.76	0.70	0.32	0.45	0.17				
Boron B				463	189	82	101	35				
Cadmium Cd				0.04	0.03	0.01	0.01	0.00				
Calcium Ca				125033	73628	30374	38281	13628				
Chromium Cr				9	2	2	1	0				
Cobalt Co				1.11	1.49	3.26	0.57	0.21				
Copper Cu				17	13	5	7	2				
Iron Fe				688	1041	298	407	142				
Lead Pb				0.28	0.54	0.14	0.18	0.06				
Lithium Li				38	24	10	13	4				
Magnesium Mg				98261	54985	23378	29302	10235				
Manganese Mn				90	173	47	46	16				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.51	1.58	0.77	0.91	0.33				
Nickel Ni				5.82	5.04	1.76	2.14	0.76				
Phosphorus P				234	158	88	93	33				
Potassium K				39669	21560	9044	11397	4022				
Selenium Se				12.07	4.79	2.18	2.52	0.88				
Silicon SiO2				6979	4379	1845	2371	831				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				528356	276984	121246	145164	50706				
Strontium Sr				548	353	127	181	63				
Tellurium Te				673	419	176	226	79				
Thallium Tl				0.41	0.25	0.11	0.14	0.05				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				5.43	3.40	1.44	1.85	0.65				
Titanium Ti				81	50	21	27	9				
Uranium U				0.35	0.26	0.14	0.15	0.05				
Vanadium V				7.54	0.54	0.89	0.73	0.26				
Zinc Zn				13.18	27.08	10.30	8.14	2.87				
Zirconium Zr				68	42	18	23	8				

Table H 9-A-3
Scenario 9**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1087451	591090	256165	377511	132231				
TSS				29278	26544	11420	17029	5944				
Free CN				0.52	0.02	0.02	0.02	0.01				
Total CN				19	9	4	5	2				
WAD CN				0.69	0.03	0.02	0.03	0.01				
CNO				567	21	18	23	8				
SCN				14	8	4	5	2				
Sulphate				32939	20071	8735	11789	4204				
Chloride				482756	300087	122874	167905	58933				
Total Ammonia				153	174	37	51	18				
Nitrate				909	629	274	380	139				
Nitrite				99	32	14	9	6				
Alkalinity				206607	118783	53121	66932	23403				
OrthoPhosphate-P				23	14	6	8	3				
Phosphate-P				137	91	50	53	19				
Org. Carbon				40276	23346	14305	12298	4293				
Hardness CaCO3				343840	201113	84297	111799	39109				
Total Metals												
Aluminum Al				251	274	155	178	62				
Antimony Sb				4.2	4.8	5.8	1.7	0.6				
Arsenic As				3.9	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.14	0.08	0.03	0.05	0.02				
Bismuth Bi				1.69	1.14	0.50	0.68	0.25				
Boron B				253	104	45	56	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				95566	56186	23302	29859	10654				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.78	1.50	2.05	0.70	0.25				
Copper Cu				10	8	3	4	1				
Iron Fe				377	565	162	221	77				
Lead Pb				0.20	0.32	0.09	0.11	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53988	30214	12848	16125	5635				
Manganese Mn				51	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.37	1.45	0.66	0.82	0.30				
Nickel Ni				4.08	3.27	1.18	1.47	0.52				
Phosphorus P				152	101	54	59	21				
Potassium K				26043	14345	6019	7668	2714				
Selenium Se				6.56	2.62	1.19	1.38	0.48				
Silicon SiO2				4233	2632	1110	1432	503				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				289930	152222	66592	79908	27926				
Strontium Sr				305	196	71	101	35				
Tellurium Te				366	227	96	123	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.14	1.96	0.83	1.07	0.38				
Titanium Ti				44	27	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.43	0.51	0.57	0.52	0.18				
Zinc Zn				9.76	16.15	6.21	5.26	1.86				
Zirconium Zr				37	23	10	12	4				

Table H 9-A-3
Scenario 9**Solute Loadings in DSolute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1116825	607752	262428	384924	134601				
TSS				29333	26571	11428	17037	5946				
Free CN				0.29								
Total CN				17	9	4	5	2				
WAD CN				0.38								
CNO				315								
SCN				18	10	4	5	2				
Sulphate				37173	22201	9412	12412	4337				
Chloride				505540	313631	128274	174763	61297				
Total Ammonia				124	119	33	40	14				
Nitrate				1216	776	321	424	150				
Nitrite				84	28	12	7	3				
Alkalinity				208484	119700	53397	67159	23439				
OrthoPhosphate-P				32	20	8	11	4				
Phosphate-P				146	97	52	56	20				
Org. Carbon				40292	23356	14309	12304	4295				
Hardness CaCO3				347847	203066	84880	112271	39179				
Total Metals												
Aluminum Al				253	275	155	178	62				
Antimony Sb				5.0	5.2	6.0	2.0	0.7				
Arsenic As				4.0	2.2	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.17	0.09	0.04	0.05	0.02				
Bismuth Bi				2.49	1.61	0.69	0.91	0.33				
Boron B				254	105	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				106182	61331	24824	31065	10820				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.24	1.72	2.12	0.75	0.26				
Copper Cu				10	8	3	4	1				
Iron Fe				379	565	162	222	77				
Lead Pb				0.22	0.33	0.09	0.12	0.04				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54334	30391	12905	16181	5648				
Manganese Mn				53	96	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.76	1.63	0.72	0.87	0.30				
Nickel Ni				4.46	3.46	1.24	1.52	0.53				
Phosphorus P				165	108	57	62	22				
Potassium K				27788	15191	6269	7864	2741				
Selenium Se				6.58	2.62	1.19	1.38	0.48				
Silicon SiO2				4390	2708	1133	1451	506				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				291635	153054	66842	80111	27957				
Strontium Sr				309	197	71	101	35				
Tellurium Te				366	227	96	123	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.26	2.03	0.86	1.10	0.39				
Titanium Ti				44	27	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.60	0.60	0.61	0.56	0.20				
Zinc Zn				10.79	16.66	6.37	5.40	1.89				
Zirconium Zr				37	23	10	12	4				

Table H 9-A-3
Scenario 9**Solute Loadings in DSolute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1125294	611357	263301	385237	134436				
TSS				29334	26572	11429	17038	5947				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				15	9	4	5	2				
Sulphate				35553	21142	8962	11811	4118				
Chloride				520023	319919	129991	176042	61417				
Total Ammonia				67	52	33	39	14				
Nitrate				1167	717	293	377	132				
Nitrite				35	12	5	6	2				
Alkalinity				207586	119193	53205	66922	23359				
OrthoPhosphate-P				37	22	9	11	4				
Phosphate-P				151	99	53	57	20				
Org. Carbon				40361	23395	14325	12324	4302				
Hardness CaCO3				345670	201835	84410	111685	38981				
Total Metals												
Aluminum Al				253	275	155	178	62				
Antimony Sb				5.5	5.4	6.0	2.0	0.7				
Arsenic As				4.0	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.18	0.10	0.04	0.05	0.02				
Bismuth Bi				3.05	1.80	0.72	0.92	0.32				
Boron B				254	105	45	56	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				99407	57461	23324	29172	10170				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.99	1.58	2.06	0.68	0.24				
Copper Cu				10	8	3	4	1				
Iron Fe				379	565	162	221	77				
Lead Pb				0.23	0.33	0.09	0.12	0.04				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54275	30345	12884	16151	5637				
Manganese Mn				52	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.51	1.49	0.67	0.80	0.28				
Nickel Ni				4.32	3.37	1.20	1.47	0.51				
Phosphorus P				170	110	57	62	22				
Potassium K				26661	14549	6021	7552	2634				
Selenium Se				6.58	2.62	1.19	1.38	0.48				
Silicon SiO2				4312	2663	1115	1428	499				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				290737	152544	66647	79868	27875				
Strontium Sr				307	196	71	101	35				
Tellurium Te				366	227	96	123	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.35	2.06	0.86	1.11	0.39				
Titanium Ti				44	27	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.66	0.62	0.61	0.55	0.19				
Zinc Zn				10.35	16.38	6.25	5.25	1.83				
Zirconium Zr				37	23	10	12	4				

Table H 9-A-3
Scenario 9**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1112743	604056	260419	381553	133155				
TSS				29347	26579	11432	17042	5948				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				13	8	3	4	1				
Sulphate				33595	20004	8512	11236	3918				
Chloride				509614	313869	127601	172987	60355				
Total Ammonia				60	52	33	39	14				
Nitrate				1021	622	255	329	115				
Nitrite				19	12	5	6	2				
Alkalinity				207059	118885	53084	66767	23305				
OrthoPhosphate-P				33	20	8	10	4				
Phosphate-P				147	97	52	56	19				
Org. Carbon				40433	23436	14341	12346	4310				
Hardness CaCO3				344278	201024	84090	111276	38839				
Total Metals												
Aluminum Al				253	275	155	178	62				
Antimony Sb				5.2	5.2	6.0	1.9	0.7				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.17	0.09	0.04	0.05	0.02				
Bismuth Bi				2.68	1.58	0.63	0.81	0.28				
Boron B				254	104	45	56	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				94476	54596	22192	27725	9667				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.77	1.45	2.01	0.62	0.21				
Copper Cu				10	8	3	4	1				
Iron Fe				379	565	162	221	77				
Lead Pb				0.22	0.33	0.09	0.12	0.04				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54175	30286	12861	16122	5627				
Manganese Mn				51	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.33	1.39	0.62	0.75	0.26				
Nickel Ni				4.16	3.27	1.16	1.42	0.50				
Phosphorus P				164	107	56	61	21				
Potassium K				25855	14081	5836	7315	2552				
Selenium Se				6.58	2.62	1.19	1.38	0.48				
Silicon SiO2				4256	2630	1102	1412	493				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				290162	152209	66515	79700	27816				
Strontium Sr				306	196	71	101	35				
Tellurium Te				367	228	96	123	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.30	2.03	0.85	1.09	0.38				
Titanium Ti				44	27	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.59	0.58	0.59	0.53	0.18				
Zinc Zn				9.91	16.13	6.15	5.12	1.79				
Zirconium Zr				37	23	10	12	4				

Table H 9-A-3
Scenario 9**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1102131	597872	257975	378426	132068				
TSS				29358	26586	11435	17045	5949				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				11	7	3	3	1				
Sulphate				31762	18930	8085	10689	3728				
Chloride				500810	308745	125574	170394	59454				
Total Ammonia				36	38	27	32	11				
Nitrate				696	425	174	225	79				
Nitrite				15	9	4	5	2				
Alkalinity				206614	118624	52981	66635	23259				
OrthoPhosphate-P				30	18	7	9	3				
Phosphate-P				144	95	51	55	19				
Org. Carbon				40495	23472	14356	12364	4316				
Hardness CaCO3				343102	200337	83819	110929	38718				
Total Metals												
Aluminum Al				248	272	154	177	62				
Antimony Sb				4.8	5.0	5.9	1.8	0.6				
Arsenic As				3.8	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.14	0.07	0.03	0.04	0.01				
Bismuth Bi				2.34	1.38	0.55	0.71	0.25				
Boron B				253	104	45	55	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				90003	51981	21153	26395	9205				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.57	1.33	1.96	0.55	0.19				
Copper Cu				10	8	3	4	1				
Iron Fe				378	565	162	221	77				
Lead Pb				0.19	0.31	0.08	0.11	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				54059	30217	12833	16086	5615				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.17	1.30	0.59	0.70	0.24				
Nickel Ni				3.99	3.17	1.12	1.37	0.48				
Phosphorus P				155	102	54	58	20				
Potassium K				25166	13679	5677	7112	2481				
Selenium Se				6.55	2.61	1.19	1.37	0.48				
Silicon SiO2				4151	2566	1076	1379	481				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				289669	151920	66401	79554	27765				
Strontium Sr				305	195	70	100	35				
Tellurium Te				367	228	96	123	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.01	0.00	0.00	0.00	0.00				
Tin Sn				3.23	1.99	0.84	1.07	0.37				
Titanium Ti				44	27	12	15	5				
Uranium U				0.19	0.14	0.07	0.08	0.03				
Vanadium V				4.48	0.51	0.57	0.49	0.17				
Zinc Zn				9.42	15.84	6.04	4.98	1.74				
Zirconium Zr				37	23	10	12	4				

Table H 9-A-3
Scenario 9**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1093118	592611	255892	375761	131141				
TSS				29368	26591	11437	17048	5950				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				10	6	2	3	1				
Sulphate				30355	18106	7757	10269	3582				
Chloride				493334	304386	123846	168184	58685				
Total Ammonia				36	36	26	31	11				
Nitrate				579	342	137	176	61				
Nitrite				15	9	4	5	2				
Alkalinity				206236	118402	52894	66523	23220				
OrthoPhosphate-P				27	16	6	8	3				
Phosphate-P				141	93	50	54	19				
Org. Carbon				40548	23502	14368	12379	4321				
Hardness CaCO3				342102	199752	83588	110633	38615				
Total Metals												
Aluminum Al				248	272	154	176	62				
Antimony Sb				4.5	4.8	5.8	1.7	0.6				
Arsenic As				3.7	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.07	0.03	0.04	0.01				
Bismuth Bi				2.07	1.22	0.49	0.63	0.22				
Boron B				252	103	45	55	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				86461	49909	20330	25341	8838				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.42	1.24	1.92	0.51	0.18				
Copper Cu				10	7	3	4	1				
Iron Fe				378	565	162	221	77				
Lead Pb				0.18	0.31	0.08	0.10	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53986	30174	12816	16064	5607				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.04	1.22	0.56	0.66	0.23				
Nickel Ni				3.86	3.10	1.10	1.33	0.47				
Phosphorus P				151	99	53	57	20				
Potassium K				24587	13342	5543	6941	2421				
Selenium Se				6.56	2.61	1.19	1.37	0.48				
Silicon SiO2				4110	2541	1066	1365	477				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				289257	151679	66306	79432	27723				
Strontium Sr				304	194	70	100	35				
Tellurium Te				368	228	96	123	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.01	0.00	0.00	0.00	0.00				
Tin Sn				3.19	1.97	0.83	1.06	0.37				
Titanium Ti				44	27	12	15	5				
Uranium U				0.19	0.14	0.07	0.08	0.03				
Vanadium V				4.43	0.48	0.55	0.48	0.17				
Zinc Zn				9.10	15.65	5.96	4.88	1.70				
Zirconium Zr				37	23	10	12	4				

Table H 9-A-3
Scenario 9**Solute Loadings in DSolute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1085432	588118	254111	373481	130348				
TSS				29376	26595	11439	17050	5951				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				9	5	2	3	1				
Sulphate				29140	17396	7475	9909	3456				
Chloride				486957	300663	122369	166294	58028				
Total Ammonia				36	36	26	31	11				
Nitrate				427	253	102	131	45				
Nitrite				14	9	4	5	2				
Alkalinity				205914	118212	52819	66427	23186				
OrthoPhosphate-P				24	14	6	7	3				
Phosphate-P				138	91	50	53	18				
Org. Carbon				40593	23528	14378	12392	4326				
Hardness CaCO3				341251	199253	83391	110380	38527				
Total Metals												
Aluminum Al				247	271	154	176	61				
Antimony Sb				4.3	4.7	5.8	1.6	0.6				
Arsenic As				3.7	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.07	0.03	0.03	0.01				
Bismuth Bi				1.84	1.09	0.44	0.56	0.20				
Boron B				252	103	45	55	19				
Cadmium Cd				0.02	0.02	0.01	0.01	0.00				
Calcium Ca				83414	48130	19624	24438	8524				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.28	1.16	1.89	0.47	0.16				
Copper Cu				10	7	3	4	1				
Iron Fe				378	564	162	221	77				
Lead Pb				0.18	0.30	0.08	0.10	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53922	30136	12801	16045	5600				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.93	1.15	0.53	0.63	0.22				
Nickel Ni				3.76	3.04	1.07	1.30	0.45				
Phosphorus P				147	97	52	56	19				
Potassium K				24093	13053	5429	6794	2370				
Selenium Se				6.55	2.61	1.19	1.37	0.48				
Silicon SiO2				4070	2518	1057	1353	472				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				288905	151472	66224	79327	27686				
Strontium Sr				303	194	70	100	35				
Tellurium Te				368	229	96	123	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				3.16	1.95	0.82	1.05	0.37				
Titanium Ti				44	27	12	15	5				
Uranium U				0.19	0.14	0.07	0.08	0.03				
Vanadium V				4.38	0.45	0.54	0.46	0.16				
Zinc Zn				8.83	15.49	5.90	4.80	1.68				
Zirconium Zr				37	23	10	12	4				

Table H 9-A-3
Scenario 9**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1078853	584266	252581	371524	129667				
TSS				29383	26599	11440	17052	5951				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				8	4	2	2	1				
Sulphate				28099	16788	7234	9599	3349				
Chloride				481498	297472	121100	164670	57463				
Total Ammonia				36	36	26	31	11				
Nitrate				297	177	71	92	32				
Nitrite				14	9	4	5	2				
Alkalinity				205638	118050	52755	66345	23157				
OrthoPhosphate-P				22	13	5	7	2				
Phosphate-P				136	90	49	52	18				
Org. Carbon				40631	23550	14387	12404	4330				
Hardness CaCO3				340522	198825	83221	110163	38451				
Total Metals												
Aluminum Al				246	271	154	176	61				
Antimony Sb				4.1	4.6	5.7	1.6	0.5				
Arsenic As				3.7	1.9	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.12	0.06	0.03	0.03	0.01				
Bismuth Bi				1.64	0.97	0.39	0.50	0.18				
Boron B				252	103	45	55	19				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				80805	46606	19017	23662	8254				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.17	1.10	1.87	0.43	0.15				
Copper Cu				9	7	3	4	1				
Iron Fe				378	564	162	221	77				
Lead Pb				0.17	0.30	0.08	0.10	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53867	30103	12789	16029	5594				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.83	1.10	0.51	0.60	0.21				
Nickel Ni				3.67	2.99	1.05	1.28	0.45				
Phosphorus P				144	95	51	55	19				
Potassium K				23669	12805	5330	6668	2327				
Selenium Se				6.55	2.61	1.19	1.37	0.48				
Silicon SiO2				4036	2498	1049	1343	469				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				288603	151295	66154	79237	27655				
Strontium Sr				302	194	70	99	35				
Tellurium Te				368	229	96	123	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				3.13	1.93	0.81	1.04	0.36				
Titanium Ti				44	27	12	15	5				
Uranium U				0.19	0.14	0.07	0.08	0.03				
Vanadium V				4.34	0.43	0.53	0.45	0.16				
Zinc Zn				8.59	15.35	5.84	4.73	1.65				
Zirconium Zr				37	23	10	12	4				

Table H 9-A-3
Scenario 9**Solute Loadings in D/Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)**

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1936366	1056039	461815	686329	241544				
TSS				54051	49123	21142	31537	11008				
Free CN												
Total CN				27	17	7	9	3				
WAD CN												
CNO												
SCN				7	4	2	2	1				
Sulphate				44499	26653	11619	15503	5410				
Chloride				849818	533601	220179	303287	107088				
Total Ammonia				67	66	49	58	20				
Nitrate				222	134	55	70	24				
Nitrite				27	17	7	9	3				
Alkalinity				374952	215137	96328	121103	42273				
OrthoPhosphate-P				24	15	6	8	3				
Phosphate-P				236	157	88	92	32				
Org. Carbon				74574	43213	26508	22767	7947				
Hardness CaCO3				620424	362187	151720	200958	70145				
Total Metals												
Aluminum Al				451	502	285	327	114				
Antimony Sb				6.1	7.6	10.2	2.5	0.9				
Arsenic As				6.5	3.5	1.3	1.7	0.6				
Barium Ba				39	27	11	14	5				
Beryllium Be				0.15	0.07	0.03	0.04	0.01				
Bismuth Bi				1.65	0.99	0.40	0.51	0.18				
Boron B				464	189	82	101	35				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				130785	75848	31289	39119	13769				
Chromium Cr				9	2	2	1	0				
Cobalt Co				1.36	1.56	3.28	0.56	0.20				
Copper Cu				17	13	5	7	2				
Iron Fe				692	1045	300	410	143				
Lead Pb				0.28	0.53	0.14	0.17	0.06				
Lithium Li				38	24	10	13	4				
Magnesium Mg				98828	55229	23485	29431	10274				
Manganese Mn				90	174	47	46	16				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.72	1.64	0.79	0.91	0.32				
Nickel Ni				6.08	5.12	1.78	2.15	0.75				
Phosphorus P				243	161	89	94	33				
Potassium K				40692	21887	9145	11420	3987				
Selenium Se				12.09	4.80	2.19	2.53	0.88				
Silicon SiO2				7090	4407	1856	2377	830				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				530647	281858	124763	151518	53561				
Strontium Sr				552	354	128	182	64				
Tellurium Te				677	420	177	227	79				
Thallium Tl				0.41	0.25	0.11	0.14	0.05				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				5.57	3.45	1.45	1.86	0.65				
Titanium Ti				81	51	21	27	10				
Uranium U				0.34	0.25	0.14	0.14	0.05				
Vanadium V				7.69	0.60	0.92	0.75	0.26				
Zinc Zn				13.93	27.34	10.38	8.18	2.86				
Zirconium Zr				68	42	18	23	8				

Table H-9-A-1
Scenario 9

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		500000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		22			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			694	159	169	
TSS	mg/L			4.7	6.9	8.1	
Free CN	mg/L		0.005	0.0024	0.00007	0.00003	1%
Total CN	mg/L	1.0		0.023	0.003	0.002	
WAD CN	mg/L			0.0032	0.0001	0.0000	
CNO	mg/L			2.6	0.08	0.04	
SCN	mg/L			0.086	0.002	0.001	
Sulphate	mg/L			79	5.0	5.7	
Chloride	mg/L			432	72	71	
Total Ammonia	mg/L		0.97	0.93	0.038	0.020	4%
Nitrate	mg/L		2.9	4.9	0.17	0.09	6%
Nitrite	mg/L		0.018	0.37	0.013	0.008	73%
Alkalinity	mg/L			51	28	26	
OrthoPhosphate-P	mg/L			0.1509	0.0050	0.0032	
Phosphate-P	mg/L			0.1542	0.0273	0.0262	
Org. Carbon	mg/L			6.3	7.5	7.1	
Hardness CaCO3	mg/L			98	47	45	
Total Metals							
Aluminum Al	mg/L		0.1	0.15	0.08	0.25	83%
Antimony Sb	mg/L			0.0138	0.0031	0.0019	
Arsenic As	mg/L	0.5	0.005	0.00	0.0005	0.0006	11%
Barium Ba	mg/L			0.0093	0.0033	0.0052	
Beryllium Be	mg/L			0.00055	0.00002	0.00002	
Bismuth Bi	mg/L			0.01325	0.00041	0.00029	
Boron B	mg/L			0.032	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000048	0.0000046	0.0000155	12%
Calcium Ca	mg/L			215	14	11	
Chromium Cr	mg/L		0.001	0.0057	0.001	0.001	79%
Cobalt Co	mg/L			0.0089	0.0011	0.0005	
Copper Cu	mg/L	0.3	0.002	0.008	0.0017	0.0019	86%
Iron Fe	mg/L		0.3	0.18	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00036	0.00007	0.00026	4%
Lithium Li	mg/L			0.0049	0.0029	0.0029	
Magnesium Mg	mg/L			8.4	7.3	7.2	
Manganese Mn	mg/L			0.025	0.021	0.024	
Mercury Hg	mg/L		0.0001	0.0000116	0.0000009	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0078	0.00037	0.00033	1%
Nickel Ni	mg/L	0.5	0.025	0.007	0.0008	0.0007	3%
Phosphorus P	mg/L			0.224	0.030	0.027	
Potassium K	mg/L			36	3.8	3.2	
Selenium Se	mg/L		0.001	0.00095	0.00090	0.00083	90%
Silicon SiO2	mg/L			3.5	0.59	0.55	
Silver Ag	mg/L		0.0001	0.00011	0.0000052	0.0000053	5%
Sodium Na	mg/L			164	43	40	
Strontium Sr	mg/L			0.079	0.043	0.046	
Tellurium Te	mg/L			0.051	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000040	0.000031	0.002001	4%
Thorium Th	mg/L			0.000042	0.0000023	0.0000012	
Tin Sn	mg/L			0.00211	0.00045	0.00003	
Titanium Ti	mg/L			0.0136	0.0062	0.0062	
Uranium U	mg/L			0.000071	0.000040	0.000044	
Vanadium V	mg/L			0.0031	0.0006	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.020	0.0036	0.0054	12%
Zirconium Zr	mg/L			0.0052	0.0050	0.0051	

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				151	152	142	162	162				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.01	0.00	0.00	0.00	0.00				
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.9	3.9	4.9	4.7	4.7				
Chloride	mg/L				62	59	58	66	66				
Total Ammonia	mg/L				0.007	0.011	0.002	0.009	0.009				
Nitrate	mg/L				0.02	0.02	0.02	0.03	0.03				
Nitrite	mg/L				0.003	0.004	0.002	0.004	0.004				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0012	0.0013	0.0013	0.0013	0.0014				
Phosphate-P	mg/L				0.0242	0.0163	0.0073	0.0193	0.0194				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00011	0.00013	0.00013	0.00013	0.00014				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000027	0.0000043	0.0000149	0.0000024	0.0000024				
Calcium Ca	mg/L				8	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00025	0.00022	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00060	0.00060				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.52				
Silver Ag	mg/L				0.0000039	0.0000015	0.0000038	0.0000022	0.0000022				
Sodium Na	mg/L				38	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.046				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000000	0.000000	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000032	0.000034	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				155	155	145	166	166				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L				0.00003	0.00000	0.00000	0.00000	0.00000				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.04	0.00	0.00	0.00	0.00				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.6	4.6	5.5	5.4	5.4				
Chloride	mg/L				64	61	60	69	69				
Total Ammonia	mg/L				0.013	0.020	0.003	0.011	0.011				
Nitrate	mg/L				0.06	0.07	0.07	0.08	0.08				
Nitrite	mg/L				0.008	0.005	0.003	0.003	0.005				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0022	0.0022	0.0022	0.0023	0.0023				
Phosphate-P	mg/L				0.0253	0.0173	0.0083	0.0203	0.0204				
Org. Carbon	mg/L				6.0	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00020	0.00021	0.00022	0.00022	0.00023				
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd	mg/L				0.0000033	0.0000049	0.0000155	0.0000030	0.0000030				
Calcium Ca	mg/L				10	9	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00026	0.00025	0.00032	0.00029	0.00029				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.018	0.009	0.021	0.022				
Potassium K	mg/L				3.1	2.6	2.5	2.9	2.9				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.55	0.55				
Silver Ag	mg/L				0.0000049	0.0000024	0.0000048	0.0000032	0.0000032				
Sodium Na	mg/L				38	31	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0018	0.0053	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				157	157	147	167	167				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L				0.00002								
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000								
CNO	mg/L				0.02								
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.9	4.8	5.7	5.5	5.5				
Chloride	mg/L				66	63	62	70	70				
Total Ammonia	mg/L				0.011	0.014	0.002	0.009	0.009				
Nitrate	mg/L				0.09	0.09	0.08	0.09	0.09				
Nitrite	mg/L				0.007	0.004	0.002	0.003	0.003				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0028	0.0028	0.0028	0.0028	0.0029				
Phosphate-P	mg/L				0.0259	0.0178	0.0088	0.0209	0.0209				
Org. Carbon	mg/L				6.0	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00025	0.00026	0.00026	0.00027	0.00028				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000035	0.0000050	0.0000155	0.0000030	0.0000031				
Calcium Ca	mg/L				11	10	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00029	0.00027	0.00033	0.00029	0.00029				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.027	0.019	0.010	0.022	0.022				
Potassium K	mg/L				3.2	2.7	2.6	2.9	2.9				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000052	0.0000026	0.0000050	0.0000033	0.0000033				
Sodium Na	mg/L				38	32	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0038	0.0019	0.0018	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				158	158	147	167	167				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.8	4.7	5.6	5.4	5.4				
Chloride	mg/L				67	63	62	70	70				
Total Ammonia	mg/L				0.007	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.08	0.08	0.07	0.08	0.08				
Nitrite	mg/L				0.003	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0032	0.0031	0.0029	0.0029	0.0029				
Phosphate-P	mg/L				0.0262	0.0181	0.0090	0.0210	0.0210				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00029	0.00028	0.00027	0.00027	0.00027				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000035	0.0000050	0.0000155	0.0000030	0.0000030				
Calcium Ca	mg/L				10	9	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00027	0.00025	0.00032	0.00028	0.00028				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.027	0.019	0.010	0.022	0.022				
Potassium K	mg/L				3.1	2.6	2.5	2.8	2.8				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000053	0.0000026	0.0000050	0.0000034	0.0000034				
Sodium Na	mg/L				38	32	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0018	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				157	157	147	167	167				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.7	4.5	5.5	5.3	5.3				
Chloride	mg/L				66	63	62	70	70				
Total Ammonia	mg/L				0.007	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.07	0.07	0.06	0.07	0.07				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0029	0.0028	0.0027	0.0027	0.0027				
Phosphate-P	mg/L				0.0259	0.0178	0.0087	0.0207	0.0207				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00027	0.00026	0.00025	0.00025	0.00025				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000034	0.0000049	0.0000155	0.0000030	0.0000030				
Calcium Ca	mg/L				10	9	9	10	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00026	0.00024	0.00031	0.00027	0.00027				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.019	0.010	0.022	0.022				
Potassium K	mg/L				3.1	2.5	2.5	2.8	2.8				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000053	0.0000026	0.0000050	0.0000034	0.0000034				
Sodium Na	mg/L				38	31	34	36	36				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.050	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				156	156	146	166	166				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.6	4.4	5.4	5.2	5.1				
Chloride	mg/L				65	62	61	69	69				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.05	0.05	0.04	0.05	0.05				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0026	0.0026	0.0025	0.0025	0.0025				
Phosphate-P	mg/L				0.0257	0.0176	0.0085	0.0205	0.0205				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00024	0.00024	0.00023	0.00023	0.00023				
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd	mg/L				0.0000030	0.0000045	0.0000150	0.0000025	0.0000025				
Calcium Ca	mg/L				10	8	8	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00025	0.00023	0.00030	0.00026	0.00026				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.018	0.009	0.021	0.021				
Potassium K	mg/L				3.0	2.5	2.5	2.8	2.8				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000048	0.0000021	0.0000045	0.0000028	0.0000028				
Sodium Na	mg/L				38	31	34	36	36				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				156	156	145	165	165				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.5	4.3	5.3	5.1	5.1				
Chloride	mg/L				65	62	61	69	69				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.04	0.04	0.03	0.04	0.04				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0024	0.0024	0.0023	0.0023	0.0023				
Phosphate-P	mg/L				0.0255	0.0174	0.0084	0.0204	0.0204				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00023	0.00022	0.00021	0.00021	0.00021				
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd	mg/L				0.0000029	0.0000045	0.0000150	0.0000025	0.0000025				
Calcium Ca	mg/L				9	8	8	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0029	0.0028	0.0028	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00024	0.00022	0.00029	0.00025	0.00025				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.018	0.009	0.021	0.021				
Potassium K	mg/L				3.0	2.4	2.4	2.7	2.7				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000048	0.0000021	0.0000044	0.0000028	0.0000028				
Sodium Na	mg/L				38	31	34	36	36				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				155	155	145	165	165				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.4	4.3	5.2	5.0	5.0				
Chloride	mg/L				65	61	60	68	68				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0023	0.0022	0.0021	0.0021	0.0021				
Phosphate-P	mg/L				0.0253	0.0173	0.0082	0.0202	0.0202				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00021	0.00020	0.00020	0.00020	0.00020				
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd	mg/L				0.0000029	0.0000044	0.0000149	0.0000024	0.0000024				
Calcium Ca	mg/L				9	8	8	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00023	0.00022	0.00028	0.00025	0.00025				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.018	0.009	0.021	0.021				
Potassium K	mg/L				2.9	2.4	2.4	2.7	2.7				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000047	0.0000020	0.0000044	0.0000027	0.0000027				
Sodium Na	mg/L				38	31	34	36	36				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				155	155	145	165	165				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.3	4.2	5.1	4.9	4.9				
Chloride	mg/L				64	61	60	68	68				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.02	0.02	0.02	0.02	0.02				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0021	0.0021	0.0020	0.0020	0.0020				
Phosphate-P	mg/L				0.0252	0.0171	0.0081	0.0201	0.0201				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00020	0.00019	0.00019	0.00019	0.00019				
Boron B	mg/L				0.030	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000028	0.0000043	0.0000149	0.0000024	0.0000024				
Calcium Ca	mg/L				9	8	8	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00023	0.00021	0.00028	0.00024	0.00024				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.018	0.009	0.021	0.021				
Potassium K	mg/L				2.9	2.4	2.4	2.7	2.7				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000047	0.0000020	0.0000044	0.0000027	0.0000027				
Sodium Na	mg/L				38	31	34	36	36				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table H-9-A-2
Scenario 9

Water Quality in Little Roberst Water Quality in Little Roberst Lake Outflow

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				152	153	144	164	165			
TSS	mg/L				7.0	8.0	4.0	5.0	5.0			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				4.0	3.9	4.9	4.7	4.7			
Chloride	mg/L				63	60	59	68	68			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				23	23	24	25	25			
OrthoPhosphate-P	mg/L				0.0015	0.0015	0.0015	0.0015	0.0015			
Phosphate-P	mg/L				0.0246	0.0166	0.0075	0.0195	0.0195			
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0			
Hardness CaCO3	mg/L				43	38	40	44	44			
Total Metals												
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00015	0.00014	0.00014	0.00014	0.00014			
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026			
Cadmium Cd	mg/L				0.0000026	0.0000042	0.0000147	0.0000022	0.0000022			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.0	5.1	5.2	7.1	7.1			
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008			
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006			
Molybdenum Mo	mg/L				0.00020	0.00019	0.00026	0.00022	0.00022			
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020			
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6			
Selenium Se	mg/L				0.00064	0.00037	0.00083	0.00060	0.00060			
Silicon SiO2	mg/L				0.51	0.52	0.52	0.52	0.52			
Silver Ag	mg/L				0.0000040	0.0000013	0.0000037	0.0000021	0.0000021			
Sodium Na	mg/L				38	31	34	37	37			
Strontium Sr	mg/L				0.044	0.037	0.039	0.046	0.046			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000			
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000			
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0061	0.0061			
Uranium U	mg/L				0.000036	0.000032	0.000034	0.000043	0.000043			
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

Table H 9-A-3
Scenario 9

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				140	122	126	146	146				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN				0.00002	0.00000	0.00001	0.00001	0.00001				
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO				0.02	0.01	0.01	0.01	0.01				
SCN				0.000	0.000	0.000	0.000	0.001				
Sulphate				3.1	3.1	3.2	3.4	3.5				
Chloride				61	61	59	63	64				
Total Ammonia				0.010	0.019	0.018	0.018	0.018				
Nitrate				0.03	0.04	0.05	0.05	0.06				
Nitrite				0.005	0.006	0.005	0.005	0.005				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0012	0.0013	0.0013	0.0014	0.0014				
Phosphate-P				0.0167	0.0182	0.0242	0.0199	0.0200				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				45	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0009	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00006	0.00008	0.00009	0.00010	0.00011				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000031	0.0000032	0.0000027	0.0000027	0.0000028				
Calcium Ca				9	9	9	8	9				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0016	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00018	0.00019	0.00022	0.00020	0.00021				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.017	0.019	0.025	0.021	0.021				
Potassium K				2.9	2.6	2.5	2.5	2.5				
Selenium Se				0.00089	0.00057	0.00062	0.00055	0.00055				
Silicon SiO2				0.51	0.52	0.52	0.52	0.52				
Silver Ag				0.0000023	0.0000029	0.0000026	0.0000025	0.0000026				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.040	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000009	0.0000010	0.0000010	0.0000010	0.0000011				
Tin Sn				0.00040	0.00040	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 9-A-3
Scenario 9

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				147	129	132	152	153				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN				0.00007	0.00000	0.00001	0.00001	0.00001				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.08	0.00	0.01	0.01	0.01				
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				4.4	4.4	4.5	4.8	4.9				
Chloride				65	65	63	68	68				
Total Ammonia				0.021	0.038	0.019	0.020	0.020				
Nitrate				0.12	0.14	0.14	0.15	0.16				
Nitrite				0.013	0.007	0.007	0.004	0.007				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0031	0.0031	0.0031	0.0033	0.0034				
Phosphate-P				0.0185	0.0198	0.0258	0.0216	0.0217				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	44	44	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0010	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00023	0.00025	0.00026	0.00027	0.00029				
Boron B				0.034	0.023	0.023	0.022	0.023				
Cadmium Cd				0.0000042	0.0000043	0.0000038	0.0000039	0.0000040				
Calcium Ca				13	12	12	12	12				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0011	0.0003	0.0003				
Copper Cu				0.0013	0.0017	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00032	0.00031	0.00034	0.00033	0.00034				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.021	0.022	0.028	0.024	0.024				
Potassium K				3.5	3.1	3.1	3.1	3.1				
Selenium Se				0.00089	0.00057	0.00062	0.00055	0.00056				
Silicon SiO2				0.57	0.57	0.57	0.58	0.58				
Silver Ag				0.0000043	0.0000047	0.0000044	0.0000045	0.0000046				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000031	0.000031				
Thorium Th				0.0000019	0.0000020	0.0000021	0.0000021	0.0000022				
Tin Sn				0.00042	0.00043	0.00043	0.00043	0.00043				
Titanium Ti				0.0059	0.0059	0.0059	0.0060	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 9-A-3
Scenario 9

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				151	132	136	155	156				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN				0.00004								
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN				0.0001								
CNO				0.04								
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				5.0	4.8	4.9	5.0	5.0				
Chloride				68	68	66	71	71				
Total Ammonia				0.017	0.026	0.017	0.016	0.016				
Nitrate				0.16	0.17	0.17	0.17	0.17				
Nitrite				0.011	0.006	0.006	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0043	0.0043	0.0042	0.0044	0.0045				
Phosphate-P				0.0197	0.0210	0.0269	0.0227	0.0228				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0011	0.0031	0.0008	0.0008				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0032	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00034	0.00035	0.00035	0.00037	0.00038				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000046	0.0000046	0.0000040	0.0000040	0.0000040				
Calcium Ca				14	13	13	13	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0014	0.0017	0.0014	0.0017	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.021	0.014	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00037	0.00036	0.00037	0.00035	0.00035				
Nickel Ni				0.0006	0.0008	0.0006	0.0006	0.0006				
Phosphorus P				0.022	0.024	0.029	0.025	0.025				
Potassium K				3.8	3.3	3.2	3.2	3.2				
Selenium Se				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.59	0.59	0.59	0.59	0.59				
Silver Ag				0.0000047	0.0000051	0.0000047	0.0000048	0.0000048				
Sodium Na				39	33	35	32	32				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000021	0.0000022	0.0000022	0.0000022	0.0000022				
Tin Sn				0.00044	0.00044	0.00044	0.00045	0.00045				
Titanium Ti				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0015	0.0036	0.0033	0.0022	0.0022				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 9-A-3
Scenario 9

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				152	133	136	155	155				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				4.8	4.6	4.6	4.8	4.8				
Chloride				70	70	67	71	71				
Total Ammonia				0.009	0.011	0.017	0.016	0.016				
Nitrate				0.16	0.16	0.15	0.15	0.15				
Nitrite				0.005	0.003	0.003	0.003	0.003				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0050	0.0048	0.0046	0.0046	0.0046				
Phosphate-P				0.0204	0.0215	0.0273	0.0229	0.0229				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0012	0.0031	0.0008	0.0008				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00041	0.00039	0.00037	0.00037	0.00037				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000045	0.0000044	0.0000039	0.0000039	0.0000039				
Calcium Ca				13	13	12	12	12				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0003	0.0011	0.0003	0.0003				
Copper Cu				0.0014	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0028	0.0028	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00034	0.00032	0.00034	0.00032	0.00032				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.023	0.024	0.030	0.025	0.025				
Potassium K				3.6	3.2	3.1	3.0	3.0				
Selenium Se				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.58	0.58	0.58	0.58	0.58				
Silver Ag				0.0000049	0.0000052	0.0000048	0.0000049	0.0000049				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000022	0.0000022	0.0000022	0.0000023	0.0000023				
Tin Sn				0.00045	0.00045	0.00045	0.00045	0.00045				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0014	0.0036	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 9-A-3
Scenario 9

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				150	131	135	154	154				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				4.5	4.4	4.4	4.5	4.5				
Chloride				69	68	66	70	70				
Total Ammonia				0.008	0.011	0.017	0.016	0.016				
Nitrate				0.14	0.14	0.13	0.13	0.13				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0045	0.0043	0.0041	0.0041	0.0041				
Phosphate-P				0.0199	0.0210	0.0268	0.0224	0.0224				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	44	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0011	0.0031	0.0008	0.0008				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00036	0.00034	0.00033	0.00033	0.00033				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000044	0.0000044	0.0000038	0.0000039	0.0000039				
Calcium Ca				13	12	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00031	0.00030	0.00032	0.00030	0.00030				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.022	0.023	0.029	0.025	0.025				
Potassium K				3.5	3.1	3.0	3.0	3.0				
Selenium Se				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.57	0.57	0.57	0.57	0.57				
Silver Ag				0.0000049	0.0000052	0.0000048	0.0000049	0.0000049				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.043	0.037	0.041	0.041				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000023	0.0000023	0.0000023	0.0000023	0.0000023				
Tin Sn				0.00045	0.00044	0.00044	0.00044	0.00044				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 9-A-3
Scenario 9

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				149	130	133	153	153				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.3	4.1	4.2	4.3	4.3				
Chloride				68	67	65	69	69				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.09	0.09	0.09	0.09	0.09				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0040	0.0038	0.0037	0.0037	0.0037				
Phosphate-P				0.0194	0.0206	0.0264	0.0220	0.0220				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	44	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0011	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00032	0.00030	0.00029	0.00029	0.00029				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000035	0.0000035	0.0000030	0.0000030	0.0000030				
Calcium Ca				12	11	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00029	0.00028	0.00030	0.00028	0.00028				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.021	0.022	0.028	0.023	0.023				
Potassium K				3.4	3.0	2.9	2.9	2.9				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.56	0.56	0.56	0.56	0.56				
Silver Ag				0.0000039	0.0000041	0.0000038	0.0000038	0.0000038				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000007	0.0000007	0.0000007	0.0000008	0.0000008				
Tin Sn				0.00044	0.00043	0.00043	0.00043	0.00043				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 9-A-3
Scenario 9

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				148	129	132	152	152				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				4.1	3.9	4.0	4.1	4.1				
Chloride				67	66	64	68	68				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.08	0.07	0.07	0.07	0.07				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0036	0.0034	0.0033	0.0033	0.0033				
Phosphate-P				0.0190	0.0202	0.0260	0.0216	0.0216				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0011	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00001	0.00001	0.00001				
Bismuth Bi				0.00028	0.00027	0.00025	0.00025	0.00025				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000035	0.0000034	0.0000029	0.0000029	0.0000029				
Calcium Ca				12	11	11	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00028	0.00027	0.00029	0.00027	0.00027				
Nickel Ni				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.020	0.022	0.027	0.023	0.023				
Potassium K				3.3	2.9	2.9	2.8	2.8				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.55	0.55	0.55	0.55	0.55				
Silver Ag				0.0000039	0.0000041	0.0000037	0.0000037	0.0000037				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000008	0.0000007	0.0000007	0.0000007	0.0000007				
Tin Sn				0.00043	0.00043	0.00043	0.00043	0.00043				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 9-A-3
Scenario 9

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				147	128	131	151	151				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				3.9	3.8	3.9	4.0	4.0				
Chloride				66	65	63	67	67				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.06	0.06	0.05	0.05	0.05				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0032	0.0031	0.0030	0.0030	0.0030				
Phosphate-P				0.0186	0.0199	0.0257	0.0213	0.0213				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0010	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00025	0.00024	0.00023	0.00023	0.00023				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000033	0.0000033	0.0000028	0.0000028	0.0000028				
Calcium Ca				11	10	10	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00026	0.00025	0.00027	0.00025	0.00025				
Nickel Ni				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.020	0.021	0.027	0.022	0.022				
Potassium K				3.3	2.8	2.8	2.7	2.7				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.55	0.55	0.55	0.55	0.55				
Silver Ag				0.0000038	0.0000040	0.0000036	0.0000036	0.0000036				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000007	0.0000006	0.0000006	0.0000006	0.0000006				
Tin Sn				0.00043	0.00042	0.00042	0.00042	0.00042				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0034	0.0030	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 9-A-3
Scenario 9

Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				146	127	130	150	150				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				3.8	3.7	3.7	3.9	3.9				
Chloride				65	65	63	66	66				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.04	0.04	0.04	0.04	0.04				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0029	0.0028	0.0027	0.0027	0.0027				
Phosphate-P				0.0183	0.0196	0.0254	0.0211	0.0211				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0010	0.0029	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00022	0.00021	0.00020	0.00020	0.00020				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000032	0.0000032	0.0000027	0.0000027	0.0000027				
Calcium Ca				11	10	10	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0002	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00025	0.00024	0.00026	0.00024	0.00024				
Nickel Ni				0.0005	0.0007	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.021	0.026	0.022	0.022				
Potassium K				3.2	2.8	2.8	2.7	2.7				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.54	0.54	0.54	0.54	0.54				
Silver Ag				0.0000037	0.0000039	0.0000035	0.0000035	0.0000035				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000006	0.0000006	0.0000005	0.0000005	0.0000005				
Tin Sn				0.00042	0.00042	0.00042	0.00042	0.00042				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table H 9-A-3
Scenario 9

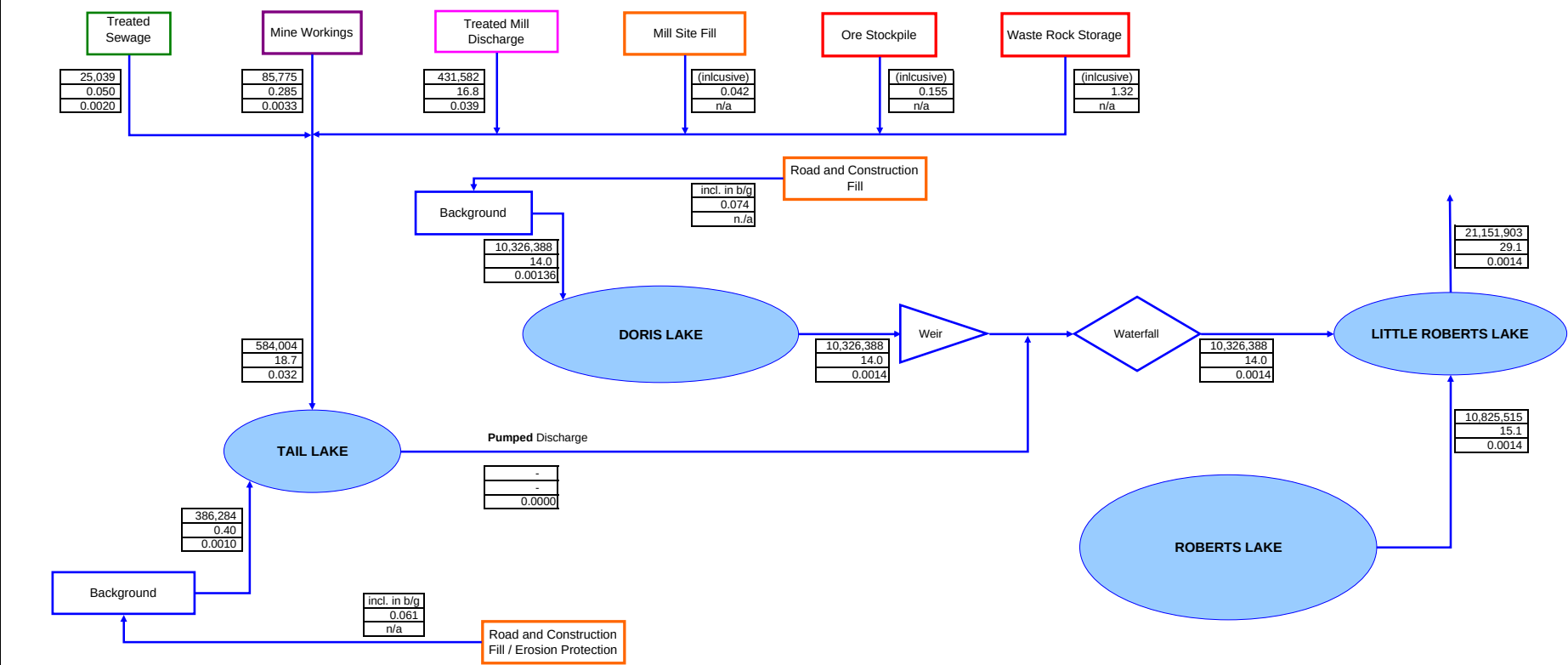
Loadings in Little Roberts Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				143	125	130	151	152				
TSS				4.0	5.8	6.0	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.3	3.2	3.3	3.4	3.4				
Chloride				63	63	62	67	68				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.02	0.02	0.02	0.02	0.02				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0018	0.0018	0.0017	0.0017	0.0017				
Phosphate-P				0.0174	0.0187	0.0247	0.0203	0.0203				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0005	0.0009	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00012	0.00012	0.00011	0.00011	0.00011				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000028	0.0000028	0.0000023	0.0000023	0.0000024				
Calcium Ca				10	9	9	9	9				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0016	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00020	0.00019	0.00022	0.00020	0.00020				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.025	0.021	0.021				
Potassium K				3.0	2.6	2.6	2.5	2.5				
Selenium Se				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.52	0.52	0.52	0.52	0.52				
Silver Ag				0.0000024	0.0000027	0.0000023	0.0000024	0.0000024				
Sodium Na				39	33	35	33	34				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000003	0.0000004	0.0000004	0.0000004	0.0000004				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

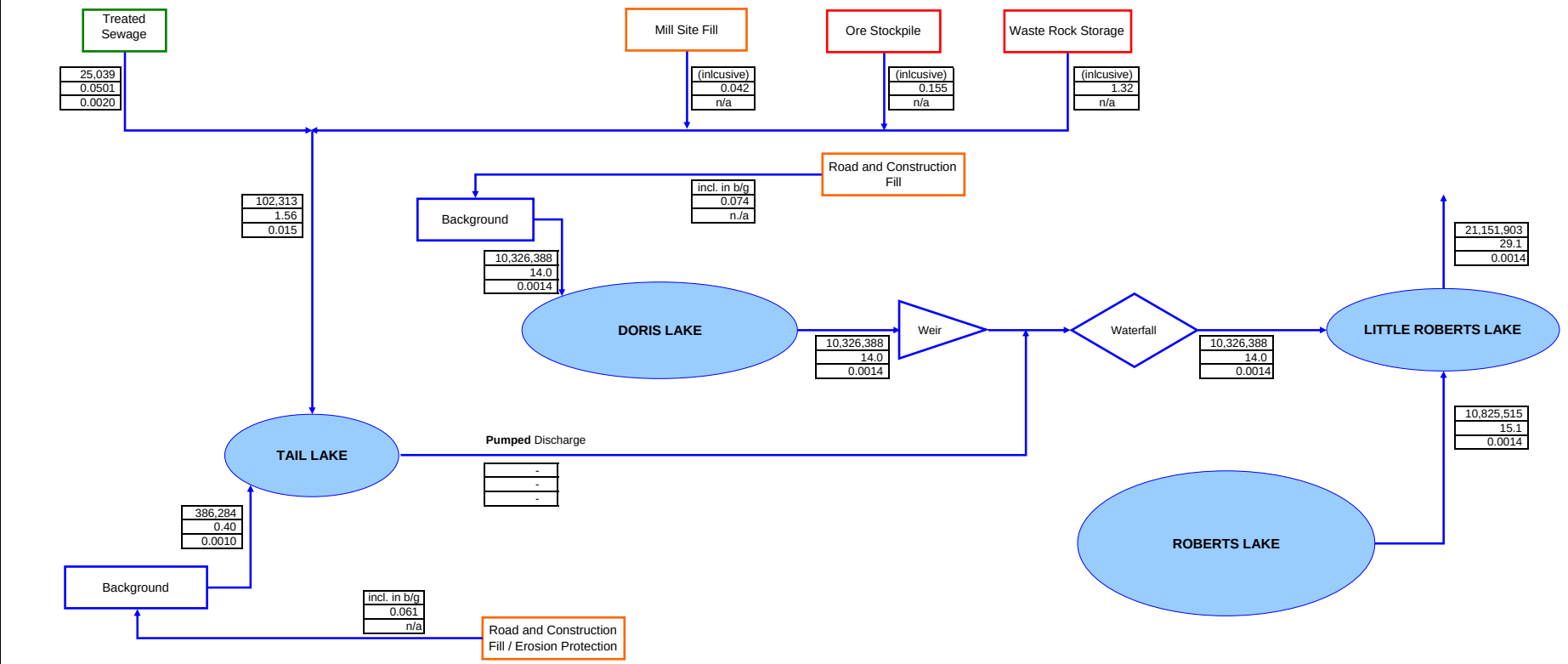
Appendix I

Water Quality Modelling Results – Sensitivity Analysis

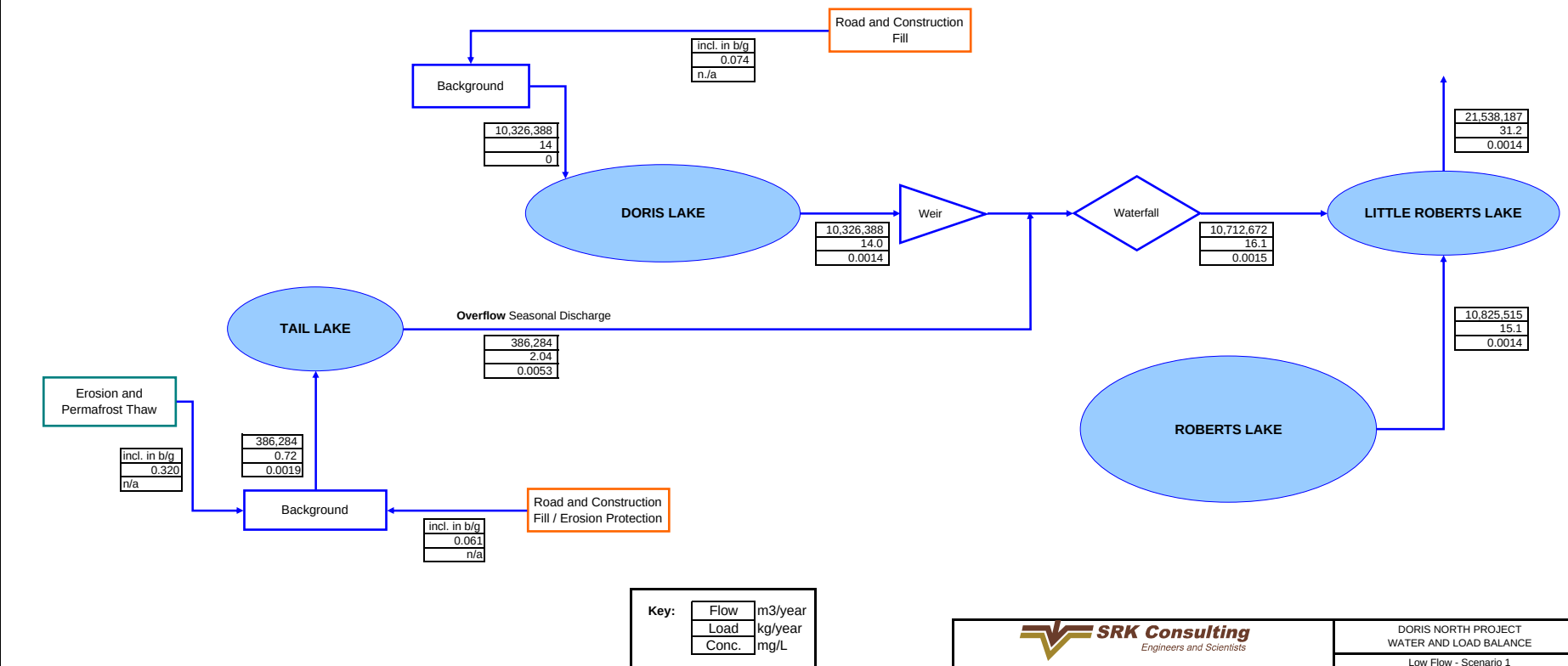
Yield 111 mm Scenario 1 - OPERATIONAL CONDITIONS
Year 2



POST MILLING OPERATIONAL CONDITIONS
Year 3



POST CLOSURE CONDITIONS
Year 14

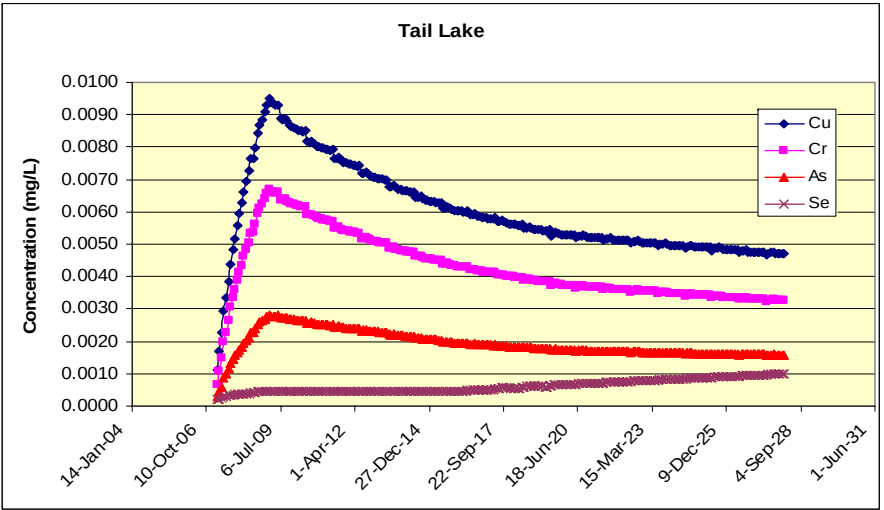
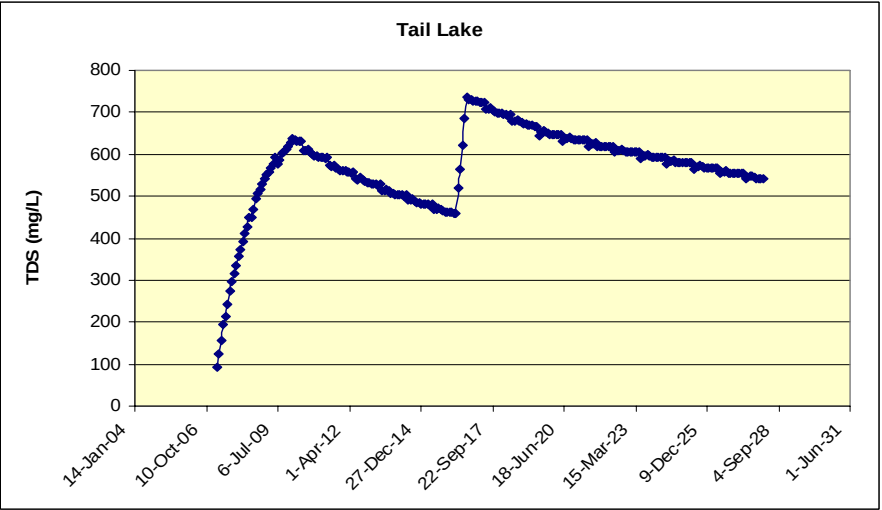
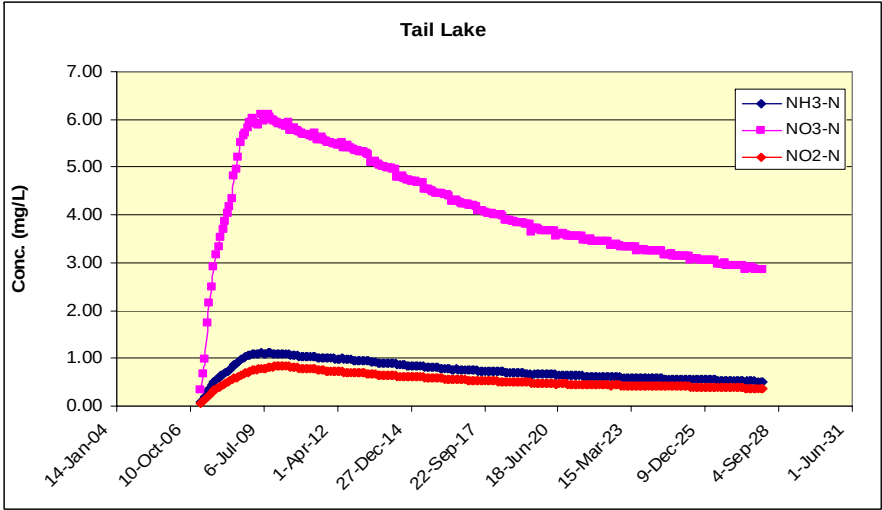
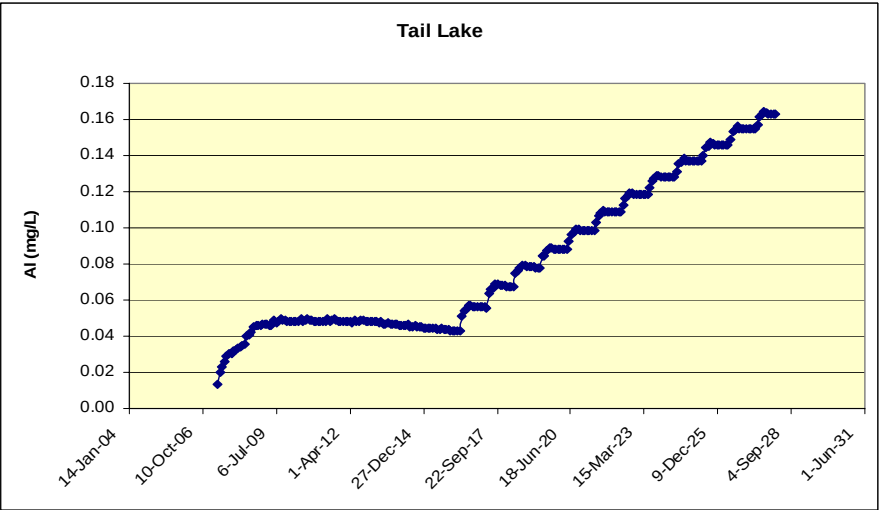
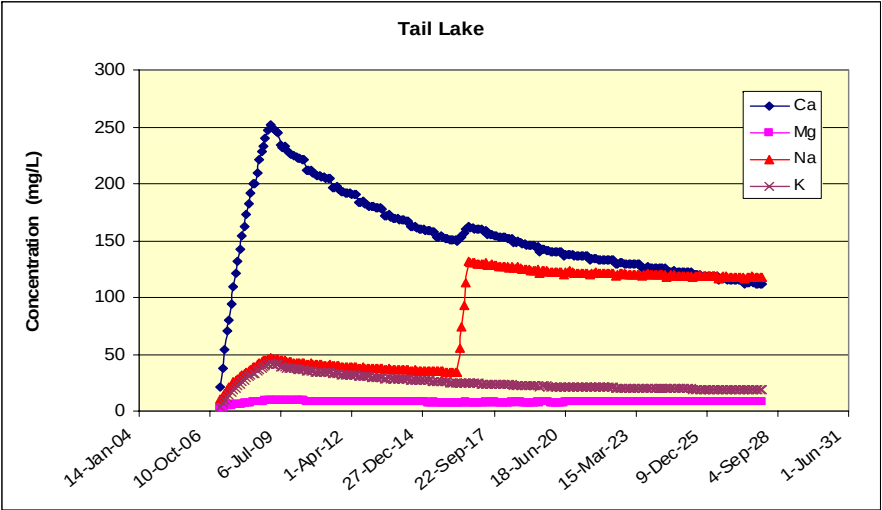
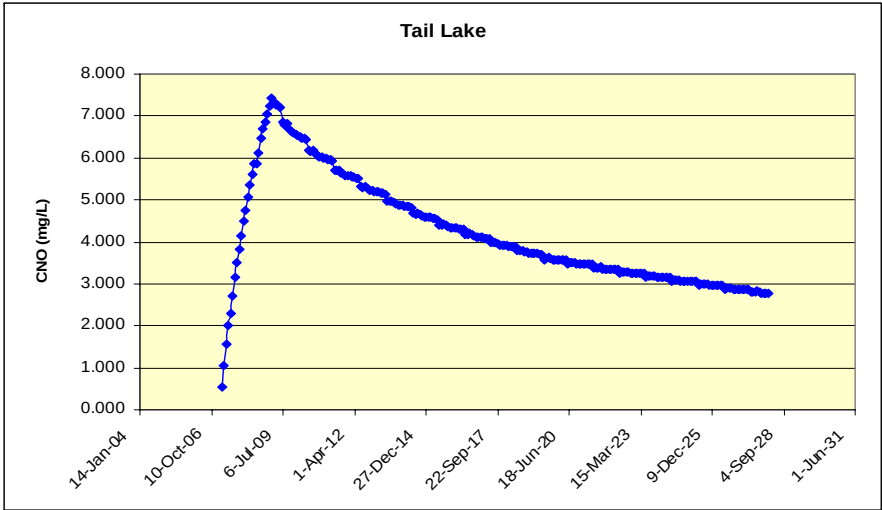
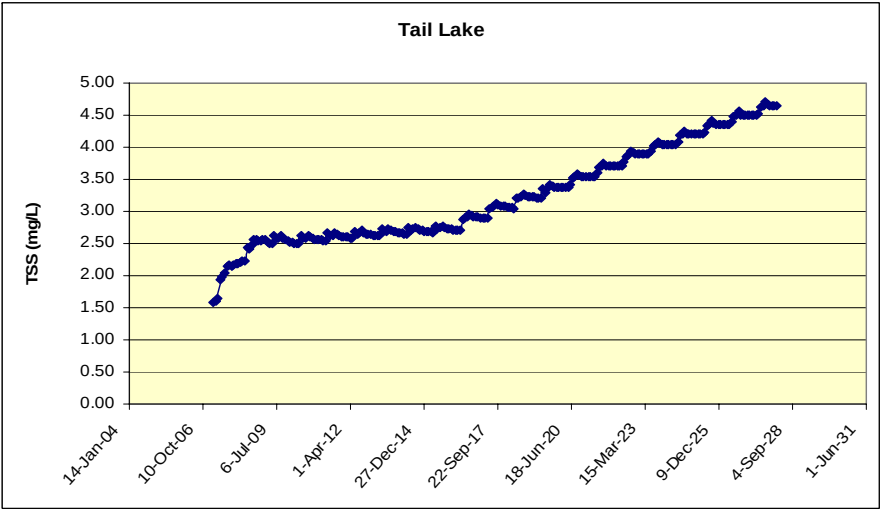
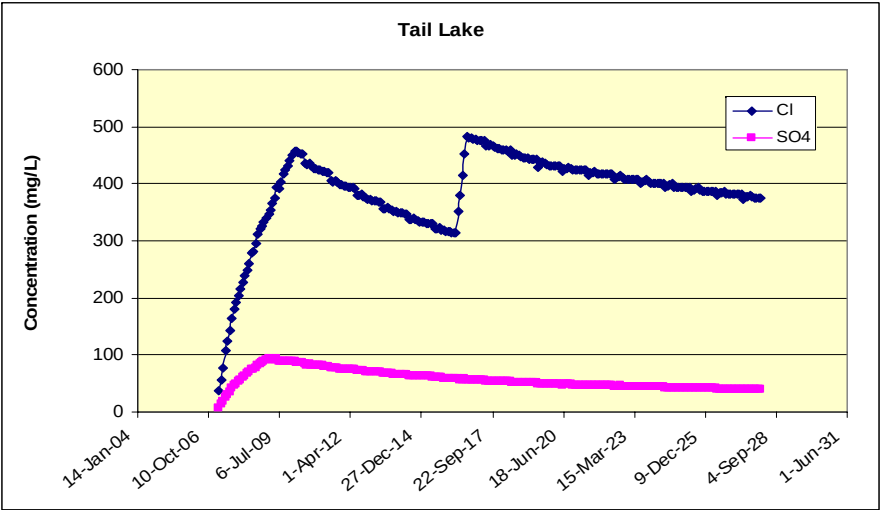
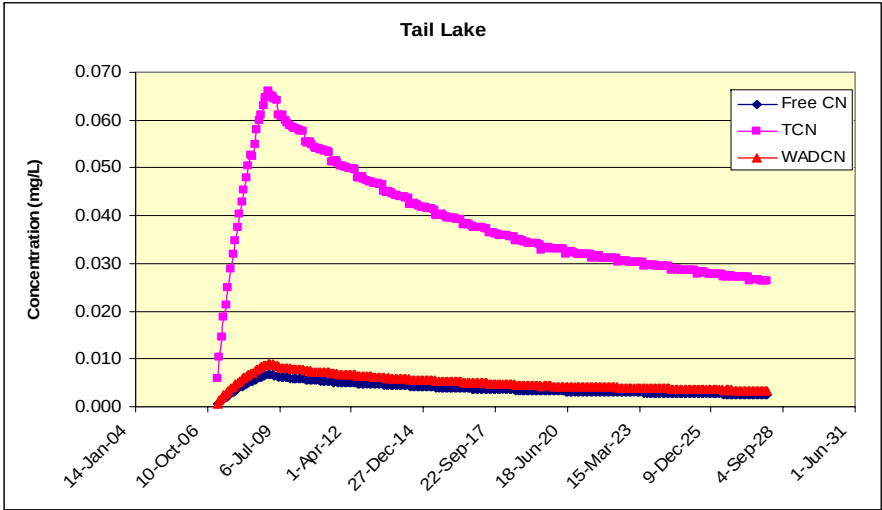


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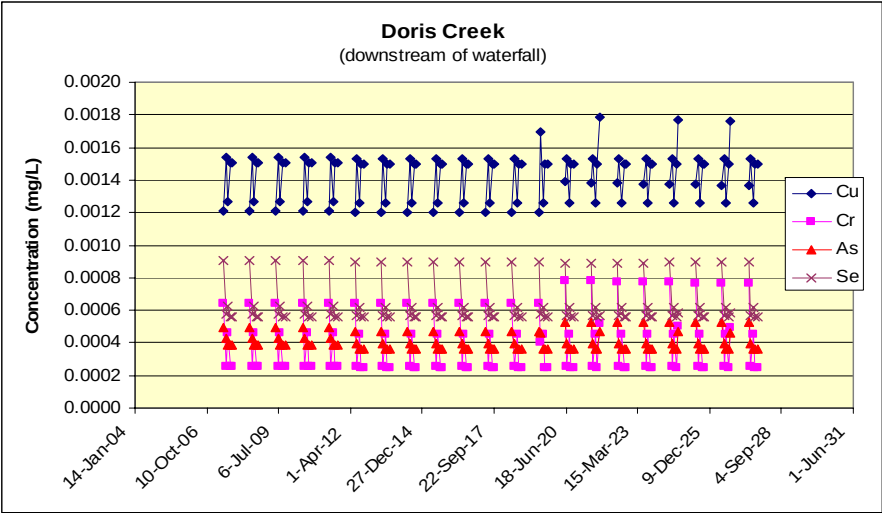
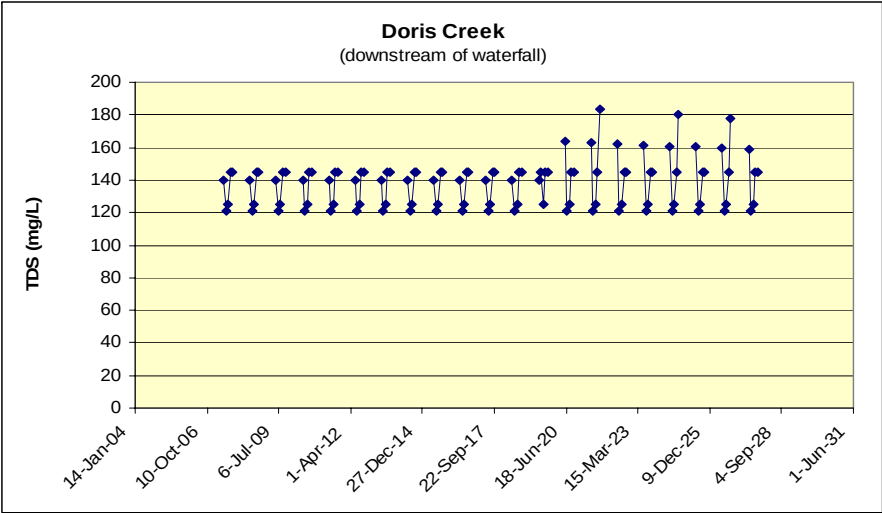
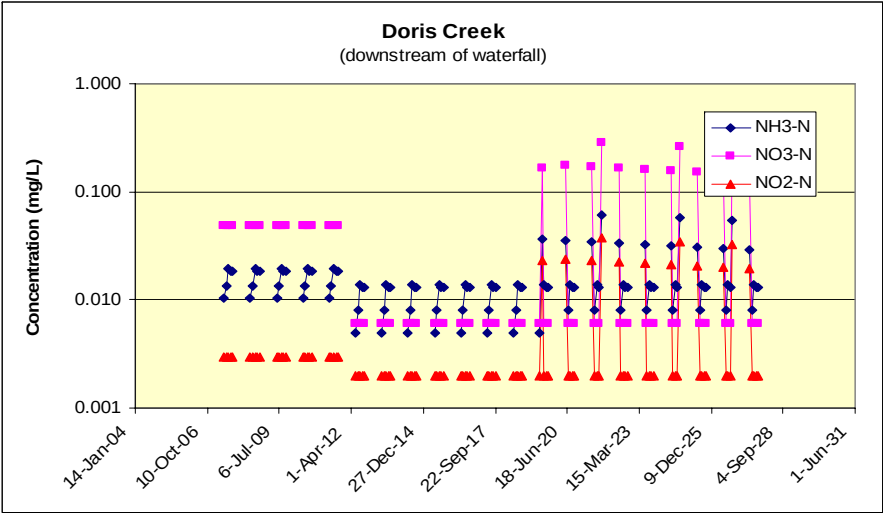
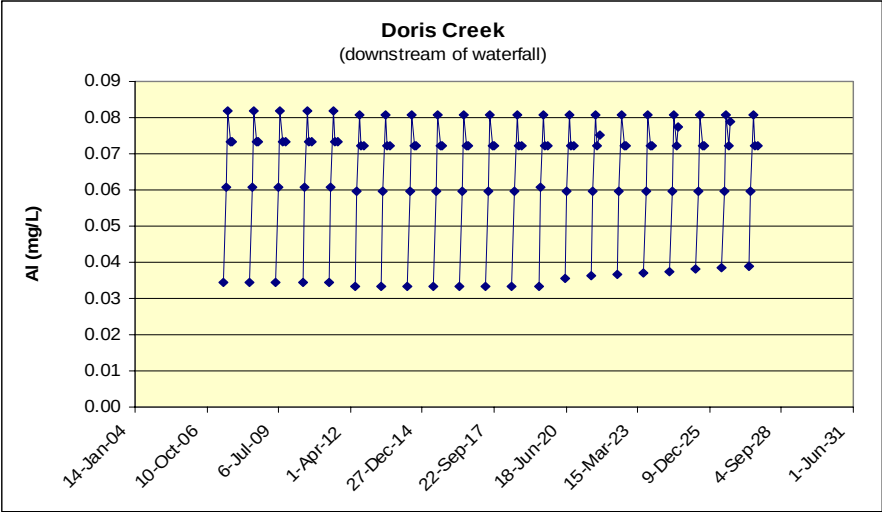
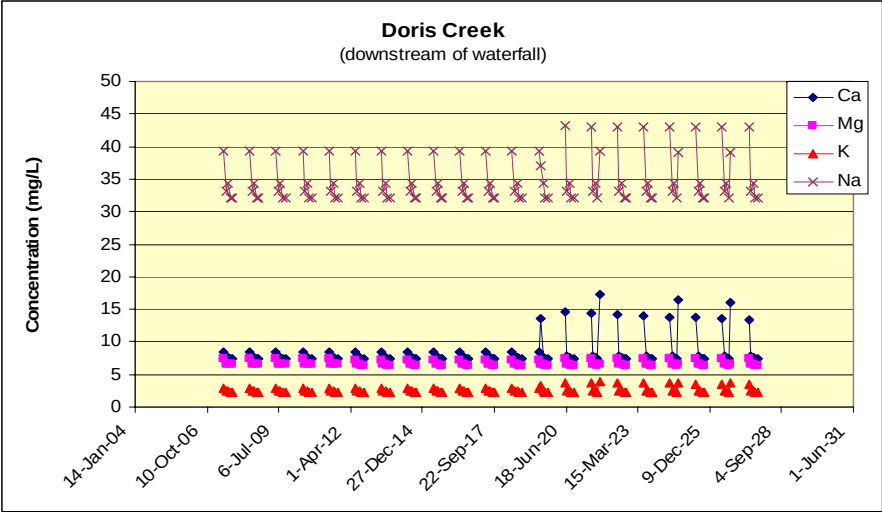
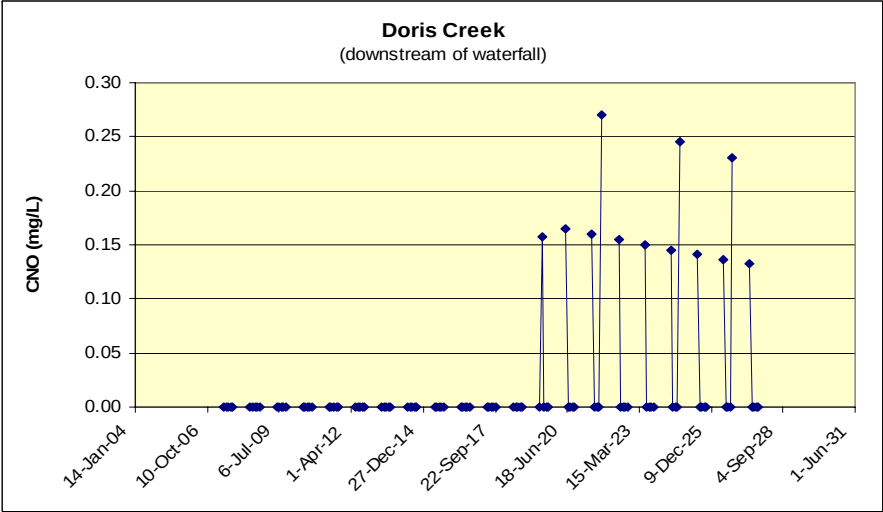
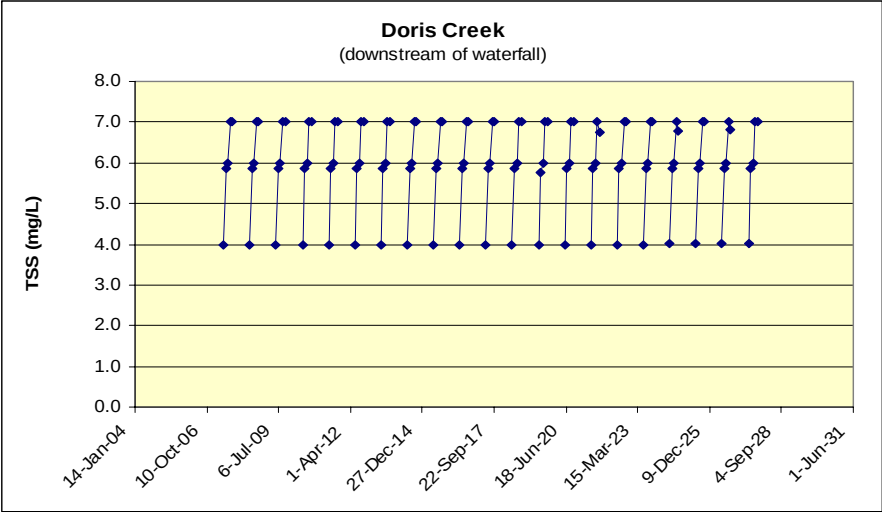
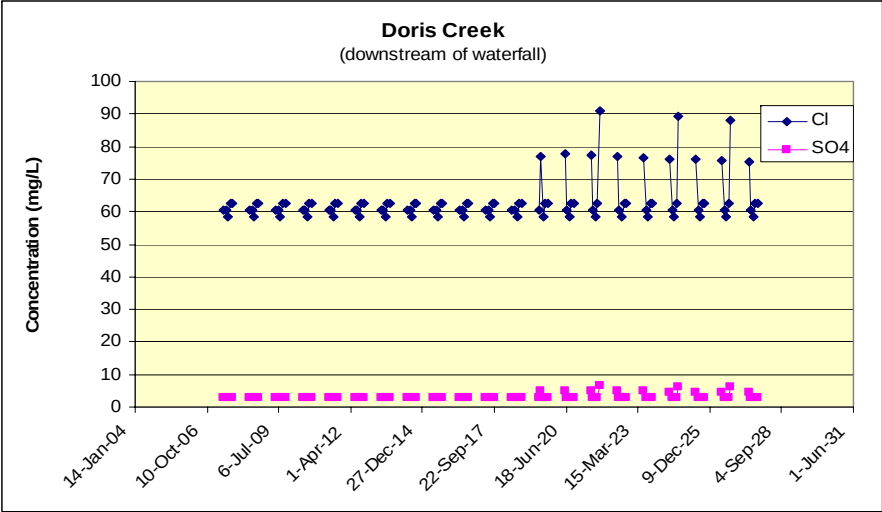
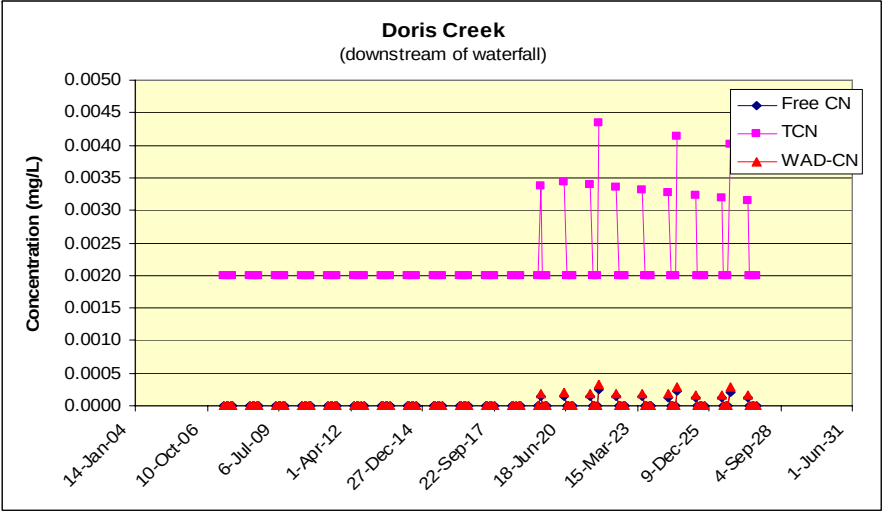
Flow	m3/year
Load	kg/year
Conc.	mg/L

MIRAMAR HOPE BAY LIMITED	 DORIS NORTH PROJECT WATER AND LOAD BALANCE			
	Low Flow - Scenario 1 No Erosion Control			
	PROJECT: 1CM014.06	Date: Oct-05	Approved: JTC	FIGURE I-1-a.1

LowFlow 1



Low Flow 1



Appendix I

Table I-1-a-A.1
Low Flow Scenario 1

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)	
Discharge rate Degradation None			m3/year					
Maximum Concentration			MMER	CCME	Tail Lake Year 2	Doris Creek Year 15		L'Roberts L Year 15
pH				6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L				736	183	186	
TSS	mg/L				4.7	7.0	8.1	
Free CN	mg/L			0.005	0.0067	0.00025	0.00013	5%
Total CN	mg/L	1.0			0.066	0.004	0.003	
WAD CN	mg/L				0.0090	0.0003	0.0002	
CNO	mg/L				7.4	0.27	0.14	
SCN	mg/L				0.101	0.004	0.002	
Sulphate	mg/L				93	6.5	6.4	
Chloride	mg/L				484	91	83	
Total Ammonia	mg/L			0.97	1.12	0.062	0.033	6%
Nitrate	mg/L			2.9	6.1	0.28	0.15	10%
Nitrite	mg/L			0.018	0.85	0.038	0.021	206%
Alkalinity	mg/L				55	28	27	
OrthoPhosphate-P	mg/L				0.1752	0.0080	0.0049	
Phosphate-P	mg/L				0.1782	0.0260	0.0265	
Org. Carbon	mg/L				5.7	7.5	7.0	
Hardness CaCO3	mg/L				108	47	47	
Total Metals								
Aluminum Al	mg/L			0.1	0.16	0.08	0.25	82%
Antimony Sb	mg/L				0.0160	0.0029	0.0019	
Arsenic As	mg/L	0.5		0.005	0.00	0.0005	0.0005	11%
Barium Ba	mg/L				0.0107	0.0033	0.0052	
Beryllium Be	mg/L				0.00062	0.00004	0.00002	
Bismuth Bi	mg/L				0.01543	0.00067	0.00044	
Boron B	mg/L				0.038	0.035	0.030	
Cadmium Cd	mg/L			0.000038	0.000057	0.0000047	0.0000152	12%
Calcium Ca	mg/L				252	17	13	
Chromium Cr	mg/L			0.001	0.0067	0.0008	0.001	78%
Cobalt Co	mg/L				0.0106	0.0009	0.0004	
Copper Cu	mg/L	0.3		0.002	0.010	0.00179	0.0021	89%
Iron Fe	mg/L			0.3	0.18	0.13	0.28	42%
Lead Pb	mg/L	0.2		0.002	0.00042	0.00007	0.00026	4%
Lithium Li	mg/L				0.0056	0.0030	0.0030	
Magnesium Mg	mg/L				9.2	7.4	7.5	
Manganese Mn	mg/L				0.029	0.021	0.024	
Mercury Hg	mg/L			0.0001	0.0000133	0.00000156	0.0000011	2%
Molybdenum Mo	mg/L			0.073	0.0092	0.00049	0.00038	1%
Nickel Ni	mg/L	0.5		0.025	0.008	0.0008	0.0008	3%
Phosphorus P	mg/L				0.263	0.029	0.028	
Potassium K	mg/L				42	3.8	3.3	
Selenium Se	mg/L			0.001	0.00100	0.0009	0.00082	90%
Silicon SiO2	mg/L				4.0	0.67	0.61	
Silver Ag	mg/L			0.0001	0.00012	0.0000097	0.0000061	10%
Sodium Na	mg/L				132	43	41	
Strontium Sr	mg/L				0.088	0.043	0.048	
Tellurium Te	mg/L				0.047	0.050	0.052	
Thallium Tl	mg/L			0.0008	0.000042	0.000031	0.0020	4%
Thorium Th	mg/L				0.000054	0.0000041	0.0000022	
Tin Sn	mg/L				0.00241	0.00048	0.00006	
Titanium Ti	mg/L				0.0133	0.0065	0.0065	
Uranium U	mg/L				0.000082	0.000041	0.000045	
Vanadium V	mg/L				0.0036	0.0007	0.0005	
Zinc Zn	mg/L	0.5		0.03	0.023	0.0036	0.0056	12%
Zirconium Zr	mg/L				0.0050	0.0051	0.0052	

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE													
Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	194	214	242	273	296	315	336	356	374
TSS	mg/L	1.6	1.6	1.6	1.9	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2
Free CN	mg/L	0.00050	0.00096	0.00141	0.00182	0.00209	0.00246	0.00286	0.00320	0.00347	0.00378	0.00407	0.00433
Total CN	mg/L	0.006	0.010	0.015	0.019	0.021	0.025	0.029	0.032	0.035	0.038	0.040	0.043
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0024	0.0028	0.0033	0.0038	0.0043	0.0046	0.0050	0.0054	0.0058
CNO	mg/L	0.55	1.06	1.55	2.00	2.30	2.71	3.15	3.51	3.82	4.16	4.48	4.76
SCN	mg/L	0.008	0.014	0.021	0.027	0.031	0.037	0.043	0.048	0.052	0.057	0.061	0.065
Sulphate	mg/L	7.5	13.4	19.3	26.3	30.6	35.8	41.5	45.9	49.4	53.3	57.0	60.2
Chloride	mg/L	37	57	77	107	125	144	165	180	191	204	217	227
Total Ammonia	mg/L	0.070	0.133	0.194	0.309	0.375	0.438	0.510	0.559	0.593	0.631	0.668	0.700
Nitrate	mg/L	0.35	0.66	0.97	1.73	2.14	2.50	2.91	3.17	3.33	3.52	3.70	3.85
Nitrite	mg/L	0.054	0.102	0.150	0.204	0.238	0.280	0.325	0.361	0.389	0.421	0.452	0.478
Alkalinity	mg/L	16	18	21	25	27	29	32	34	35	37	38	40
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0363	0.0415	0.0487	0.0564	0.0629	0.0682	0.0741	0.0798	0.0846
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0401	0.0451	0.0523	0.0600	0.0664	0.0716	0.0774	0.0830	0.0878
Org. Carbon	mg/L	3.0	2.9	2.8	3.3	3.3	3.3	3.3	3.3	3.2	3.1	3.0	3.0
Hardness CaCO3	mg/L	23	29	35	43	47	52	58	62	65	69	73	76
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0037	0.0047	0.0054	0.0063	0.0068	0.0070	0.0073	0.0076	0.0079
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0009	0.0010	0.0012	0.0013	0.0015	0.0016	0.0017	0.0018	0.0018
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0036	0.0040	0.0046	0.0052	0.0056	0.0060	0.0064	0.0068	0.0071
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00024	0.00027	0.00030	0.00033	0.00034	0.00035	0.00036	0.00037	0.00037
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00346	0.00445	0.00515	0.00602	0.00646	0.00668	0.00695	0.00722	0.00744
Boron B	mg/L	0.007	0.008	0.009	0.013	0.014	0.015	0.017	0.018	0.018	0.019	0.019	0.020
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000170	0.0000205	0.0000237	0.0000275	0.0000299	0.0000316	0.0000334	0.0000352	0.0000368
Calcium Ca	mg/L	21	38	54	70	80	94	109	122	132	143	154	163
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0029	0.0034	0.0039	0.0046	0.0051	0.0055	0.0060	0.0064	0.0068
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0030	0.0033	0.0038	0.0044	0.0048	0.0052	0.0056	0.0059	0.0063
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00014	0.00016	0.00018	0.00021	0.00023	0.00024	0.00025	0.00026	0.00027
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0027	0.0028	0.0030	0.0032	0.0033	0.0034	0.0035	0.0036	0.0036
Magnesium Mg	mg/L	2.5	2.9	3.3	4.2	4.5	4.9	5.4	5.7	5.9	6.2	6.4	6.6
Manganese Mn	mg/L	0.002	0.004	0.006	0.008	0.009	0.011	0.013	0.014	0.015	0.017	0.018	0.019
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000019	0.0000022	0.0000025	0.0000029	0.0000032	0.0000033	0.0000035	0.0000037	0.0000038
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00251	0.00288	0.00339	0.00393	0.00438	0.00475	0.00516	0.00555	0.00589
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0025	0.0029	0.0034	0.0039	0.0043	0.0046	0.0049	0.0052	0.0055
Phosphorus P	mg/L	0.020	0.033	0.047	0.064	0.074	0.086	0.100	0.110	0.118	0.127	0.136	0.143
Potassium K	mg/L	3.8	6.6	9.3	12.0	13.6	15.9	18.4	20.4	22.1	23.9	25.7	27.2
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00029	0.00031	0.00032	0.00034	0.00035	0.00035	0.00036	0.00036	0.00036
Silicon SiO2	mg/L	0.70	0.92	1.14	1.46	1.61	1.81	2.03	2.20	2.32	2.46	2.59	2.71
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000724	0.0000768	0.0000792	0.0000836	0.0000844	0.0000838	0.0000839	0.0000840	0.0000841
Sodium Na	mg/L	11	13	16	19	21	23	25	27	29	30	32	33
Strontium Sr	mg/L	0.017	0.021	0.026	0.033	0.036	0.041	0.046	0.049	0.052	0.055	0.058	0.061
Tellurium Te	mg/L	0.025	0.024	0.024	0.027	0.027	0.027	0.028	0.027	0.026	0.026	0.025	0.025
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000024	0.000025	0.000027	0.000029	0.000030	0.000030	0.000031	0.000031	0.000032
Thorium Th	mg/L				0.000007	0.000011	0.000012	0.000014	0.000015	0.000014	0.000014	0.000013	0.000013
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00058	0.00074	0.00085	0.00099	0.00105	0.00108	0.00112	0.00115	0.00119
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0035	0.0036	0.0036	0.0037	0.0037	0.0036	0.0036	0.0035	0.0035
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000035	0.000038	0.000040	0.000042	0.000042	0.000040	0.000040	0.000039	0.000038
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0011	0.0013	0.0015	0.0017	0.0018	0.0019	0.0019	0.0020	0.0021
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0066	0.0076	0.0088	0.0103	0.0114	0.0123	0.0132	0.0141	0.0149
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0029	0.0029	0.0029	0.0031	0.0030	0.0029	0.0028	0.0028	0.0027

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	393	410	428	450	450	469	493	507	515	528	540	551
TSS	mg/L	2.2	2.2	2.2	2.4	2.4	2.5	2.6	2.6	2.5	2.6	2.6	2.6
Free CN	mg/L	0.00461	0.00486	0.00511	0.00533	0.00532	0.00558	0.00589	0.00608	0.00622	0.00641	0.00659	0.00675
Total CN	mg/L	0.045	0.048	0.050	0.053	0.052	0.055	0.058	0.060	0.061	0.063	0.065	0.066
WAD CN	mg/L	0.0061	0.0065	0.0068	0.0071	0.0071	0.0074	0.0079	0.0081	0.0083	0.0085	0.0088	0.0090
CNO	mg/L	5.07	5.34	5.62	5.86	5.86	6.13	6.48	6.69	6.85	7.05	7.25	7.42
SCN	mg/L	0.069	0.073	0.077	0.080	0.080	0.084	0.088	0.091	0.093	0.096	0.099	0.101
Sulphate	mg/L	63.8	66.9	70.1	74.3	74.6	78.2	82.6	85.2	86.8	89.1	91.4	93.3
Chloride	mg/L	239	249	260	279	282	295	311	320	325	332	340	346
Total Ammonia	mg/L	0.736	0.767	0.799	0.872	0.888	0.931	0.988	1.016	1.029	1.051	1.072	1.090
Nitrate	mg/L	4.03	4.18	4.34	4.83	4.96	5.20	5.52	5.67	5.72	5.82	5.92	6.01
Nitrite	mg/L	0.507	0.533	0.559	0.590	0.593	0.621	0.657	0.677	0.691	0.710	0.729	0.745
Alkalinity	mg/L	41	43	44	47	47	48	51	52	52	53	54	55
OrthoPhosphate-P	mg/L	0.0901	0.0949	0.0997	0.1041	0.1040	0.1089	0.1149	0.1187	0.1214	0.1249	0.1284	0.1314
Phosphate-P	mg/L	0.0932	0.0979	0.1027	0.1075	0.1072	0.1121	0.1181	0.1219	0.1245	0.1280	0.1314	0.1343
Org. Carbon	mg/L	2.9	2.8	2.8	3.1	3.1	3.1	3.2	3.1	3.1	3.0	2.9	2.9
Hardness CaCO3	mg/L	79	82	85	90	90	94	98	101	102	104	107	108
Total Metals													
Aluminum Al	mg/L	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0082	0.0084	0.0086	0.0099	0.0103	0.0108	0.0115	0.0118	0.0118	0.0120	0.0121	0.0122
Arsenic As	mg/L	0.0019	0.0020	0.0021	0.0023	0.0023	0.0024	0.0025	0.0026	0.0026	0.0027	0.0028	0.0028
Barium Ba	mg/L	0.0075	0.0079	0.0082	0.0087	0.0087	0.0091	0.0095	0.0098	0.0100	0.0102	0.0105	0.0107
Beryllium Be	mg/L	0.00038	0.00039	0.00040	0.00045	0.00047	0.00048	0.00051	0.00052	0.00052	0.00052	0.00052	0.00053
Bismuth Bi	mg/L	0.00770	0.00792	0.00815	0.00941	0.00980	0.01029	0.01097	0.01121	0.01125	0.01137	0.01149	0.01160
Boron B	mg/L	0.020	0.021	0.021	0.023	0.024	0.025	0.026	0.026	0.026	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000385	0.0000401	0.0000416	0.0000457	0.0000467	0.0000489	0.0000519	0.0000533	0.0000539	0.0000549	0.0000559	0.0000568
Calcium Ca	mg/L	173	182	191	200	200	209	221	228	233	240	247	252
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.007	0.007
Cobalt Co	mg/L	0.0072	0.0076	0.0080	0.0084	0.0084	0.0088	0.0093	0.0096	0.0098	0.0101	0.0103	0.0106
Copper Cu	mg/L	0.0066	0.0069	0.0073	0.0076	0.0076	0.0080	0.0084	0.0087	0.0088	0.0091	0.0093	0.0095
Iron Fe	mg/L	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00028	0.00029	0.00030	0.00033	0.00034	0.00035	0.00037	0.00038	0.00039	0.00039	0.00040	0.00040
Lithium Li	mg/L	0.0037	0.0038	0.0038	0.0042	0.0042	0.0043	0.0045	0.0046	0.0046	0.0046	0.0047	0.0047
Magnesium Mg	mg/L	6.8	7.0	7.2	7.8	7.8	8.1	8.5	8.7	8.7	8.9	9.0	9.1
Manganese Mn	mg/L	0.020	0.021	0.022	0.023	0.023	0.024	0.026	0.026	0.027	0.028	0.028	0.029
Mercury Hg	mg/L	0.0000040	0.0000042	0.0000043	0.0000047	0.0000048	0.0000050	0.0000053	0.0000055	0.0000055	0.0000056	0.0000057	0.0000058
Molybdenum Mo	mg/L	0.00627	0.00660	0.00694	0.00725	0.00725	0.00759	0.00801	0.00828	0.00846	0.00871	0.00895	0.00916
Nickel Ni	mg/L	0.0058	0.0061	0.0063	0.0067	0.0068	0.0071	0.0075	0.0077	0.0079	0.0080	0.0082	0.0084
Phosphorus P	mg/L	0.151	0.159	0.166	0.176	0.177	0.185	0.196	0.202	0.206	0.211	0.216	0.221
Potassium K	mg/L	28.9	30.4	31.9	33.4	33.3	34.9	36.8	38.0	38.8	39.9	41.0	41.9
Selenium Se	mg/L	0.00037	0.00037	0.00038	0.00042	0.00042	0.00043	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	2.84	2.96	3.07	3.27	3.27	3.41	3.59	3.68	3.74	3.82	3.90	3.97
Silver Ag	mg/L	0.0000845	0.0000846	0.0000847	0.0000969	0.0000989	0.0001008	0.0001042	0.0001045	0.0001034	0.0001030	0.0001028	0.0001025
Sodium Na	mg/L	34	36	37	39	39	41	43	44	44	45	46	47
Strontium Sr	mg/L	0.064	0.066	0.069	0.073	0.073	0.076	0.080	0.082	0.083	0.085	0.087	0.088
Tellurium Te	mg/L	0.024	0.024	0.023	0.026	0.026	0.026	0.026	0.026	0.025	0.025	0.024	0.024
Thallium Tl	mg/L	0.000032	0.000033	0.000033	0.000037	0.000037	0.000038	0.000040	0.000040	0.000040	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000013	0.000013	0.000012	0.000017	0.000019	0.000020	0.000022	0.000022	0.000022	0.000021	0.000021	0.000020
Tin Sn	mg/L	0.00122	0.00125	0.00129	0.00149	0.00155	0.00163	0.00174	0.00177	0.00178	0.00179	0.00181	0.00182
Titanium Ti	mg/L	0.0034	0.0034	0.0034	0.0038	0.0038	0.0038	0.0039	0.0039	0.0038	0.0038	0.0037	0.0037
Uranium U	mg/L	0.000037	0.000037	0.000036	0.000044	0.000046	0.000047	0.000049	0.000048	0.000047	0.000046	0.000046	0.000045
Vanadium V	mg/L	0.0022	0.0022	0.0023	0.0026	0.0026	0.0028	0.0029	0.0030	0.0030	0.0031	0.0031	0.0031
Zinc Zn	mg/L	0.0158	0.0166	0.0173	0.0183	0.0184	0.0192	0.0204	0.0210	0.0214	0.0220	0.0226	0.0230
Zirconium Zr	mg/L	0.0027	0.0026	0.0025	0.0029	0.0029	0.0030	0.0031	0.0030	0.0029	0.0029	0.0028	0.0028

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	557	567	577	592	578	588	603	606	611	619	628	636
TSS	mg/L	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.5
Free CN	mg/L	0.00666	0.00662	0.00658	0.00653	0.00622	0.00617	0.00619	0.00610	0.00603	0.00599	0.00596	0.00593
Total CN	mg/L	0.065	0.065	0.065	0.064	0.061	0.061	0.061	0.060	0.059	0.059	0.059	0.058
WAD CN	mg/L	0.0089	0.0088	0.0088	0.0087	0.0083	0.0082	0.0083	0.0081	0.0080	0.0080	0.0079	0.0079
CNO	mg/L	7.32	7.28	7.24	7.19	6.84	6.79	6.81	6.71	6.63	6.59	6.55	6.53
SCN	mg/L	0.100	0.099	0.099	0.098	0.093	0.093	0.093	0.091	0.090	0.090	0.089	0.089
Sulphate	mg/L	92.4	92.2	92.0	92.8	89.2	89.2	90.1	89.1	88.4	88.2	88.0	87.9
Chloride	mg/L	354	365	376	393	391	402	418	424	431	440	449	458
Total Ammonia	mg/L	1.082	1.083	1.083	1.115	1.087	1.094	1.113	1.106	1.099	1.098	1.098	1.099
Nitrate	mg/L	5.93	5.91	5.88	6.11	5.98	6.01	6.11	6.06	5.99	5.96	5.94	5.92
Nitrite	mg/L	0.752	0.764	0.777	0.794	0.775	0.787	0.806	0.811	0.816	0.827	0.838	0.848
Alkalinity	mg/L	54	54	53	54	52	52	53	52	51	51	51	51
OrthoPhosphate-P	mg/L	0.1353	0.1400	0.1448	0.1493	0.1474	0.1516	0.1572	0.1600	0.1631	0.1672	0.1714	0.1752
Phosphate-P	mg/L	0.1382	0.1429	0.1476	0.1525	0.1505	0.1547	0.1603	0.1631	0.1661	0.1702	0.1744	0.1782
Org. Carbon	mg/L	2.8	2.8	2.8	3.1	3.1	3.2	3.2	3.2	3.1	3.1	3.1	3.1
Hardness CaCO3	mg/L	107	106	106	107	103	102	103	101	100	100	99	99
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0124	0.0126	0.0129	0.0140	0.0141	0.0145	0.0152	0.0153	0.0154	0.0156	0.0158	0.0160
Arsenic As	mg/L	0.0028	0.0028	0.0028	0.0028	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
Barium Ba	mg/L	0.0105	0.0105	0.0104	0.0105	0.0101	0.0101	0.0102	0.0100	0.0099	0.0099	0.0098	0.0098
Beryllium Be	mg/L	0.00053	0.00053	0.00054	0.00058	0.00058	0.00059	0.00061	0.00061	0.00061	0.00061	0.00061	0.00062
Bismuth Bi	mg/L	0.01176	0.01201	0.01226	0.01335	0.01352	0.01394	0.01454	0.01472	0.01482	0.01502	0.01523	0.01543
Boron B	mg/L	0.027	0.027	0.027	0.028	0.028	0.028	0.029	0.029	0.028	0.028	0.028	0.028
Cadmium Cd	mg/L	0.0000561	0.0000558	0.0000555	0.0000565	0.0000546	0.0000546	0.0000552	0.0000546	0.0000540	0.0000537	0.0000534	0.0000532
Calcium Ca	mg/L	249	248	246	245	234	232	233	230	227	226	225	224
Chromium Cr	mg/L	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0104	0.0104	0.0103	0.0103	0.0099	0.0098	0.0099	0.0098	0.0097	0.0096	0.0096	0.0096
Copper Cu	mg/L	0.0094	0.0093	0.0093	0.0093	0.0089	0.0089	0.0089	0.0088	0.0087	0.0086	0.0086	0.0086
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00040	0.00040	0.00040	0.00042	0.00041	0.00042	0.00042	0.00042	0.00042	0.00042	0.00042	0.00042
Lithium Li	mg/L	0.0046	0.0046	0.0046	0.0048	0.0047	0.0047	0.0048	0.0048	0.0047	0.0047	0.0047	0.0047
Magnesium Mg	mg/L	9.0	9.0	9.0	9.2	9.0	9.0	9.2	9.1	9.0	9.0	8.9	8.9
Manganese Mn	mg/L	0.029	0.029	0.028	0.028	0.027	0.027	0.027	0.027	0.027	0.026	0.026	0.026
Mercury Hg	mg/L	0.0000058	0.0000057	0.0000057	0.0000058	0.0000056	0.0000056	0.0000057	0.0000056	0.0000056	0.0000055	0.0000055	0.0000055
Molybdenum Mo	mg/L	0.00904	0.00899	0.00894	0.00890	0.00848	0.00842	0.00845	0.00833	0.00823	0.00819	0.00815	0.00811
Nickel Ni	mg/L	0.0083	0.0083	0.0083	0.0084	0.0081	0.0081	0.0082	0.0081	0.0080	0.0080	0.0080	0.0080
Phosphorus P	mg/L	0.224	0.228	0.233	0.240	0.235	0.240	0.247	0.249	0.251	0.255	0.260	0.263
Potassium K	mg/L	41.4	41.2	40.9	40.8	38.8	38.6	38.7	38.2	37.7	37.5	37.3	37.1
Selenium Se	mg/L	0.00045	0.00045	0.00044	0.00047	0.00046	0.00046	0.00046	0.00046	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	3.92	3.90	3.88	3.92	3.77	3.75	3.78	3.73	3.69	3.67	3.65	3.64
Silver Ag	mg/L	0.0001018	0.0001018	0.0001019	0.0001106	0.0001103	0.0001110	0.0001130	0.0001123	0.0001115	0.0001114	0.0001114	0.0001114
Sodium Na	mg/L	46	46	46	46	44	44	45	44	43	43	43	43
Strontium Sr	mg/L	0.087	0.087	0.086	0.087	0.084	0.084	0.084	0.083	0.082	0.082	0.082	0.081
Tellurium Te	mg/L	0.024	0.024	0.023	0.026	0.026	0.026	0.027	0.026	0.026	0.026	0.026	0.026
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000042	0.000041	0.000041	0.000042	0.000041	0.000041	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000020	0.000020	0.000020	0.000022	0.000023	0.000023	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024
Tin Sn	mg/L	0.00184	0.00188	0.00192	0.00209	0.00212	0.00219	0.00228	0.00231	0.00232	0.00235	0.00238	0.00241
Titanium Ti	mg/L	0.0037	0.0037	0.0037	0.0040	0.0040	0.0040	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041
Uranium U	mg/L	0.000045	0.000044	0.000044	0.000049	0.000050	0.000050	0.000051	0.000051	0.000051	0.000050	0.000050	0.000050
Vanadium V	mg/L	0.0031	0.0032	0.0032	0.0034	0.0034	0.0034	0.0035	0.0035	0.0035	0.0035	0.0036	0.0036
Zinc Zn	mg/L	0.0228	0.0227	0.0226	0.0227	0.0218	0.0218	0.0220	0.0218	0.0216	0.0215	0.0214	0.0214
Zirconium Zr	mg/L	0.0027	0.0027	0.0027	0.0030	0.0030	0.0031	0.0031	0.0031	0.0031	0.0030	0.0030	0.0030

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	633	632	630	632	609	607	611	605	599	597	595	594
TSS	mg/L	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Free CN	mg/L	0.00591	0.00589	0.00587	0.00585	0.00561	0.00559	0.00562	0.00555	0.00550	0.00548	0.00547	0.00545
Total CN	mg/L	0.058	0.058	0.058	0.058	0.055	0.055	0.055	0.055	0.054	0.054	0.054	0.054
WAD CN	mg/L	0.0079	0.0079	0.0078	0.0078	0.0075	0.0075	0.0075	0.0074	0.0073	0.0073	0.0073	0.0073
CNO	mg/L	6.50	6.48	6.46	6.43	6.17	6.15	6.18	6.10	6.05	6.03	6.01	6.00
SCN	mg/L	0.089	0.088	0.088	0.088	0.084	0.084	0.084	0.083	0.083	0.082	0.082	0.082
Sulphate	mg/L	87.5	87.3	87.0	86.8	83.3	83.0	83.5	82.5	81.8	81.5	81.2	81.1
Chloride	mg/L	456	455	453	453	435	434	436	431	427	426	425	424
Total Ammonia	mg/L	1.094	1.091	1.088	1.097	1.061	1.060	1.070	1.059	1.050	1.046	1.043	1.041
Nitrate	mg/L	5.90	5.88	5.86	5.95	5.77	5.77	5.84	5.78	5.73	5.71	5.69	5.68
Nitrite	mg/L	0.844	0.842	0.839	0.838	0.805	0.803	0.808	0.799	0.792	0.789	0.787	0.785
Alkalinity	mg/L	50	50	50	51	50	50	50	50	49	49	49	49
OrthoPhosphate-P	mg/L	0.1744	0.1739	0.1734	0.1728	0.1657	0.1651	0.1660	0.1640	0.1626	0.1620	0.1615	0.1612
Phosphate-P	mg/L	0.1774	0.1769	0.1764	0.1761	0.1689	0.1684	0.1692	0.1673	0.1658	0.1652	0.1647	0.1644
Org. Carbon	mg/L	3.1	3.1	3.1	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.3	3.3
Hardness CaCO3	mg/L	98	98	98	99	96	96	96	95	94	94	94	94
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0159	0.0159	0.0158	0.0158	0.0152	0.0151	0.0152	0.0150	0.0149	0.0148	0.0148	0.0147
Arsenic As	mg/L	0.0027	0.0026	0.0026	0.0027	0.0026	0.0026	0.0026	0.0026	0.0025	0.0025	0.0025	0.0025
Barium Ba	mg/L	0.0098	0.0097	0.0097	0.0098	0.0094	0.0094	0.0094	0.0093	0.0093	0.0092	0.0092	0.0092
Beryllium Be	mg/L	0.00062	0.00061	0.00061	0.00062	0.00060	0.00060	0.00061	0.00060	0.00060	0.00059	0.00059	0.00059
Bismuth Bi	mg/L	0.01536	0.01532	0.01527	0.01521	0.01459	0.01454	0.01462	0.01444	0.01432	0.01427	0.01422	0.01420
Boron B	mg/L	0.028	0.028	0.028	0.029	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028
Cadmium Cd	mg/L	0.0000530	0.0000528	0.0000527	0.0000537	0.0000522	0.0000523	0.0000530	0.0000525	0.0000520	0.0000519	0.0000517	0.0000516
Calcium Ca	mg/L	223	222	221	221	212	211	212	210	208	207	207	206
Chromium Cr	mg/L	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0095	0.0095	0.0095	0.0094	0.0091	0.0090	0.0091	0.0090	0.0089	0.0089	0.0088	0.0088
Copper Cu	mg/L	0.0085	0.0085	0.0085	0.0085	0.0082	0.0081	0.0082	0.0081	0.0080	0.0080	0.0080	0.0080
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00042	0.00042	0.00042	0.00042	0.00041	0.00041	0.00041	0.00041	0.00041	0.00040	0.00040	0.00040
Lithium Li	mg/L	0.0047	0.0047	0.0047	0.0048	0.0047	0.0047	0.0047	0.0046	0.0046	0.0046	0.0046	0.0046
Magnesium Mg	mg/L	8.9	8.9	8.8	9.0	8.7	8.7	8.8	8.7	8.6	8.6	8.6	8.6
Manganese Mn	mg/L	0.026	0.026	0.026	0.026	0.025	0.025	0.025	0.025	0.024	0.024	0.024	0.024
Mercury Hg	mg/L	0.0000055	0.0000055	0.0000054	0.0000055	0.0000054	0.0000054	0.0000055	0.0000054	0.0000054	0.0000053	0.0000053	0.0000053
Molybdenum Mo	mg/L	0.00808	0.00806	0.00803	0.00800	0.00768	0.00765	0.00769	0.00760	0.00753	0.00750	0.00748	0.00747
Nickel Ni	mg/L	0.0079	0.0079	0.0079	0.0079	0.0076	0.0076	0.0076	0.0075	0.0074	0.0074	0.0074	0.0074
Phosphorus P	mg/L	0.262	0.262	0.261	0.261	0.251	0.250	0.251	0.249	0.246	0.245	0.245	0.244
Potassium K	mg/L	37.0	36.9	36.8	36.7	35.2	35.1	35.3	34.9	34.6	34.5	34.4	34.3
Selenium Se	mg/L	0.00044	0.00044	0.00044	0.00046	0.00045	0.00046	0.00046	0.00046	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	3.62	3.61	3.60	3.64	3.52	3.51	3.54	3.50	3.47	3.46	3.45	3.44
Silver Ag	mg/L	0.0001110	0.0001107	0.0001103	0.0001162	0.0001144	0.0001144	0.0001155	0.0001144	0.0001134	0.0001129	0.0001126	0.0001124
Sodium Na	mg/L	43	42	42	43	41	41	42	41	41	41	41	41
Strontium Sr	mg/L	0.081	0.081	0.081	0.081	0.079	0.079	0.079	0.078	0.078	0.077	0.077	0.077
Tellurium Te	mg/L	0.025	0.025	0.025	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000041	0.000041	0.000041	0.000041	0.000041	0.000041	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000023	0.000023	0.000023	0.000026	0.000026	0.000026	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027
Tin Sn	mg/L	0.00240	0.00239	0.00239	0.00239	0.00230	0.00229	0.00231	0.00228	0.00226	0.00225	0.00225	0.00224
Titanium Ti	mg/L	0.0040	0.0040	0.0040	0.0043	0.0042	0.0043	0.0043	0.0043	0.0043	0.0043	0.0042	0.0042
Uranium U	mg/L	0.000050	0.000050	0.000050	0.000054	0.000054	0.000055	0.000056	0.000055	0.000055	0.000055	0.000055	0.000054
Vanadium V	mg/L	0.0036	0.0036	0.0036	0.0036	0.0034	0.0034	0.0035	0.0034	0.0034	0.0034	0.0034	0.0034
Zinc Zn	mg/L	0.0213	0.0212	0.0212	0.0211	0.0203	0.0202	0.0204	0.0202	0.0200	0.0200	0.0199	0.0199
Zirconium Zr	mg/L	0.0030	0.0030	0.0030	0.0032	0.0033	0.0033	0.0034	0.0033	0.0033	0.0033	0.0033	0.0033

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	593	591	590	592	572	571	575	569	564	562	561	560
TSS	mg/L	2.6	2.5	2.5	2.7	2.6	2.6	2.7	2.6	2.6	2.6	2.6	2.6
Free CN	mg/L	0.00544	0.00543	0.00541	0.00539	0.00519	0.00517	0.00520	0.00514	0.00510	0.00508	0.00507	0.00506
Total CN	mg/L	0.054	0.054	0.053	0.053	0.051	0.051	0.051	0.051	0.050	0.050	0.050	0.050
WAD CN	mg/L	0.0073	0.0072	0.0072	0.0072	0.0069	0.0069	0.0069	0.0069	0.0068	0.0068	0.0068	0.0067
CNO	mg/L	5.99	5.97	5.95	5.93	5.71	5.69	5.72	5.66	5.61	5.59	5.58	5.57
SCN	mg/L	0.082	0.081	0.081	0.081	0.078	0.078	0.078	0.077	0.076	0.076	0.076	0.076
Sulphate	mg/L	80.9	80.7	80.5	80.3	77.3	77.1	77.5	76.7	76.0	75.8	75.6	75.4
Chloride	mg/L	423	422	420	420	405	404	406	402	399	397	396	395
Total Ammonia	mg/L	1.039	1.036	1.033	1.042	1.011	1.011	1.020	1.011	1.002	0.999	0.996	0.994
Nitrate	mg/L	5.67	5.66	5.64	5.72	5.56	5.57	5.63	5.58	5.54	5.52	5.50	5.49
Nitrite	mg/L	0.783	0.781	0.779	0.779	0.751	0.749	0.754	0.746	0.739	0.737	0.735	0.733
Alkalinity	mg/L	49	48	48	49	48	48	48	48	48	47	47	47
OrthoPhosphate-P	mg/L	0.1609	0.1605	0.1600	0.1595	0.1535	0.1531	0.1538	0.1522	0.1509	0.1504	0.1500	0.1497
Phosphate-P	mg/L	0.1640	0.1636	0.1631	0.1629	0.1569	0.1564	0.1572	0.1555	0.1542	0.1537	0.1533	0.1530
Org. Carbon	mg/L	3.3	3.3	3.3	3.6	3.6	3.6	3.7	3.6	3.6	3.6	3.6	3.6
Hardness CaCO3	mg/L	93	93	93	94	91	91	92	91	90	90	90	90
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0147	0.0147	0.0146	0.0146	0.0140	0.0140	0.0141	0.0139	0.0138	0.0138	0.0137	0.0137
Arsenic As	mg/L	0.0025	0.0025	0.0025	0.0025	0.0024	0.0024	0.0025	0.0024	0.0024	0.0024	0.0024	0.0024
Barium Ba	mg/L	0.0092	0.0091	0.0091	0.0092	0.0088	0.0088	0.0089	0.0088	0.0087	0.0087	0.0087	0.0087
Beryllium Be	mg/L	0.00059	0.00059	0.00059	0.00060	0.00058	0.00058	0.00058	0.00058	0.00057	0.00057	0.00057	0.00057
Bismuth Bi	mg/L	0.01417	0.01413	0.01409	0.01404	0.01351	0.01348	0.01354	0.01340	0.01329	0.01324	0.01320	0.01318
Boron B	mg/L	0.028	0.027	0.027	0.028	0.027	0.027	0.028	0.028	0.027	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000515	0.0000514	0.0000512	0.0000522	0.0000509	0.0000510	0.0000516	0.0000512	0.0000508	0.0000506	0.0000504	0.0000503
Calcium Ca	mg/L	206	205	205	204	197	196	197	195	193	193	192	192
Chromium Cr	mg/L	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0088	0.0088	0.0087	0.0087	0.0084	0.0084	0.0084	0.0083	0.0083	0.0082	0.0082	0.0082
Copper Cu	mg/L	0.0079	0.0079	0.0079	0.0079	0.0076	0.0076	0.0077	0.0076	0.0075	0.0075	0.0075	0.0075
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00040	0.00040	0.00040	0.00040	0.00039	0.00039	0.00040	0.00039	0.00039	0.00039	0.00039	0.00039
Lithium Li	mg/L	0.0046	0.0046	0.0046	0.0047	0.0046	0.0046	0.0047	0.0046	0.0046	0.0046	0.0045	0.0045
Magnesium Mg	mg/L	8.6	8.5	8.5	8.7	8.4	8.4	8.5	8.4	8.4	8.3	8.3	8.3
Manganese Mn	mg/L	0.024	0.024	0.024	0.024	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Mercury Hg	mg/L	0.0000053	0.0000053	0.0000053	0.0000054	0.0000052	0.0000052	0.0000053	0.0000052	0.0000052	0.0000052	0.0000052	0.0000052
Molybdenum Mo	mg/L	0.00745	0.00743	0.00741	0.00739	0.00711	0.00709	0.00713	0.00705	0.00699	0.00697	0.00695	0.00693
Nickel Ni	mg/L	0.0074	0.0074	0.0073	0.0073	0.0071	0.0070	0.0071	0.0070	0.0070	0.0069	0.0069	0.0069
Phosphorus P	mg/L	0.244	0.243	0.242	0.243	0.234	0.233	0.235	0.232	0.230	0.230	0.229	0.229
Potassium K	mg/L	34.2	34.1	34.0	34.0	32.7	32.6	32.8	32.5	32.2	32.1	32.0	31.9
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00047	0.00046	0.00046	0.00047	0.00046	0.00046	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	3.44	3.43	3.42	3.45	3.35	3.35	3.37	3.34	3.31	3.30	3.29	3.28
Silver Ag	mg/L	0.0001122	0.0001119	0.0001115	0.0001169	0.0001153	0.0001153	0.0001164	0.0001153	0.0001143	0.0001140	0.0001136	0.0001134
Sodium Na	mg/L	41	40	40	41	40	40	40	40	39	39	39	39
Strontium Sr	mg/L	0.077	0.077	0.076	0.077	0.075	0.075	0.075	0.074	0.074	0.074	0.073	0.073
Tellurium Te	mg/L	0.028	0.028	0.027	0.030	0.029	0.030	0.030	0.030	0.030	0.030	0.029	0.029
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000041	0.000041	0.000041	0.000042	0.000041	0.000041	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000027	0.000027	0.000026	0.000029	0.000029	0.000029	0.000030	0.000030	0.000030	0.000030	0.000030	0.000029
Tin Sn	mg/L	0.00224	0.00223	0.00223	0.00223	0.00215	0.00215	0.00216	0.00214	0.00212	0.00211	0.00211	0.00210
Titanium Ti	mg/L	0.0042	0.0042	0.0042	0.0045	0.0044	0.0044	0.0045	0.0045	0.0044	0.0044	0.0044	0.0044
Uranium U	mg/L	0.000054	0.000054	0.000054	0.000058	0.000058	0.000059	0.000060	0.000059	0.000059	0.000059	0.000058	0.000058
Vanadium V	mg/L	0.0034	0.0033	0.0033	0.0033	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
Zinc Zn	mg/L	0.0198	0.0198	0.0197	0.0197	0.0190	0.0189	0.0191	0.0189	0.0188	0.0187	0.0186	0.0186
Zirconium Zr	mg/L	0.0033	0.0033	0.0033	0.0035	0.0035	0.0035	0.0036	0.0036	0.0035	0.0035	0.0035	0.0035

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	559	557	556	558	541	540	544	538	534	532	531	530
TSS	mg/L	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6
Free CN		0.00505	0.00504	0.00502	0.00500	0.00483	0.00482	0.00484	0.00479	0.00476	0.00474	0.00473	0.00472
Total CN	mg/L	0.050	0.050	0.050	0.050	0.048	0.048	0.048	0.048	0.047	0.047	0.047	0.047
WAD CN	mg/L	0.0067	0.0067	0.0067	0.0067	0.0064	0.0064	0.0065	0.0064	0.0063	0.0063	0.0063	0.0063
CNO	mg/L	5.55	5.54	5.52	5.50	5.31	5.30	5.33	5.27	5.23	5.21	5.20	5.19
SCN	mg/L	0.076	0.076	0.075	0.075	0.072	0.072	0.073	0.072	0.071	0.071	0.071	0.071
Sulphate	mg/L	75.3	75.1	74.9	74.7	72.2	72.1	72.4	71.7	71.1	70.9	70.7	70.6
Chloride	mg/L	395	394	393	392	379	379	381	377	374	373	372	371
Total Ammonia	mg/L	0.992	0.990	0.987	0.995	0.968	0.969	0.978	0.969	0.961	0.958	0.956	0.954
Nitrate	mg/L	5.48	5.47	5.45	5.53	5.39	5.40	5.46	5.41	5.37	5.35	5.34	5.33
Nitrite	mg/L	0.732	0.730	0.728	0.728	0.704	0.703	0.707	0.700	0.694	0.692	0.690	0.689
Alkalinity	mg/L	47	47	47	48	47	47	47	47	46	46	46	46
OrthoPhosphate-P	mg/L	0.1494	0.1490	0.1486	0.1482	0.1430	0.1427	0.1434	0.1420	0.1409	0.1404	0.1401	0.1398
Phosphate-P	mg/L	0.1527	0.1523	0.1519	0.1517	0.1465	0.1462	0.1469	0.1455	0.1443	0.1439	0.1435	0.1432
Org. Carbon	mg/L	3.6	3.5	3.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Hardness CaCO3	mg/L	89	89	89	90	88	88	88	88	87	87	86	86
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0137	0.0136	0.0136	0.0136	0.0131	0.0131	0.0132	0.0130	0.0129	0.0129	0.0128	0.0128
Arsenic As	mg/L	0.0024	0.0024	0.0024	0.0024	0.0023	0.0023	0.0024	0.0023	0.0023	0.0023	0.0023	0.0023
Barium Ba	mg/L	0.0086	0.0086	0.0086	0.0086	0.0084	0.0084	0.0084	0.0084	0.0083	0.0083	0.0082	0.0082
Beryllium Be	mg/L	0.00057	0.00057	0.00057	0.00058	0.00056	0.00056	0.00057	0.00056	0.00056	0.00055	0.00055	0.00055
Bismuth Bi	mg/L	0.01315	0.01312	0.01308	0.01304	0.01259	0.01256	0.01263	0.01250	0.01240	0.01236	0.01233	0.01231
Boron B	mg/L	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000502	0.0000501	0.0000500	0.0000509	0.0000497	0.0000499	0.0000505	0.0000501	0.0000497	0.0000495	0.0000494	0.0000493
Calcium Ca	mg/L	191	191	190	190	184	183	184	182	181	180	180	179
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0082	0.0082	0.0081	0.0081	0.0078	0.0078	0.0079	0.0078	0.0077	0.0077	0.0077	0.0077
Copper Cu	mg/L	0.0075	0.0074	0.0074	0.0074	0.0072	0.0072	0.0072	0.0072	0.0071	0.0071	0.0071	0.0070
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00038	0.00038	0.00038	0.00039	0.00038	0.00038	0.00038	0.00038	0.00037	0.00037	0.00037	0.00037
Lithium Li	mg/L	0.0045	0.0045	0.0045	0.0046	0.0045	0.0045	0.0046	0.0045	0.0045	0.0045	0.0045	0.0045
Magnesium Mg	mg/L	8.3	8.3	8.2	8.4	8.2	8.2	8.3	8.2	8.1	8.1	8.1	8.1
Manganese Mn	mg/L	0.023	0.023	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.021	0.021	0.021
Mercury Hg	mg/L	0.0000051	0.0000051	0.0000051	0.0000052	0.0000051	0.0000051	0.0000051	0.0000051	0.0000051	0.0000050	0.0000050	0.0000050
Molybdenum Mo	mg/L	0.00692	0.00690	0.00688	0.00686	0.00663	0.00661	0.00664	0.00658	0.00653	0.00650	0.00649	0.00648
Nickel Ni	mg/L	0.0069	0.0069	0.0068	0.0068	0.0066	0.0066	0.0066	0.0066	0.0065	0.0065	0.0065	0.0065
Phosphorus P	mg/L	0.228	0.227	0.227	0.227	0.220	0.219	0.221	0.218	0.217	0.216	0.215	0.215
Potassium K	mg/L	31.9	31.8	31.7	31.7	30.6	30.5	30.7	30.4	30.1	30.0	30.0	29.9
Selenium Se	mg/L	0.00046	0.00045	0.00045	0.00047	0.00046	0.00047	0.00047	0.00047	0.00046	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	3.28	3.27	3.26	3.29	3.20	3.20	3.23	3.20	3.17	3.16	3.15	3.15
Silver Ag	mg/L	0.0001132	0.0001129	0.0001126	0.0001175	0.0001161	0.0001162	0.0001172	0.0001161	0.0001152	0.0001149	0.0001146	0.0001143
Sodium Na	mg/L	39	39	39	39	38	38	39	38	38	38	38	38
Strontium Sr	mg/L	0.073	0.073	0.073	0.073	0.071	0.071	0.072	0.071	0.071	0.070	0.070	0.070
Tellurium Te	mg/L	0.029	0.029	0.029	0.031	0.031	0.031	0.032	0.031	0.031	0.031	0.031	0.031
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000042	0.000041	0.000041	0.000042	0.000041	0.000041	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000029	0.000029	0.000029	0.000031	0.000031	0.000032	0.000033	0.000032	0.000032	0.000032	0.000032	0.000032
Tin Sn	mg/L	0.00210	0.00210	0.00209	0.00209	0.00202	0.00202	0.00204	0.00202	0.00200	0.00199	0.00199	0.00199
Titanium Ti	mg/L	0.0044	0.0044	0.0044	0.0046	0.0045	0.0046	0.0046	0.0046	0.0046	0.0045	0.0045	0.0045
Uranium U	mg/L	0.000058	0.000058	0.000058	0.000062	0.000062	0.000062	0.000063	0.000063	0.000062	0.000062	0.000062	0.000062
Vanadium V	mg/L	0.0032	0.0031	0.0031	0.0032	0.0031	0.0031	0.0031	0.0030	0.0030	0.0030	0.0030	0.0030
Zinc Zn	mg/L	0.0186	0.0185	0.0185	0.0185	0.0178	0.0178	0.0180	0.0178	0.0177	0.0176	0.0176	0.0175
Zirconium Zr	mg/L	0.0035	0.0035	0.0035	0.0037	0.0037	0.0037	0.0038	0.0038	0.0037	0.0037	0.0037	0.0037

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	529	528	526	529	514	513	516	512	508	506	505	504
TSS	mg/L	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L	0.00471	0.00470	0.00469	0.00467	0.00452	0.00451	0.00453	0.00449	0.00446	0.00444	0.00443	0.00443
Total CN	mg/L	0.047	0.047	0.047	0.046	0.045	0.045	0.045	0.045	0.044	0.044	0.044	0.044
WAD CN	mg/L	0.0063	0.0063	0.0063	0.0062	0.0060	0.0060	0.0060	0.0060	0.0059	0.0059	0.0059	0.0059
CNO	mg/L	5.18	5.17	5.16	5.14	4.97	4.96	4.99	4.94	4.90	4.89	4.88	4.87
SCN	mg/L	0.071	0.070	0.070	0.070	0.068	0.068	0.068	0.067	0.067	0.067	0.066	0.066
Sulphate	mg/L	70.5	70.3	70.1	69.9	67.7	67.6	68.0	67.3	66.8	66.6	66.5	66.3
Chloride	mg/L	371	370	369	369	357	357	359	355	353	352	351	350
Total Ammonia	mg/L	0.952	0.950	0.948	0.944	0.914	0.913	0.917	0.908	0.902	0.899	0.897	0.895
Nitrate	mg/L	5.32	5.31	5.29	5.28	5.11	5.10	5.12	5.07	5.03	5.02	5.01	5.00
Nitrite	mg/L	0.688	0.686	0.684	0.682	0.660	0.659	0.662	0.656	0.651	0.649	0.647	0.646
Alkalinity	mg/L	46	46	46	46	45	45	46	45	45	45	45	45
OrthoPhosphate-P	mg/L	0.1395	0.1392	0.1388	0.1384	0.1340	0.1338	0.1344	0.1331	0.1322	0.1318	0.1314	0.1312
Phosphate-P	mg/L	0.1430	0.1426	0.1422	0.1421	0.1376	0.1374	0.1380	0.1367	0.1357	0.1353	0.1350	0.1347
Org. Carbon	mg/L	3.7	3.7	3.7	3.9	3.9	4.0	4.0	4.0	3.9	3.9	3.9	3.9
Hardness CaCO3	mg/L	86	86	86	87	84	84	85	84	84	84	83	83
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0128	0.0128	0.0127	0.0127	0.0123	0.0123	0.0123	0.0122	0.0121	0.0121	0.0121	0.0120
Arsenic As	mg/L	0.0023	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Barium Ba	mg/L	0.0082	0.0082	0.0082	0.0082	0.0080	0.0080	0.0080	0.0079	0.0079	0.0079	0.0078	0.0078
Beryllium Be	mg/L	0.00055	0.00055	0.00055	0.00055	0.00054	0.00054	0.00054	0.00054	0.00053	0.00053	0.00053	0.00053
Bismuth Bi	mg/L	0.01228	0.01225	0.01222	0.01218	0.01179	0.01177	0.01182	0.01171	0.01162	0.01159	0.01156	0.01154
Boron B	mg/L	0.027	0.027	0.026	0.027	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Cadmium Cd	mg/L	0.0000492	0.0000491	0.0000490	0.0000489	0.0000473	0.0000472	0.0000475	0.0000470	0.0000467	0.0000465	0.0000464	0.0000463
Calcium Ca	mg/L	179	179	178	178	172	172	173	171	170	169	169	169
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0076	0.0076	0.0076	0.0076	0.0073	0.0073	0.0074	0.0073	0.0072	0.0072	0.0072	0.0072
Copper Cu	mg/L	0.0070	0.0070	0.0070	0.0070	0.0068	0.0068	0.0068	0.0068	0.0067	0.0067	0.0067	0.0067
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00037	0.00037	0.00037	0.00037	0.00036	0.00036	0.00036	0.00036	0.00035	0.00035	0.00035	0.00035
Lithium Li	mg/L	0.0045	0.0045	0.0044	0.0046	0.0045	0.0045	0.0045	0.0045	0.0044	0.0044	0.0044	0.0044
Magnesium Mg	mg/L	8.0	8.0	8.0	8.1	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.8
Manganese Mn	mg/L	0.021	0.021	0.021	0.021	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Mercury Hg	mg/L	0.0000050	0.0000050	0.0000050	0.0000050	0.0000048	0.0000048	0.0000049	0.0000048	0.0000048	0.0000048	0.0000048	0.0000048
Molybdenum Mo	mg/L	0.00646	0.00645	0.00643	0.00641	0.00621	0.00620	0.00623	0.00617	0.00612	0.00610	0.00609	0.00608
Nickel Ni	mg/L	0.0065	0.0065	0.0064	0.0064	0.0062	0.0062	0.0063	0.0062	0.0062	0.0061	0.0061	0.0061
Phosphorus P	mg/L	0.215	0.214	0.214	0.213	0.206	0.206	0.207	0.205	0.203	0.203	0.202	0.202
Potassium K	mg/L	29.9	29.8	29.7	29.7	28.7	28.7	28.8	28.6	28.4	28.3	28.2	28.1
Selenium Se	mg/L	0.00046	0.00046	0.00046	0.00047	0.00046	0.00046	0.00047	0.00046	0.00046	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	3.14	3.13	3.13	3.15	3.06	3.06	3.08	3.05	3.03	3.02	3.02	3.01
Silver Ag	mg/L	0.0001141	0.0001139	0.0001136	0.0001169	0.0001148	0.0001146	0.0001152	0.0001141	0.0001132	0.0001129	0.0001126	0.0001124
Sodium Na	mg/L	38	37	37	38	37	37	37	37	37	36	36	36
Strontium Sr	mg/L	0.070	0.070	0.070	0.070	0.068	0.068	0.069	0.068	0.068	0.068	0.067	0.067
Tellurium Te	mg/L	0.031	0.031	0.031	0.032	0.032	0.032	0.033	0.033	0.033	0.032	0.032	0.032
Thallium Tl	mg/L	0.000041	0.000041	0.000040	0.000041	0.000041	0.000041	0.000041	0.000041	0.000040	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000032	0.000032	0.000032	0.000032	0.000031	0.000031	0.000031	0.000030	0.000030	0.000030	0.000030	0.000030
Tin Sn	mg/L	0.00198	0.00198	0.00197	0.00197	0.00191	0.00191	0.00192	0.00190	0.00189	0.00188	0.00188	0.00187
Titanium Ti	mg/L	0.0045	0.0045	0.0045	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0046	0.0046
Uranium U	mg/L	0.000062	0.000061	0.000061	0.000063	0.000062	0.000062	0.000062	0.000061	0.000061	0.000061	0.000061	0.000061
Vanadium V	mg/L	0.0030	0.0030	0.0030	0.0030	0.0029	0.0029	0.0029	0.0029	0.0029	0.0028	0.0028	0.0028
Zinc Zn	mg/L	0.0175	0.0175	0.0174	0.0174	0.0168	0.0168	0.0170	0.0168	0.0167	0.0166	0.0166	0.0166
Zirconium Zr	mg/L	0.0037	0.0037	0.0037	0.0039	0.0038	0.0038	0.0039	0.0039	0.0038	0.0038	0.0038	0.0038

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	503	502	501	503	490	490	493	489	485	484	483	482
TSS	mg/L	2.7	2.7	2.6	2.7	2.7	2.7	2.8	2.7	2.7	2.7	2.7	2.7
Free CN		0.00442	0.00441	0.00440	0.00438	0.00425	0.00424	0.00426	0.00423	0.00420	0.00418	0.00417	0.00417
Total CN	mg/L	0.044	0.044	0.044	0.044	0.042	0.042	0.043	0.042	0.042	0.042	0.042	0.042
WAD CN	mg/L	0.0059	0.0059	0.0059	0.0058	0.0057	0.0057	0.0057	0.0056	0.0056	0.0056	0.0056	0.0056
CNO	mg/L	4.86	4.85	4.84	4.82	4.68	4.67	4.69	4.65	4.62	4.60	4.59	4.58
SCN	mg/L	0.066	0.066	0.066	0.066	0.064	0.064	0.064	0.063	0.063	0.063	0.063	0.063
Sulphate	mg/L	66.2	66.1	65.9	65.8	63.8	63.7	64.1	63.5	63.0	62.9	62.7	62.6
Chloride	mg/L	350	349	348	348	338	338	340	337	334	333	332	332
Total Ammonia	mg/L	0.894	0.891	0.889	0.886	0.860	0.859	0.863	0.855	0.849	0.847	0.845	0.843
Nitrate	mg/L	4.99	4.98	4.96	4.95	4.80	4.79	4.82	4.77	4.74	4.73	4.71	4.71
Nitrite	mg/L	0.645	0.644	0.642	0.640	0.621	0.620	0.623	0.617	0.613	0.611	0.610	0.609
Alkalinity	mg/L	45	45	44	45	44	44	45	44	44	44	44	44
OrthoPhosphate-P	mg/L	0.1310	0.1307	0.1303	0.1300	0.1261	0.1260	0.1265	0.1254	0.1245	0.1242	0.1239	0.1237
Phosphate-P	mg/L	0.1345	0.1342	0.1339	0.1337	0.1298	0.1296	0.1303	0.1291	0.1282	0.1278	0.1275	0.1273
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Hardness CaCO3	mg/L	83	83	83	83	82	82	82	82	81	81	81	81
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0120	0.0120	0.0120	0.0119	0.0116	0.0116	0.0116	0.0115	0.0114	0.0114	0.0114	0.0113
Arsenic As	mg/L	0.0022	0.0022	0.0022	0.0022	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Barium Ba	mg/L	0.0078	0.0078	0.0078	0.0078	0.0076	0.0076	0.0077	0.0076	0.0075	0.0075	0.0075	0.0075
Beryllium Be	mg/L	0.00053	0.00053	0.00052	0.00053	0.00052	0.00052	0.00052	0.00051	0.00051	0.00051	0.00051	0.00051
Bismuth Bi	mg/L	0.01152	0.01149	0.01146	0.01143	0.01108	0.01107	0.01112	0.01102	0.01094	0.01091	0.01089	0.01087
Boron B	mg/L	0.026	0.026	0.026	0.026	0.025	0.025	0.026	0.025	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000463	0.0000462	0.0000460	0.0000460	0.0000446	0.0000446	0.0000448	0.0000444	0.0000441	0.0000439	0.0000438	0.0000438
Calcium Ca	mg/L	168	168	168	167	162	162	163	161	160	160	159	159
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0072	0.0072	0.0071	0.0071	0.0069	0.0069	0.0069	0.0069	0.0068	0.0068	0.0068	0.0068
Copper Cu	mg/L	0.0066	0.0066	0.0066	0.0066	0.0064	0.0064	0.0065	0.0064	0.0064	0.0063	0.0063	0.0063
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00035	0.00035	0.00035	0.00035	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00033	0.00033
Lithium Li	mg/L	0.0044	0.0044	0.0044	0.0045	0.0044	0.0044	0.0045	0.0044	0.0044	0.0044	0.0044	0.0044
Magnesium Mg	mg/L	7.8	7.8	7.8	7.9	7.7	7.8	7.8	7.8	7.7	7.7	7.7	7.7
Manganese Mn	mg/L	0.020	0.020	0.020	0.020	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Mercury Hg	mg/L	0.0000047	0.0000047	0.0000047	0.0000047	0.0000046	0.0000046	0.0000046	0.0000046	0.0000045	0.0000045	0.0000045	0.0000045
Molybdenum Mo	mg/L	0.00607	0.00605	0.00604	0.00602	0.00584	0.00584	0.00586	0.00581	0.00577	0.00575	0.00574	0.00573
Nickel Ni	mg/L	0.0061	0.0061	0.0061	0.0061	0.0059	0.0059	0.0059	0.0059	0.0058	0.0058	0.0058	0.0058
Phosphorus P	mg/L	0.202	0.201	0.201	0.200	0.194	0.194	0.195	0.193	0.192	0.191	0.191	0.191
Potassium K	mg/L	28.1	28.0	28.0	27.9	27.1	27.1	27.2	27.0	26.8	26.7	26.7	26.6
Selenium Se	mg/L	0.00046	0.00046	0.00045	0.00047	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046	0.00045
Silicon SiO2	mg/L	3.00	3.00	2.99	3.01	2.94	2.94	2.96	2.93	2.91	2.90	2.89	2.89
Silver Ag	mg/L	0.0001122	0.0001120	0.0001117	0.0001148	0.0001129	0.0001128	0.0001133	0.0001123	0.0001115	0.0001112	0.0001109	0.0001108
Sodium Na	mg/L	36	36	36	37	36	36	36	36	36	35	35	35
Strontium Sr	mg/L	0.067	0.067	0.067	0.067	0.066	0.066	0.066	0.066	0.065	0.065	0.065	0.065
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.033	0.034	0.034	0.034	0.034	0.034	0.033	0.033
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000041	0.000040	0.000040	0.000041	0.000040	0.000040	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000030	0.000030	0.000030	0.000030	0.000029	0.000029	0.000029	0.000029	0.000028	0.000028	0.000028	0.000028
Tin Sn	mg/L	0.00187	0.00187	0.00186	0.00186	0.00181	0.00181	0.00182	0.00180	0.00179	0.00178	0.00178	0.00178
Titanium Ti	mg/L	0.0046	0.0046	0.0046	0.0048	0.0047	0.0048	0.0048	0.0048	0.0048	0.0047	0.0047	0.0047
Uranium U	mg/L	0.000060	0.000060	0.000060	0.000062	0.000061	0.000061	0.000061	0.000060	0.000060	0.000060	0.000060	0.000059
Vanadium V	mg/L	0.0028	0.0028	0.0028	0.0028	0.0027	0.0027	0.0028	0.0027	0.0027	0.0027	0.0027	0.0027
Zinc Zn	mg/L	0.0165	0.0165	0.0164	0.0164	0.0159	0.0159	0.0161	0.0159	0.0158	0.0158	0.0157	0.0157
Zirconium Zr	mg/L	0.0038	0.0038	0.0038	0.0039	0.0039	0.0039	0.0040	0.0039	0.0039	0.0039	0.0039	0.0039

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	481	480	479	481	469	469	472	468	465	464	463	462
TSS	mg/L	2.7	2.7	2.7	2.8	2.7	2.7	2.8	2.8	2.7	2.7	2.7	2.7
Free CN		0.00416	0.00415	0.00414	0.00413	0.00401	0.00401	0.00403	0.00399	0.00396	0.00395	0.00394	0.00394
Total CN	mg/L	0.042	0.041	0.041	0.041	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.039
WAD CN	mg/L	0.0055	0.0055	0.0055	0.0055	0.0053	0.0053	0.0054	0.0053	0.0053	0.0053	0.0053	0.0053
CNO	mg/L	4.58	4.57	4.55	4.54	4.41	4.41	4.43	4.39	4.36	4.35	4.34	4.33
SCN	mg/L	0.062	0.062	0.062	0.062	0.060	0.060	0.060	0.060	0.059	0.059	0.059	0.059
Sulphate	mg/L	62.5	62.4	62.2	62.1	60.4	60.3	60.6	60.1	59.7	59.5	59.4	59.3
Chloride	mg/L	331	331	330	330	321	321	323	320	318	317	316	316
Total Ammonia	mg/L	0.842	0.840	0.838	0.836	0.812	0.811	0.815	0.808	0.803	0.801	0.799	0.798
Nitrate	mg/L	4.70	4.69	4.68	4.66	4.53	4.53	4.55	4.51	4.48	4.47	4.46	4.45
Nitrite	mg/L	0.608	0.606	0.605	0.603	0.586	0.586	0.588	0.583	0.579	0.578	0.576	0.575
Alkalinity	mg/L	44	44	43	44	43	43	44	43	43	43	43	43
OrthoPhosphate-P	mg/L	0.1235	0.1232	0.1229	0.1226	0.1192	0.1191	0.1196	0.1186	0.1178	0.1175	0.1172	0.1170
Phosphate-P	mg/L	0.1271	0.1268	0.1265	0.1264	0.1229	0.1228	0.1234	0.1223	0.1215	0.1212	0.1209	0.1207
Org. Carbon	mg/L	4.1	4.0	4.0	4.2	4.2	4.2	4.3	4.2	4.2	4.2	4.2	4.2
Hardness CaCO3	mg/L	80	80	80	81	79	79	80	79	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0113	0.0113	0.0113	0.0112	0.0109	0.0109	0.0110	0.0109	0.0108	0.0108	0.0108	0.0107
Arsenic As	mg/L	0.0021	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Barium Ba	mg/L	0.0075	0.0075	0.0074	0.0075	0.0073	0.0073	0.0073	0.0073	0.0072	0.0072	0.0072	0.0072
Beryllium Be	mg/L	0.00051	0.00050	0.00050	0.00051	0.00050	0.00050	0.00050	0.00049	0.00049	0.00049	0.00049	0.00049
Bismuth Bi	mg/L	0.01085	0.01083	0.01080	0.01077	0.01046	0.01046	0.01050	0.01041	0.01034	0.01031	0.01029	0.01027
Boron B	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000437	0.0000436	0.0000435	0.0000434	0.0000422	0.0000422	0.0000424	0.0000420	0.0000418	0.0000416	0.0000415	0.0000415
Calcium Ca	mg/L	159	159	158	158	153	153	154	153	152	151	151	151
Chromium Cr	mg/L	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0068	0.0067	0.0067	0.0067	0.0065	0.0065	0.0065	0.0065	0.0064	0.0064	0.0064	0.0064
Copper Cu	mg/L	0.0063	0.0063	0.0063	0.0063	0.0061	0.0061	0.0062	0.0061	0.0061	0.0061	0.0060	0.0060
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00033	0.00033	0.00033	0.00033	0.00032	0.00032	0.00033	0.00032	0.00032	0.00032	0.00032	0.00032
Lithium Li	mg/L	0.0044	0.0043	0.0043	0.0044	0.0044	0.0044	0.0044	0.0044	0.0043	0.0043	0.0043	0.0043
Magnesium Mg	mg/L	7.6	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.5	7.5	7.5	7.5
Manganese Mn	mg/L	0.019	0.019	0.019	0.019	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Mercury Hg	mg/L	0.0000045	0.0000045	0.0000045	0.0000045	0.0000044	0.0000044	0.0000044	0.0000044	0.0000043	0.0000043	0.0000043	0.0000043
Molybdenum Mo	mg/L	0.00572	0.00571	0.00569	0.00568	0.00552	0.00552	0.00554	0.00549	0.00546	0.00544	0.00543	0.00542
Nickel Ni	mg/L	0.0058	0.0058	0.0057	0.0057	0.0056	0.0056	0.0056	0.0056	0.0055	0.0055	0.0055	0.0055
Phosphorus P	mg/L	0.190	0.190	0.189	0.189	0.184	0.184	0.185	0.183	0.182	0.181	0.181	0.181
Potassium K	mg/L	26.6	26.5	26.4	26.4	25.7	25.7	25.8	25.6	25.4	25.3	25.3	25.2
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00046	0.00046	0.00046	0.00046	0.00046	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	2.88	2.88	2.87	2.89	2.82	2.83	2.84	2.82	2.80	2.79	2.79	2.78
Silver Ag	mg/L	0.0001106	0.0001103	0.0001101	0.0001130	0.0001113	0.0001112	0.0001117	0.0001108	0.0001100	0.0001097	0.0001094	0.0001093
Sodium Na	mg/L	35	35	35	35	35	35	35	35	35	34	34	34
Strontium Sr	mg/L	0.065	0.065	0.064	0.065	0.063	0.064	0.064	0.064	0.063	0.063	0.063	0.063
Tellurium Te	mg/L	0.033	0.033	0.033	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.034
Thallium Tl	mg/L	0.000040	0.000039	0.000039	0.000040	0.000040	0.000040	0.000040	0.000040	0.000039	0.000039	0.000039	0.000039
Thorium Th	mg/L	0.000028	0.000028	0.000028	0.000028	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027
Tin Sn	mg/L	0.00177	0.00177	0.00177	0.00176	0.00172	0.00172	0.00173	0.00171	0.00170	0.00170	0.00169	0.00169
Titanium Ti	mg/L	0.0047	0.0047	0.0047	0.0049	0.0048	0.0049	0.0049	0.0049	0.0048	0.0048	0.0048	0.0048
Uranium U	mg/L	0.000059	0.000059	0.000059	0.000061	0.000060	0.000060	0.000060	0.000059	0.000059	0.000059	0.000059	0.000059
Vanadium V	mg/L	0.0027	0.0027	0.0027	0.0027	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Zinc Zn	mg/L	0.0157	0.0156	0.0156	0.0156	0.0152	0.0152	0.0153	0.0152	0.0150	0.0150	0.0150	0.0149
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040

Appendix I

Table I-1-a-A.2
Low Flow Scenario 1

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	461	460	459	520	566	623	684	736	731	729	728
TSS	mg/L	2.7	2.7	2.7	2.9	2.9	2.9	3.0	2.9	2.9	2.9	2.9
Free CN	mg/L	0.00393	0.00392	0.00391	0.00390	0.00380	0.00380	0.00381	0.00378	0.00376	0.00375	0.00374
Total CN	mg/L	0.039	0.039	0.039	0.039	0.038	0.038	0.038	0.038	0.038	0.038	0.038
WAD CN	mg/L	0.0052	0.0052	0.0052	0.0052	0.0051	0.0051	0.0051	0.0050	0.0050	0.0050	0.0050
CNO	mg/L	4.33	4.32	4.31	4.29	4.18	4.18	4.20	4.16	4.14	4.12	4.12
SCN	mg/L	0.059	0.059	0.059	0.059	0.057	0.057	0.057	0.057	0.056	0.056	0.056
Sulphate	mg/L	59.2	59.1	58.9	58.8	57.3	57.3	57.6	57.1	56.7	56.6	56.4
Chloride	mg/L	315	314	314	352	380	415	452	484	481	479	478
Total Ammonia	mg/L	0.796	0.795	0.793	0.790	0.770	0.769	0.773	0.767	0.762	0.760	0.758
Nitrate	mg/L	4.44	4.43	4.42	4.41	4.29	4.29	4.31	4.27	4.25	4.23	4.23
Nitrite	mg/L	0.574	0.573	0.572	0.570	0.555	0.555	0.557	0.553	0.549	0.548	0.547
Alkalinity	mg/L	43	43	43	43	43	43	43	43	42	42	42
OrthoPhosphate-P	mg/L	0.1168	0.1166	0.1163	0.1160	0.1130	0.1129	0.1134	0.1125	0.1118	0.1115	0.1112
Phosphate-P	mg/L	0.1205	0.1203	0.1200	0.1205	0.1177	0.1177	0.1183	0.1174	0.1167	0.1163	0.1161
Org. Carbon	mg/L	4.2	4.2	4.2	4.3	4.3	4.3	4.4	4.4	4.3	4.3	4.3
Hardness CaCO3	mg/L	78	78	78	79	77	77	78	77	77	76	76
Total Metals												
Aluminum Al	mg/L	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Antimony Sb	mg/L	0.0107	0.0107	0.0107	0.0107	0.0104	0.0104	0.0104	0.0103	0.0103	0.0102	0.0102
Arsenic As	mg/L	0.0020	0.0019	0.0019	0.0020	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
Barium Ba	mg/L	0.0072	0.0072	0.0071	0.0072	0.0070	0.0070	0.0071	0.0070	0.0070	0.0069	0.0069
Beryllium Be	mg/L	0.00049	0.00049	0.00048	0.00049	0.00048	0.00048	0.00048	0.00048	0.00047	0.00047	0.00047
Bismuth Bi	mg/L	0.01026	0.01024	0.01021	0.01018	0.00991	0.00991	0.00995	0.00987	0.00981	0.00978	0.00976
Boron B	mg/L	0.024	0.024	0.024	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Cadmium Cd	mg/L	0.0000414	0.0000413	0.0000412	0.0000415	0.0000406	0.0000406	0.0000408	0.0000405	0.0000403	0.0000402	0.0000401
Calcium Ca	mg/L	151	150	150	153	153	156	160	162	161	161	160
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0064	0.0064	0.0064	0.0064	0.0062	0.0062	0.0062	0.0062	0.0061	0.0061	0.0061
Copper Cu	mg/L	0.0060	0.0060	0.0060	0.0060	0.0059	0.0059	0.0059	0.0059	0.0058	0.0058	0.0058
Iron Fe	mg/L	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.06	0.06
Lead Pb	mg/L	0.00032	0.00032	0.00032	0.00032	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031
Lithium Li	mg/L	0.0043	0.0043	0.0043	0.0045	0.0044	0.0044	0.0045	0.0045	0.0044	0.0044	0.0044
Magnesium Mg	mg/L	7.5	7.5	7.4	7.6	7.6	7.6	7.7	7.6	7.6	7.5	7.5
Manganese Mn	mg/L	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.017	0.017	0.017
Mercury Hg	mg/L	0.0000043	0.0000043	0.0000043	0.0000049	0.0000051	0.0000052	0.0000053	0.0000053	0.0000053	0.0000053	0.0000053
Molybdenum Mo	mg/L	0.00541	0.00540	0.00539	0.00539	0.00525	0.00525	0.00527	0.00523	0.00520	0.00518	0.00517
Nickel Ni	mg/L	0.0055	0.0055	0.0055	0.0055	0.0053	0.0053	0.0054	0.0053	0.0053	0.0053	0.0053
Phosphorus P	mg/L	0.180	0.180	0.180	0.179	0.175	0.174	0.175	0.174	0.173	0.172	0.172
Potassium K	mg/L	25.2	25.1	25.1	25.1	24.5	24.5	24.7	24.5	24.3	24.3	24.2
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00049	0.00050	0.00051	0.00052	0.00051	0.00051	0.00051	0.00051
Silicon SiO2	mg/L	2.78	2.77	2.77	2.80	2.75	2.76	2.78	2.76	2.74	2.73	2.73
Silver Ag	mg/L	0.0001091	0.0001089	0.0001086	0.0001117	0.0001103	0.0001102	0.0001108	0.0001099	0.0001092	0.0001089	0.0001087
Sodium Na	mg/L	34	34	34	56	74	93	113	132	131	130	130
Strontium Sr	mg/L	0.063	0.062	0.062	0.063	0.062	0.062	0.063	0.062	0.062	0.062	0.062
Tellurium Te	mg/L	0.034	0.034	0.034	0.036	0.035	0.036	0.036	0.036	0.036	0.036	0.035
Thallium Tl	mg/L	0.000039	0.000039	0.000039	0.000040	0.000039	0.000039	0.000040	0.000039	0.000039	0.000039	0.000039
Thorium Th	mg/L	0.000027	0.000027	0.000026	0.000029	0.000029	0.000029	0.000030	0.000030	0.000030	0.000029	0.000029
Tin Sn	mg/L	0.00169	0.00168	0.00168	0.00168	0.00164	0.00164	0.00165	0.00164	0.00163	0.00162	0.00162
Titanium Ti	mg/L	0.0048	0.0048	0.0048	0.0054	0.0056	0.0056	0.0058	0.0058	0.0057	0.0057	0.0057
Uranium U	mg/L	0.000058	0.000058	0.000058	0.000061	0.000061	0.000061	0.000062	0.000061	0.000061	0.000061	0.000061
Vanadium V	mg/L	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Zinc Zn	mg/L	0.0149	0.0149	0.0149	0.0149	0.0145	0.0145	0.0146	0.0145	0.0144	0.0144	0.0144
Zirconium Zr	mg/L	0.0040	0.0039	0.0039	0.0041	0.0040	0.0041	0.0041	0.0041	0.0041	0.0040	0.0040

Appendix I

Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	102472	93338	84298	83253	82389	78530	81148	81148	73295
TSS	183	177	183	830	488	278	295	214	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18054	16907	15355	15221	14773	13840	14302	14302	12918
Chloride	49110	47526	49110	78414	68416	56603	57202	52361	47526	49110	49110	44357
Total Ammonia	149	145	149	287	238	186	193	166	145	149	149	135
Nitrate	758	733	758	1854	1453	1050	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	12146	10077	7778	7688	7186	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	23	22	21	21	21	21	21	21	19
Org. Carbon				1305.95	711.13	189.02	196.77	51.71				
Hardness CaCO3	14992	14508	14992	21691	19360	16157	16004	15385	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	17.06	11.32	8.30	8.26	5.77	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.65	3.42	2.21	2.42	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.67	0.57	0.46	0.47	0.42	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.06	1.88	1.70	1.67	1.61	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.21	0.14	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.54	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	8.67	6.40	4.18	4.37	3.34	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	41451	41786	41010	39821	40686	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.27	1.22	1.10	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.84	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.72	1.63	1.51	1.48	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	15.81	9.44	7.68	7.74	5.55	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.12	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.38	0.93	0.62	0.65	0.52	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2311	1784	1349	1349	1172	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.06	4.93	4.76	4.68	4.64	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.49	1.51	1.49	1.44	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.70	1.54	1.37	1.36	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	44	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	6904	6922	6763	6581	6725	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.16	0.10	0.06	0.06	0.04	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	841	714	612	609	578	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.05	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	9609	8290	6935	6879	6547	6148	6353	6353	5739
Strontium Sr	12	12	12	18	16	13	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	10.93	5.12	1.60	2.00	0.54	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.54	0.33	0.36	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	1.60	0.83	0.34	0.40	0.18	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.02	0.76	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.3	4.1	3.8	4.0	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				1.42	0.71	0.24	0.31	0.09				

Appendix I

Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	101574	92930	84196	83102	82351	78530	81148	81148	73295
TSS	183	177	183	806	478	275	292	213	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18038	16898	15353	15217	14773	13840	14302	14302	12918
Chloride	49110	47526	49110	78177	68279	56569	57156	52349	47526	49110	49110	44357
Total Ammonia	149	145	149	287	238	186	193	166	145	149	149	135
Nitrate	758	733	758	1854	1453	1050	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	11941	9972	7751	7657	7178	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	22	22	21	21	21	21	21	21	19
Org. Carbon				1256.92	687.30	182.93	190.50	50.12				
Hardness CaCO3	14992	14508	14992	21421	19214	16120	15956	15373	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	16.93	11.28	8.25	8.23	5.76	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.65	3.42	2.21	2.42	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.66	0.57	0.46	0.47	0.42	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.05	1.87	1.70	1.66	1.61	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.21	0.14	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.54	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	8.57	6.35	4.16	4.35	3.33	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	41409	41766	41002	39813	40684	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.26	1.21	1.10	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.84	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.71	1.62	1.51	1.48	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	15.47	9.33	7.60	7.66	5.53	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.12	0.09	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.35	0.92	0.62	0.64	0.52	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2277	1768	1344	1344	1171	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.06	4.92	4.75	4.68	4.64	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.48	1.51	1.49	1.44	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.69	1.54	1.37	1.36	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	44	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	6891	6916	6762	6578	6725	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.15	0.10	0.06	0.06	0.04	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	833	711	611	608	577	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.04	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	9481	8226	6917	6856	6541	6148	6353	6353	5739
Strontium Sr	12	12	12	18	16	13	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	10.53	4.95	1.55	1.93	0.52	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.54	0.33	0.36	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	1.55	0.81	0.33	0.39	0.18	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.02	0.76	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.3	4.0	3.8	4.0	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				1.38	0.70	0.24	0.30	0.09				

Appendix I

Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	71585	62219	53655	53518	51844	49028	50662	50662	45759
TSS				615	289	90	112	30				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5336	3819	2313	2589	1748	1247	1289	1289	1164
Chloride	49110	47526	49110	78048	68204	56550	57131	52343	47526	49110	49110	44357
Total Ammonia	25	24	25	152	104	58	67	40	24	25	25	22
Nitrate	29	28	29	1035	653	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				5127	2986	808	936	246				
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	22	22	21	21	21	21	21	21	19
Org. Carbon				1230.40	674.15	179.57	187.10	49.26				
Hardness CaCO3				6767	4141	1107	1422	374				
Total Metals												
Aluminum Al	0.81	0.78	0.81	10.36	5.77	3.79	3.68	1.75	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.53	3.30	2.10	2.31	1.60	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.24	0.16	0.08	0.09	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.58	0.36	0.19	0.20	0.10	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.17	0.11	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.51	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	5.70	3.70	1.77	1.99	1.05	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	2289	1427	732	826	441	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.33	0.25	0.14	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.26	0.19	0.11	0.12	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.30	0.18	0.07	0.09	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	10.34	4.44	2.98	3.13	1.04	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.07	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	0.94	0.50	0.21	0.25	0.12	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1312	789	376	405	207	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.78	0.51	0.35	0.41	0.24	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.07	0.04	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.58	0.39	0.23	0.25	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	32	28	25	25	24	22	23	23	21
Potassium K	25	24	25	424	239	89	120	52	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.10	0.05	0.02	0.02	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	268	142	56	68	27	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	3271	1847	564	706	196	12	12	12	11
Strontium Sr	0	0	0	6	4	1	2	1	0	0	0	0
Tellurium Te				10.27	4.83	1.50	1.88	0.49				
Thallium Tl	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.71	0.53	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	1.47	0.75	0.29	0.35	0.14	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.81	0.56	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.0	0.7	0.5	0.7	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.22	0.60	0.20	0.25	0.07				

Appendix I

Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				22342	11454	2967	4453	1173				
TSS				609	286	89	111	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				547	334	99	157	46				
Chloride				5890	3818	1009	1373	362				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5078	2959	801	928	244				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1218.64	668.16	178.03	185.53	48.86				
Hardness CaCO3				6703	4104	1098	1410	371				
Total Metals												
Aluminum Al				7.64	3.77	2.48	2.25	0.72				
Antimony Sb				0.05	0.04	0.02	0.03	0.01				
Arsenic As				0.14	0.09	0.03	0.04	0.01				
Barium Ba				0.35	0.19	0.08	0.09	0.02				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				3.44	2.05	0.73	0.84	0.25				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1304	711	278	329	94				
Chromium Cr				0.09	0.08	0.03	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.21	0.11	0.03	0.04	0.01				
Iron Fe				9.53	3.87	2.59	2.71	0.74				
Lead Pb				0.03	0.02	0.01	0.01	0.00				
Lithium Li				0.70	0.33	0.11	0.13	0.04				
Magnesium Mg				854	457	166	175	47				
Manganese Mn				0.19	0.08	0.07	0.11	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.13	0.06	0.02	0.02	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				327	169	45	72	19				
Selenium Se				0.10	0.05	0.02	0.02	0.01				
Silicon SiO2				230	115	39	49	14				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				3195	1798	539	677	179				
Strontium Sr				5	3	1	1	0				
Tellurium Te				10.18	4.78	1.49	1.86	0.49				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.01				
Titanium Ti				1.24	0.58	0.18	0.23	0.06				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.14	0.07	0.02	0.01	0.00				
Zinc Zn				0.3	0.1	0.1	0.3	0.1				
Zirconium Zr				1.21	0.60	0.20	0.25	0.07				

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Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				22185	11377	2947	4423	1165				
TSS				605	284	88	111	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				544	332	99	156	45				
Chloride				5849	3792	1002	1364	359				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5042	2939	796	921	243				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1210.10	663.66	176.84	184.29	48.54				
Hardness CaCO3				6656	4077	1091	1401	369				
Total Metals												
Aluminum Al				7.61	3.76	2.47	2.25	0.71				
Antimony Sb				0.05	0.04	0.02	0.03	0.01				
Arsenic As				0.14	0.09	0.03	0.04	0.01				
Barium Ba				0.35	0.19	0.08	0.09	0.02				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				3.42	2.04	0.73	0.84	0.25				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1296	708	277	327	93				
Chromium Cr				0.09	0.08	0.03	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.21	0.11	0.03	0.04	0.01				
Iron Fe				9.47	3.84	2.58	2.70	0.74				
Lead Pb				0.03	0.02	0.01	0.01	0.00				
Lithium Li				0.70	0.33	0.10	0.13	0.04				
Magnesium Mg				848	454	165	174	47				
Manganese Mn				0.18	0.08	0.07	0.11	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.13	0.06	0.02	0.02	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				325	168	45	71	19				
Selenium Se				0.10	0.05	0.02	0.02	0.01				
Silicon SiO2				229	115	39	49	14				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				3173	1786	535	673	177				
Strontium Sr				5	3	1	1	0				
Tellurium Te				10.10	4.75	1.48	1.85	0.49				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.01				
Titanium Ti				1.23	0.58	0.18	0.23	0.06				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.14	0.07	0.02	0.01	0.00				
Zinc Zn				0.3	0.1	0.1	0.3	0.1				
Zirconium Zr				1.21	0.60	0.20	0.25	0.07				

Appendix I

Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				22040	11305	2929	4395	1158				
TSS				601	283	88	110	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				542	330	98	156	45				
Chloride				5811	3768	996	1355	357				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5009	2920	791	916	241				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1202.21	659.46	175.73	183.13	48.24				
Hardness CaCO3				6612	4051	1084	1392	367				
Total Metals												
Aluminum Al				7.59	3.75	2.46	2.24	0.71				
Antimony Sb				0.05	0.04	0.02	0.03	0.01				
Arsenic As				0.14	0.09	0.03	0.04	0.01				
Barium Ba				0.35	0.19	0.08	0.09	0.02				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				3.40	2.03	0.72	0.84	0.25				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1289	704	276	325	93				
Chromium Cr				0.09	0.08	0.03	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.21	0.11	0.03	0.03	0.01				
Iron Fe				9.42	3.82	2.56	2.68	0.74				
Lead Pb				0.03	0.02	0.01	0.01	0.00				
Lithium Li				0.69	0.33	0.10	0.13	0.03				
Magnesium Mg				843	451	164	173	46				
Manganese Mn				0.18	0.08	0.07	0.11	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.13	0.06	0.02	0.02	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				323	167	44	71	19				
Selenium Se				0.10	0.05	0.01	0.02	0.01				
Silicon SiO2				228	114	39	49	14				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				3152	1775	532	669	176				
Strontium Sr				5	3	1	1	0				
Tellurium Te				10.04	4.72	1.47	1.84	0.48				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.01				
Titanium Ti				1.22	0.58	0.18	0.23	0.06				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.14	0.07	0.02	0.01	0.00				
Zinc Zn				0.3	0.1	0.1	0.3	0.1				
Zirconium Zr				1.20	0.59	0.20	0.25	0.07				

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Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				21904	11236	2911	4369	1151				
TSS				597	281	87	109	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				392	238	60	106	28				
Chloride				5775	3745	990	1347	355				
Total Ammonia				1	0	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				4978	2903	786	910	240				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1194.77	655.46	174.67	182.03	47.95				
Hardness CaCO3				6571	4026	1077	1383	364				
Total Metals												
Aluminum Al				3.29	1.09	1.33	0.80	0.21				
Antimony Sb				0.03	0.02	0.02	0.02	0.01				
Arsenic As				0.04	0.03	0.01	0.01	0.00				
Barium Ba				0.33	0.18	0.08	0.08	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				2.39	1.40	0.46	0.50	0.13				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1031	545	209	240	63				
Chromium Cr				0.07	0.07	0.02	0.00	0.00				
Cobalt Co				0.02	0.01	0.00	0.00	0.00				
Copper Cu				0.18	0.09	0.02	0.03	0.01				
Iron Fe				8.36	3.18	2.29	2.33	0.61				
Lead Pb				0.01	0.00	0.00	0.00	0.00				
Lithium Li				0.67	0.32	0.10	0.12	0.03				
Magnesium Mg				812	433	156	163	43				
Manganese Mn				0.16	0.07	0.07	0.10	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.10	0.05	0.01	0.01	0.00				
Phosphorus P				2	0	0	0	0				
Potassium K				315	162	43	68	18				
Selenium Se				0.08	0.04	0.01	0.01	0.00				
Silicon SiO2				179	84	26	33	9				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				3126	1760	527	663	175				
Strontium Sr				4	3	1	1	0				
Tellurium Te				9.96	4.68	1.46	1.82	0.48				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.02	0.03	0.01	0.01	0.00				
Titanium Ti				1.19	0.56	0.17	0.22	0.06				
Uranium U				0.01	0.00	0.00	0.00	0.00				
Vanadium V				0.10	0.04	0.01	0.00	0.00				
Zinc Zn				0.2	0.1	0.1	0.3	0.1				
Zirconium Zr				1.00	0.47	0.15	0.18	0.05				

Appendix I

Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				21773	11170	2894	4343	1144				
TSS				594	279	87	109	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				390	236	59	105	28				
Chloride				5740	3723	984	1339	353				
Total Ammonia				1	0	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				4948	2886	781	905	238				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1187.63	651.59	173.65	180.97	47.67				
Hardness CaCO3				6532	4003	1071	1375	362				
Total Metals												
Aluminum Al				3.27	1.08	1.32	0.80	0.21				
Antimony Sb				0.03	0.02	0.02	0.02	0.01				
Arsenic As				0.04	0.03	0.01	0.01	0.00				
Barium Ba				0.33	0.18	0.08	0.08	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				2.38	1.40	0.46	0.50	0.13				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1025	542	208	239	63				
Chromium Cr				0.07	0.07	0.02	0.00	0.00				
Cobalt Co				0.02	0.01	0.00	0.00	0.00				
Copper Cu				0.18	0.09	0.02	0.03	0.01				
Iron Fe				8.31	3.16	2.27	2.32	0.61				
Lead Pb				0.01	0.00	0.00	0.00	0.00				
Lithium Li				0.67	0.31	0.10	0.12	0.03				
Magnesium Mg				808	430	155	163	43				
Manganese Mn				0.16	0.07	0.07	0.10	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.10	0.05	0.01	0.01	0.00				
Phosphorus P				2	0	0	0	0				
Potassium K				313	161	42	68	18				
Selenium Se				0.08	0.04	0.01	0.01	0.00				
Silicon SiO2				178	84	26	33	9				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				3108	1750	524	659	174				
Strontium Sr				4	3	1	1	0				
Tellurium Te				9.90	4.65	1.45	1.81	0.48				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.02	0.03	0.01	0.01	0.00				
Titanium Ti				1.19	0.56	0.17	0.22	0.06				
Uranium U				0.01	0.00	0.00	0.00	0.00				
Vanadium V				0.10	0.04	0.01	0.00	0.00				
Zinc Zn				0.2	0.1	0.1	0.3	0.1				
Zirconium Zr				0.99	0.47	0.14	0.18	0.05				

Appendix I

Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				21646	11105	2877	4318	1137				
TSS				590	278	86	108	28				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				388	235	59	105	28				
Chloride				5707	3702	978	1331	351				
Total Ammonia				1	0	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				4919	2869	777	900	237				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1180.67	647.80	172.64	179.92	47.39				
Hardness CaCO3				6494	3979	1065	1367	360				
Total Metals												
Aluminum Al				3.25	1.07	1.31	0.80	0.21				
Antimony Sb				0.03	0.02	0.02	0.02	0.01				
Arsenic As				0.04	0.03	0.01	0.01	0.00				
Barium Ba				0.33	0.18	0.08	0.08	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				2.36	1.39	0.45	0.49	0.13				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1019	539	206	237	62				
Chromium Cr				0.07	0.07	0.02	0.00	0.00				
Cobalt Co				0.02	0.01	0.00	0.00	0.00				
Copper Cu				0.18	0.09	0.02	0.03	0.01				
Iron Fe				8.26	3.15	2.26	2.31	0.61				
Lead Pb				0.01	0.00	0.00	0.00	0.00				
Lithium Li				0.66	0.31	0.10	0.12	0.03				
Magnesium Mg				803	428	155	162	43				
Manganese Mn				0.16	0.06	0.07	0.10	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.10	0.05	0.01	0.01	0.00				
Phosphorus P				2	0	0	0	0				
Potassium K				311	160	42	67	18				
Selenium Se				0.08	0.04	0.01	0.01	0.00				
Silicon SiO2				177	83	26	32	9				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				3089	1740	521	655	173				
Strontium Sr				4	2	1	1	0				
Tellurium Te				9.84	4.63	1.44	1.80	0.47				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.02	0.03	0.01	0.01	0.00				
Titanium Ti				1.18	0.56	0.17	0.22	0.06				
Uranium U				0.01	0.00	0.00	0.00	0.00				
Vanadium V				0.09	0.04	0.01	0.00	0.00				
Zinc Zn				0.2	0.1	0.1	0.3	0.1				
Zirconium Zr				0.98	0.46	0.14	0.18	0.05				

Appendix I

Table I-1-a-A.3
Low Flow Scenario 1

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				399732	389253	381073	382506	379343				
TSS				1179	554	172	216	57				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				385	234	59	104	27				
Chloride				252110	241618	233711	234650	231514				
Total Ammonia				1	0	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				4891	2852	772	894	236				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				6	2	1	1	0				
Org. Carbon				1173.81	644.04	171.65	178.88	47.12				
Hardness CaCO3				6456	3956	1058	1360	358				
Total Metals												
Aluminum Al				54.55	25.20	8.81	10.18	2.68				
Antimony Sb				0.04	0.03	0.02	0.03	0.01				
Arsenic As				0.12	0.07	0.02	0.02	0.01				
Barium Ba				0.32	0.18	0.08	0.08	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				8.75	4.39	1.39	1.66	0.44				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				23775	23039	22551	22600	22360				
Chromium Cr				0.17	0.12	0.04	0.02	0.01				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.34	0.17	0.04	0.06	0.01				
Iron Fe				58.11	26.59	9.54	11.42	3.01				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.13	0.53	0.17	0.21	0.05				
Magnesium Mg				1479	745	253	285	75				
Manganese Mn				1.35	0.62	0.24	0.32	0.08				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.09	0.04	0.01	0.01	0.00				
Nickel Ni				0.15	0.07	0.02	0.02	0.01				
Phosphorus P				2	0	0	0	0				
Potassium K				844	411	120	165	43				
Selenium Se				0.29	0.13	0.04	0.05	0.01				
Silicon SiO2				301	142	44	55	15				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				138141	131754	127456	127938	126175				
Strontium Sr				8	4	1	2	0				
Tellurium Te				9.78	4.60	1.43	1.79	0.47				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.03	0.03	0.01	0.01	0.00				
Titanium Ti				4.09	1.92	0.60	0.75	0.20				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.52	0.24	0.07	0.08	0.02				
Zinc Zn				0.4	0.2	0.1	0.3	0.1				
Zirconium Zr				0.99	0.47	0.15	0.18	0.05				

Appendix I

Table I-1-a-B.1
Low Flow Scenario 1

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate Degradation None		m3/year					
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 15	L'Roberts L Year 15	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			736	183	186	
TSS	mg/L			4.7	7.0	8.1	
Free CN	mg/L		0.005	0.0067	0.00025	0.00013	5%
Total CN	mg/L	1.0		0.066	0.004	0.003	
WAD CN	mg/L			0.0090	0.0003	0.0002	
CNO	mg/L			7.4	0.27	0.14	
SCN	mg/L			0.101	0.004	0.002	
Sulphate	mg/L			93	6.5	6.4	
Chloride	mg/L			484	91	83	
Total Ammonia	mg/L		0.97	1.12	0.062	0.033	6%
Nitrate	mg/L		2.9	6.1	0.28	0.15	10%
Nitrite	mg/L		0.018	0.85	0.038	0.021	206%
Alkalinity	mg/L			55	28	27	
OrthoPhosphate-P	mg/L			0.1752	0.0080	0.0049	
Phosphate-P	mg/L			0.1782	0.0260	0.0265	
Org. Carbon	mg/L			5.7	7.5	7.0	
Hardness CaCO3	mg/L			108	47	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.16	0.08	0.25	82%
Antimony Sb	mg/L			0.0160	0.0029	0.0019	
Arsenic As	mg/L	0.5	0.005	0.00	0.0005	0.0005	11%
Barium Ba	mg/L			0.0107	0.0033	0.0052	
Beryllium Be	mg/L			0.00062	0.00004	0.00002	
Bismuth Bi	mg/L			0.01543	0.00067	0.00044	
Boron B	mg/L			0.038	0.035	0.030	
Cadmium Cd	mg/L		0.000038	0.000057	0.0000047	0.0000152	12%
Calcium Ca	mg/L			252	17	13	
Chromium Cr	mg/L		0.001	0.0067	0.001	0.001	78%
Cobalt Co	mg/L			0.0106	0.0009	0.0004	
Copper Cu	mg/L	0.3	0.002	0.010	0.0018	0.0021	89%
Iron Fe	mg/L		0.3	0.18	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00042	0.00007	0.00026	4%
Lithium Li	mg/L			0.0056	0.0030	0.0030	
Magnesium Mg	mg/L			9.2	7.4	7.5	
Manganese Mn	mg/L			0.029	0.021	0.024	
Mercury Hg	mg/L		0.0001	0.0000133	0.0000016	0.0000011	2%
Molybdenum Mo	mg/L		0.073	0.0092	0.00049	0.00038	1%
Nickel Ni	mg/L	0.5	0.025	0.008	0.0008	0.0008	3%
Phosphorus P	mg/L			0.263	0.029	0.028	
Potassium K	mg/L			42	3.8	3.3	
Selenium Se	mg/L		0.001	0.00100	0.00090	0.00082	90%
Silicon SiO2	mg/L			4.0	0.67	0.61	
Silver Ag	mg/L		0.0001	0.00012	0.0000097	0.0000061	10%
Sodium Na	mg/L			132	43	41	
Strontium Sr	mg/L			0.088	0.043	0.048	
Tellurium Te	mg/L			0.047	0.050	0.052	
Thallium Tl	mg/L		0.0008	0.000042	0.000031	0.002002	4%
Thorium Th	mg/L			0.000054	0.0000041	0.0000022	
Tin Sn	mg/L			0.00241	0.00048	0.00006	
Titanium Ti	mg/L			0.0133	0.0065	0.0065	
Uranium U	mg/L			0.000082	0.000041	0.000045	
Vanadium V	mg/L			0.0036	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.023	0.0036	0.0056	12%
Zirconium Zr	mg/L			0.0050	0.0051	0.0052	

Appendix I

Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				140	121	125	145	145				
TSS	mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride	mg/L				61	61	59	63	63				
Total Ammonia	mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate	mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P	mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon	mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B	mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca	mg/L				9	8	8	7	7				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P	mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se	mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn	mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				140	121	125	145	145				
TSS	mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride	mg/L				61	61	59	63	63				
Total Ammonia	mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate	mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P	mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon	mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B	mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca	mg/L				9	8	8	7	7				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P	mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se	mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn	mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca mg/L				9	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca mg/L				9	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca mg/L				9	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.7	2.8	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca mg/L				8	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L												
Tin Sn mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V mg/L				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.7	2.8	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca mg/L				8	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L												
Tin Sn mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V mg/L				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.7	2.8	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca mg/L				8	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L												
Tin Sn mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V mg/L				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.7	2.8	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca mg/L				8	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L												
Tin Sn mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V mg/L				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-1-a-B.2

Low Flow Scenario 1

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				140	121	125	145	145			
TSS	mg/L				4.0	5.9	6.0	7.0	7.0			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L											
Sulphate	mg/L				2.8	2.7	2.8	3.0	3.0			
Chloride	mg/L				61	61	59	63	63			
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				28	25	27	27	27			
OrthoPhosphate-P	mg/L				0.0008	0.0008	0.0008	0.0008	0.0008			
Phosphate-P	mg/L				0.0165	0.0179	0.0240	0.0195	0.0195			
Org. Carbon	mg/L				5.5	5.1	7.5	5.0	5.0			
Hardness CaCO3	mg/L				46	43	43	44	44			
Total Metals												
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0004	0.0008	0.0028	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031			
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000			
Bismuth Bi	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003			
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020			
Calcium Ca	mg/L				8	8	8	7	7			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0000	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015			
Iron Fe	mg/L				0.05	0.13	0.08	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5			
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006			
Molybdenum Mo	mg/L				0.00016	0.00015	0.00018	0.00016	0.00016			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.017	0.018	0.024	0.020	0.020			
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3			
Selenium Se	mg/L				0.00090	0.00057	0.00062	0.00056	0.00056			
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50			
Silver Ag	mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007			
Sodium Na	mg/L				39	33	34	32	32			
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L											
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040			
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060			
Uranium U	mg/L				0.000025	0.000030	0.000038	0.000031	0.000031			
Vanadium V	mg/L				0.0006	0.0000	0.0002	0.0001	0.0001			
Zinc Zn	mg/L				0.0009	0.0032	0.0028	0.0017	0.0017			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

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Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

Appendix I

Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

Appendix I

Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

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Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

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Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

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Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

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Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

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Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

Appendix I

Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

Appendix I

Table I-1-a-B.3

Low Flow Scenario 1

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

Table I-1-a-C.1
Low Flow Scenario 1

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)						
Discharge rate Degradation None		m3/year										
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 15	L'Roberts L Year 15						
pH			6 to 9	7 to 8	7 to 8	7 to 8						
TDS	mg/L	1.0	0.005	736	183	186	5%					
TSS	mg/L			4.7	7.0	8.1						
Free CN	mg/L			0.0067	0.00025	0.00013						
Total CN	mg/L			0.066	0.004	0.003						
WAD CN	mg/L			0.0090	0.0003	0.0002						
CNO	mg/L			7.4	0.27	0.14						
SCN	mg/L			0.101	0.004	0.002						
Sulphate	mg/L			93	6.5	6.4						
Chloride	mg/L			484	91	83						
Total Ammonia	mg/L			0.97	1.12	0.062		0.033	6%			
Nitrate	mg/L	2.9	6.1	0.28	0.15	10%						
Nitrite	mg/L	0.018	0.85	0.038	0.021	206%						
Alkalinity	mg/L		55	28	27							
OrthoPhosphate-P	mg/L		0.1752	0.0080	0.0049							
Phosphate-P	mg/L		0.1782	0.0260	0.0265							
Org. Carbon	mg/L		5.7	7.5	7.0							
Hardness CaCO3	mg/L		108	47	47							
Total Metals												
Aluminum Al	mg/L	0.5	0.1	0.16	0.08	0.25	82%					
Antimony Sb	mg/L		0.005	0.00057	0.0029	0.0019	11%					
Arsenic As	mg/L				0.00	0.0005		0.0005				
Barium Ba	mg/L				0.0107	0.0033		0.0052				
Beryllium Be	mg/L				0.00062	0.00004		0.00002				
Bismuth Bi	mg/L				0.01543	0.00067		0.00044				
Boron B	mg/L				0.038	0.035		0.030				
Cadmium Cd	mg/L				0.000038	0.0000047		0.0000152	12%			
Calcium Ca	mg/L				0.001	252		17	13	78%		
Chromium Cr	mg/L					0.0067		0.001	0.001			
Cobalt Co	mg/L	0.0106				0.0009		0.0004				
Copper Cu	mg/L	0.3	0.002	0.018		0.0021	89%					
Iron Fe	mg/L	0.3	0.18	0.13		0.28	42%					
Lead Pb	mg/L	0.2	0.002	0.00042		0.00007	0.00026	4%				
Lithium Li	mg/L	0.5	0.0001	0.0056		0.0030	0.0030	2%				
Magnesium Mg	mg/L			0.073		9.2	7.4		7.5		1%	
Manganese Mn	mg/L					0.029	0.021		0.024			
Mercury Hg	mg/L					0.000133	0.0000016		0.0000011			
Molybdenum Mo	mg/L				0.0092	0.00049	0.00038					
Nickel Ni	mg/L				0.008	0.0008	0.0008		3%			
Phosphorus P	mg/L				0.0001	0.263	0.029		0.028	90%		
Potassium K	mg/L					42	3.8		3.3			
Selenium Se	mg/L					0.001	0.00100		0.00090			0.00082
Silicon SiO2	mg/L					4.0	0.67		0.61			
Silver Ag	mg/L	0.00012	0.0000097			0.0000061	10%					
Sodium Na	mg/L	132	43	41		4%						
Strontium Sr	mg/L	0.088	0.043	0.048								
Tellurium Te	mg/L	0.047	0.050	0.052								
Thallium Tl	mg/L	0.000042	0.000031	0.002002								
Thorium Th	mg/L	0.000054	0.0000041	0.0000022			12%					
Tin Sn	mg/L	0.00241	0.00048	0.00006								
Titanium Ti	mg/L	0.0133	0.0065	0.0065								
Uranium U	mg/L	0.000082	0.000041	0.000045								
Vanadium V	mg/L	0.0036	0.0007	0.0005								
Zinc Zn	mg/L	0.5	0.03	0.023	0.0036			0.0056				
Zirconium Zr	mg/L		0.0050	0.0051	0.0052							

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter	mg/L				150	150	140	160	160				
TDS	mg/L				7.0	8.0	4.0	5.0	5.0				
TSS	mg/L												
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter	mg/L				150	150	140	160	160				
TDS	mg/L				7.0	8.0	4.0	5.0	5.0				
TSS	mg/L												
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.005	0.005		0.007	0.007				
Nitrate	mg/L				0.01	0.01		0.01	0.01				
Nitrite	mg/L				0.002	0.002		0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L												
Tin Sn	mg/L												
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042				
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.005	0.005		0.007	0.007				
Nitrate	mg/L				0.01	0.01		0.01	0.01				
Nitrite	mg/L				0.002	0.002		0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L												
Tin Sn	mg/L												
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042				
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.005	0.005		0.007	0.007				
Nitrate	mg/L				0.01	0.01		0.01	0.01				
Nitrite	mg/L				0.002	0.002		0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L												
Tin Sn	mg/L												
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042				
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.005	0.005		0.007	0.007				
Nitrate	mg/L				0.01	0.01		0.01	0.01				
Nitrite	mg/L				0.002	0.002		0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L												
Tin Sn	mg/L												
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042				
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.2
Low Flow Scenario 1

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter	mg/L				150	150	140	160	160			
TDS	mg/L				7.0	8.0	4.0	5.0	5.0			
TSS	mg/L											
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L											
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4			
Chloride	mg/L				61	58	57	65	65			
Total Ammonia	mg/L				0.005	0.005		0.007	0.007			
Nitrate	mg/L				0.01	0.01		0.01	0.01			
Nitrite	mg/L				0.002	0.002		0.002	0.002			
Alkalinity	mg/L				23	23	24	25	25			
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190			
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0			
Hardness CaCO3	mg/L				43	38	40	44	44			
Total Metals												
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000			
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010			
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026			
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020			
Calcium Ca	mg/L				8	7	7	7	7			
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1			
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008			
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006			
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020			
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006			
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5			
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059			
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50			
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013			
Sodium Na	mg/L				37	31	34	36	36			
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000			
Thorium Th	mg/L											
Tin Sn	mg/L											
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060			
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042			
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

Appendix I

Table I-1-a-C.3

Low Flow Scenario 1

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-a-C.3

Low Flow Scenario 1

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-a-C.3

Low Flow Scenario 1

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-a-C.3

Low Flow Scenario 1

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-a-C.3

Low Flow Scenario 1

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-a-C.3

Low Flow Scenario 1

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.3

Low Flow Scenario 1

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.3

Low Flow Scenario 1

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.0020	0.0020	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-a-C.3

Low Flow Scenario 1

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

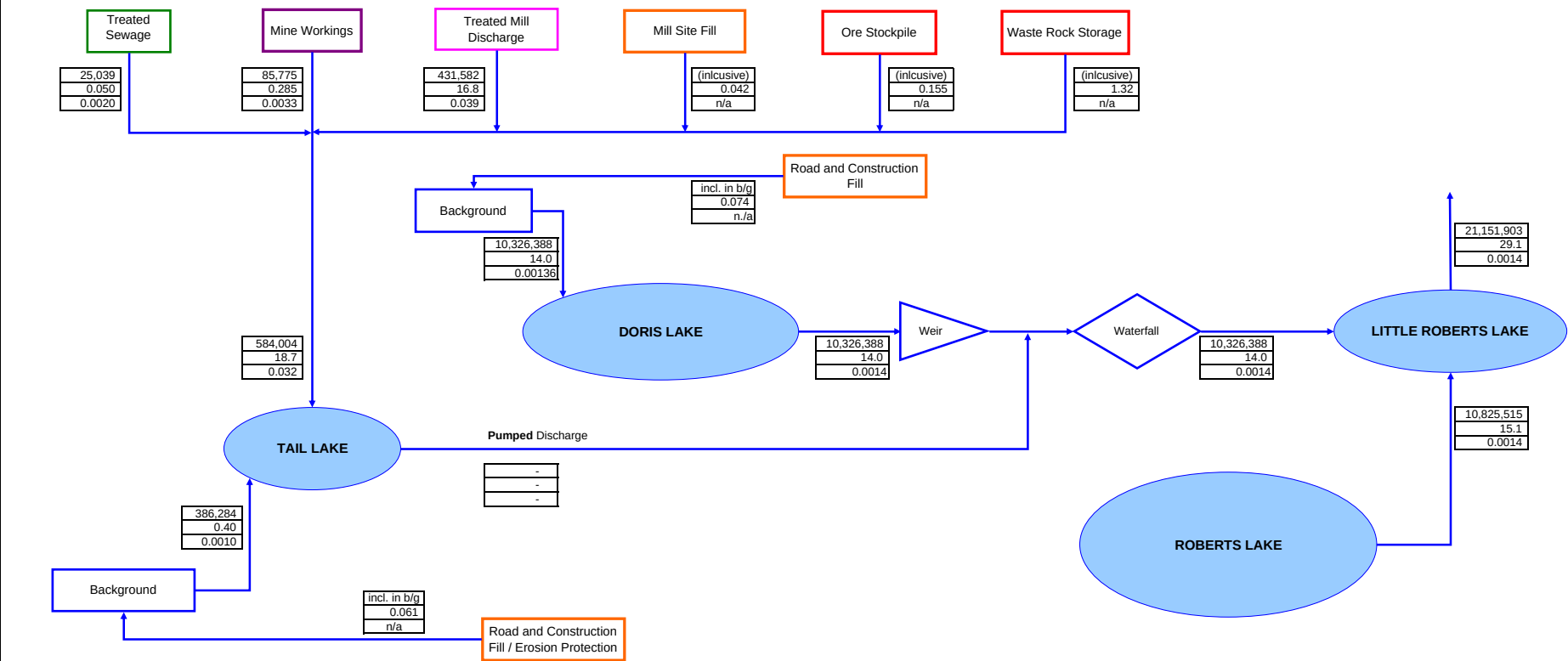
Table I-1-a-C.3

Low Flow Scenario 1

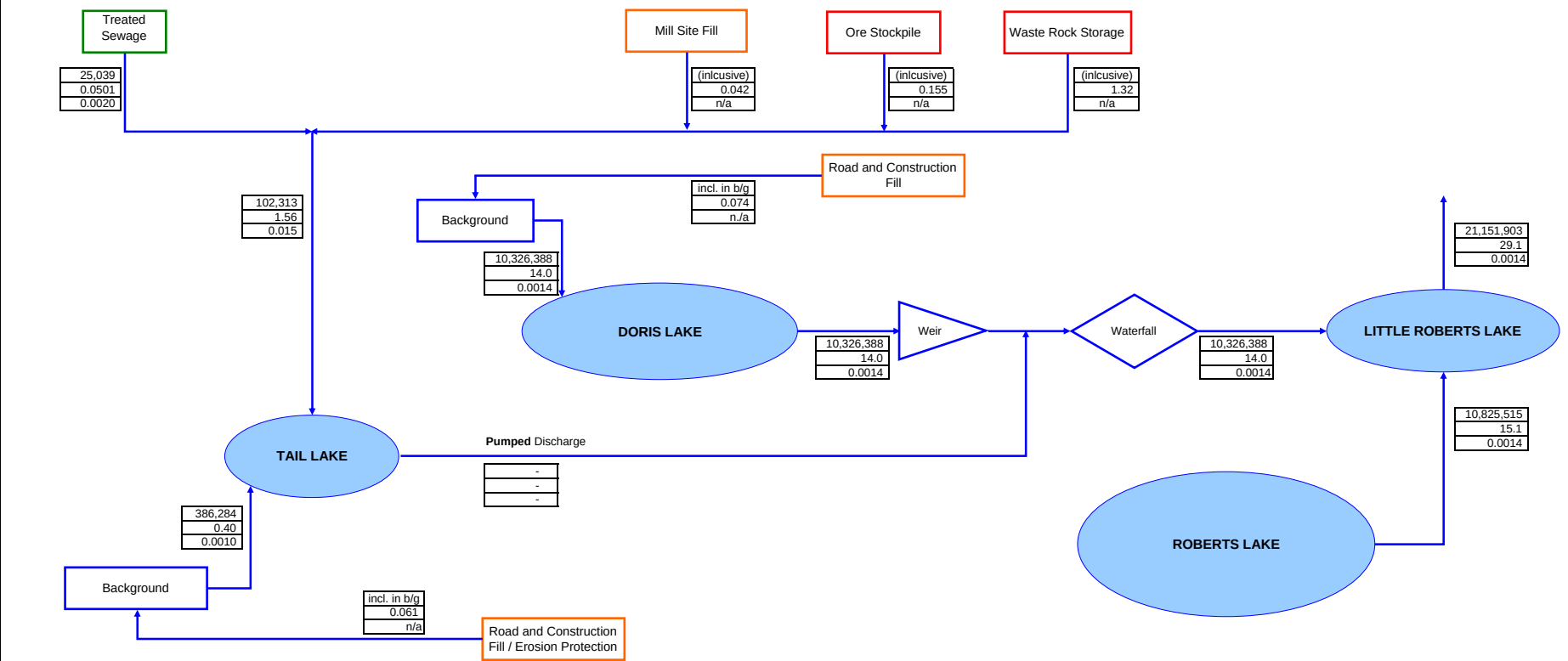
Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

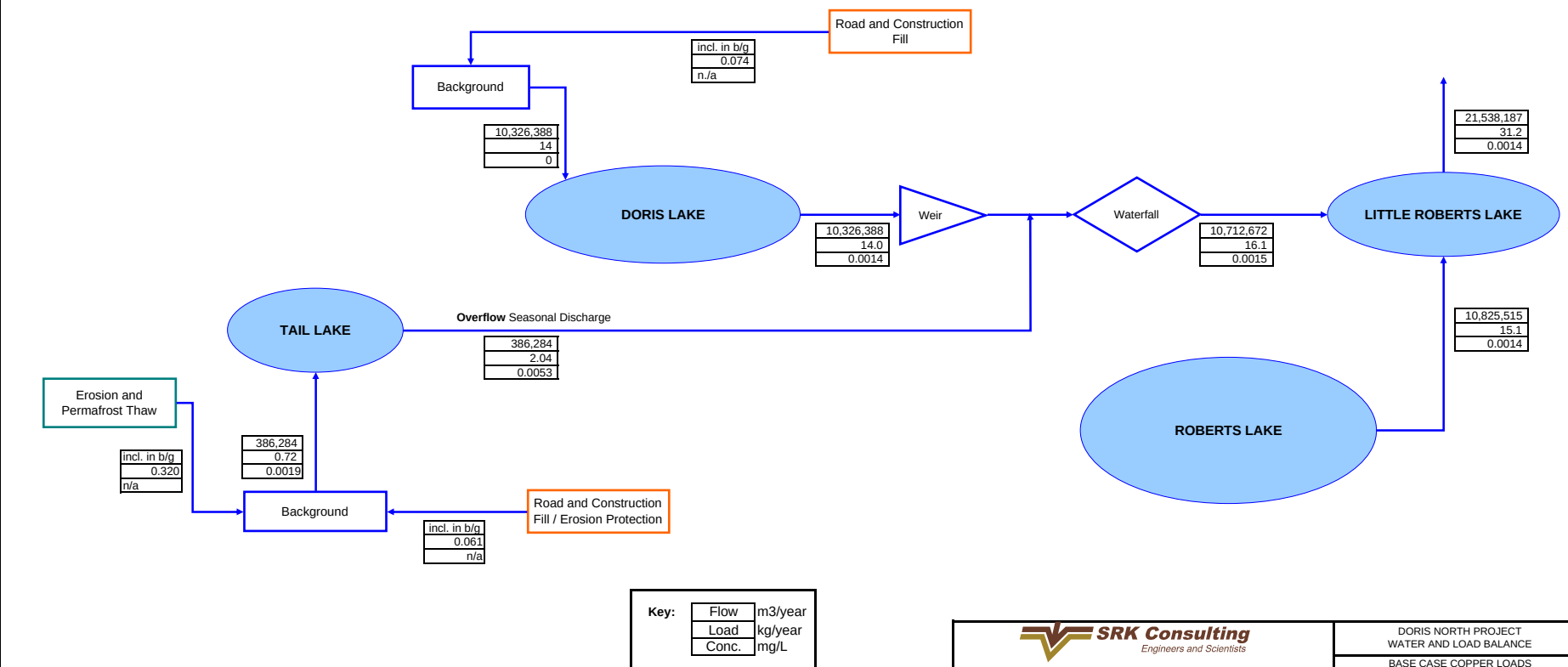
Yield 111 mm Scenario 2 - OPERATIONAL CONDITIONS
Year 2



POST MILLING OPERATIONAL CONDITIONS
Year 3



POST CLOSURE CONDITIONS
Year 14

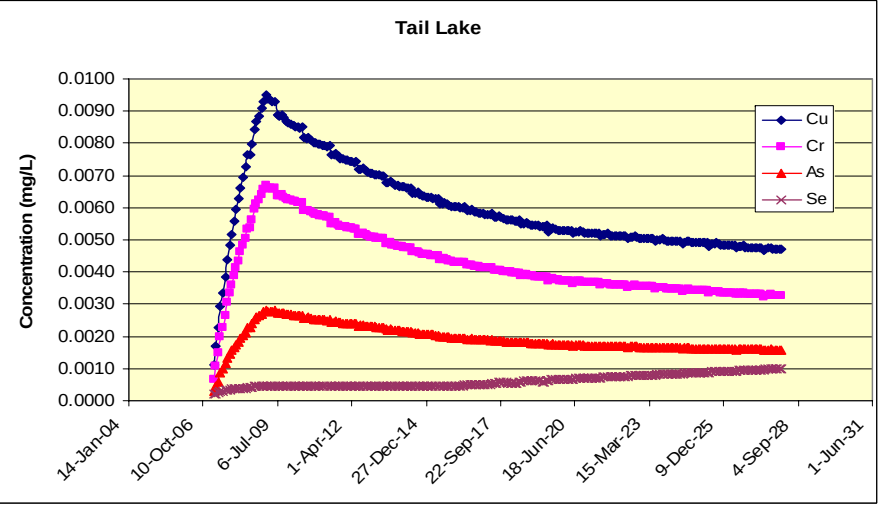
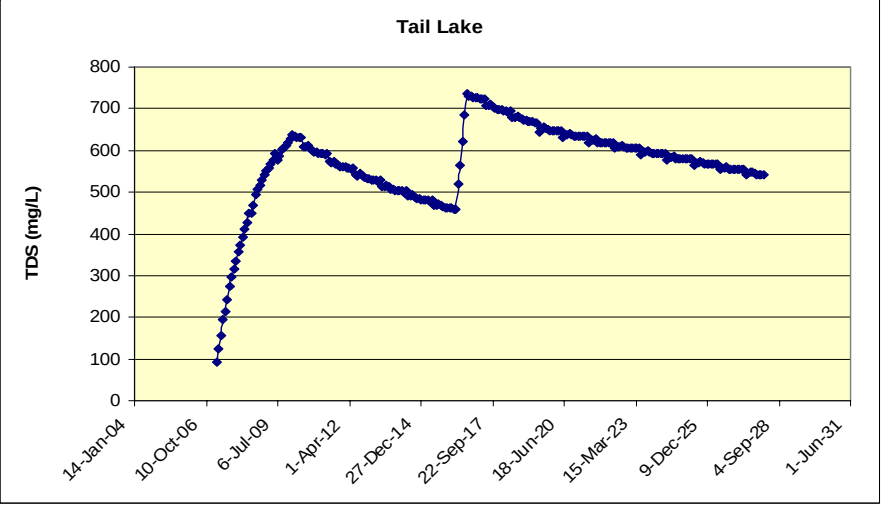
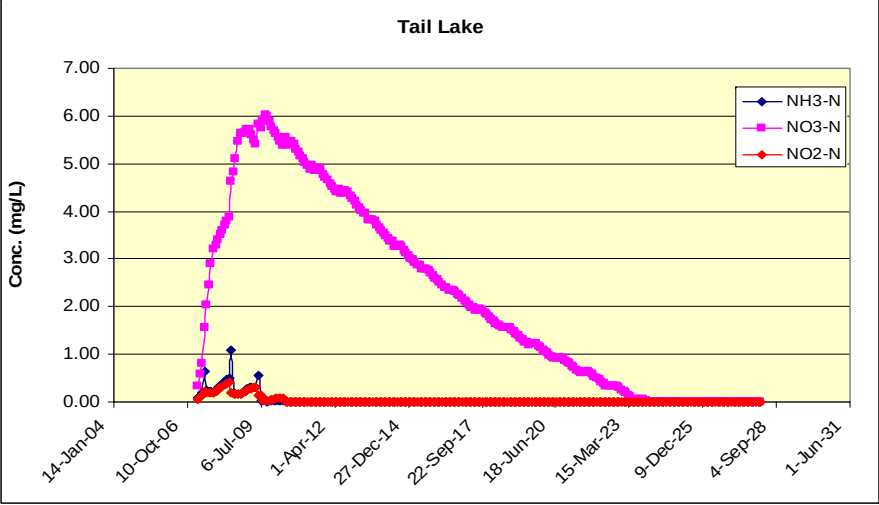
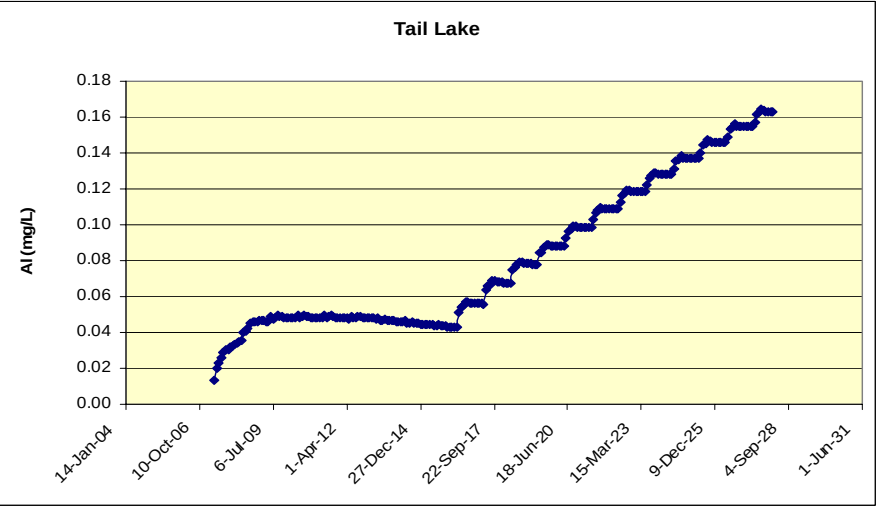
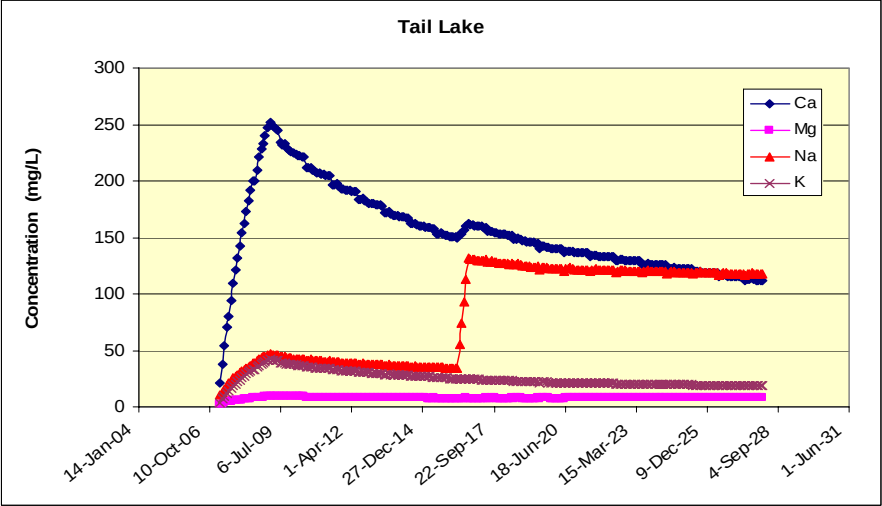
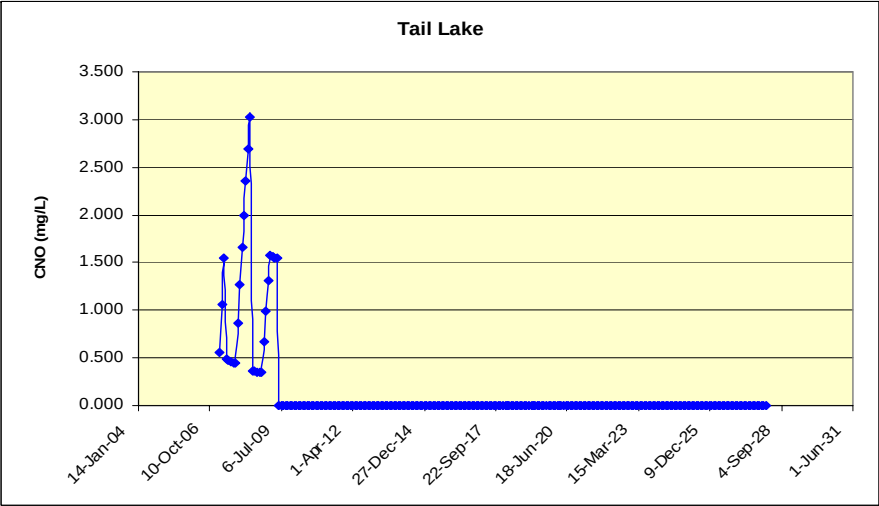
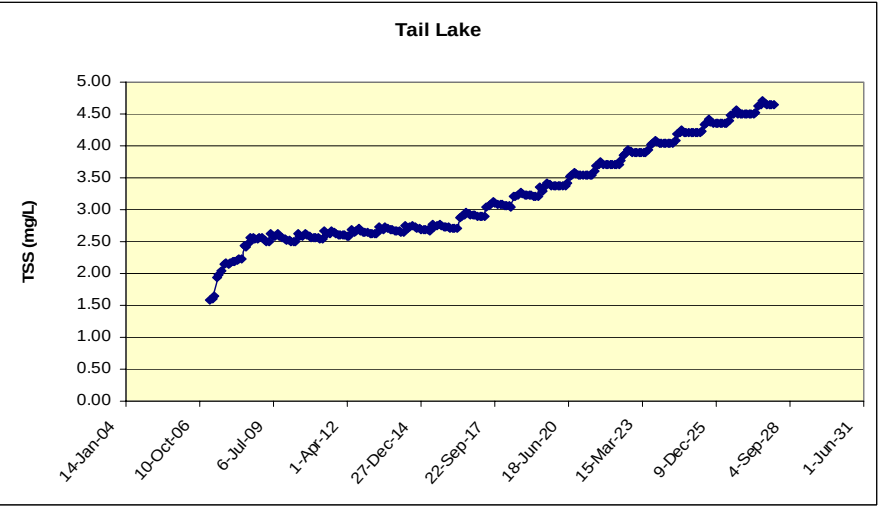
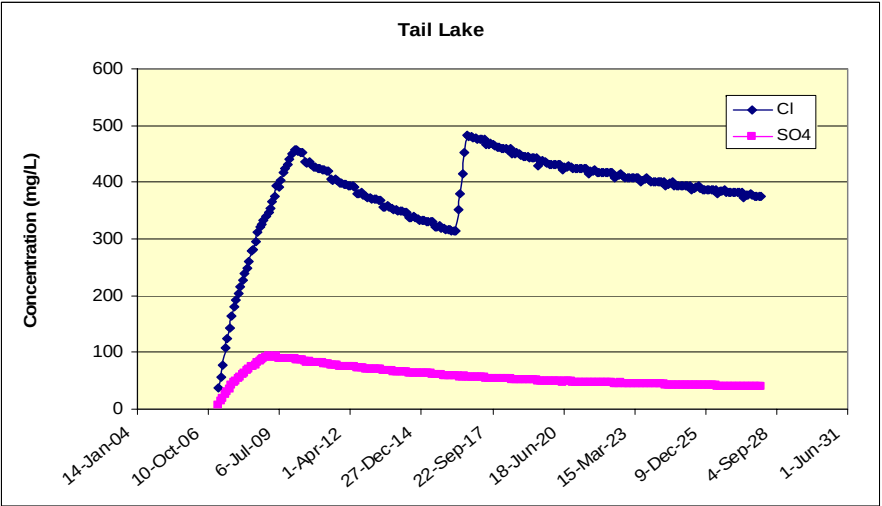
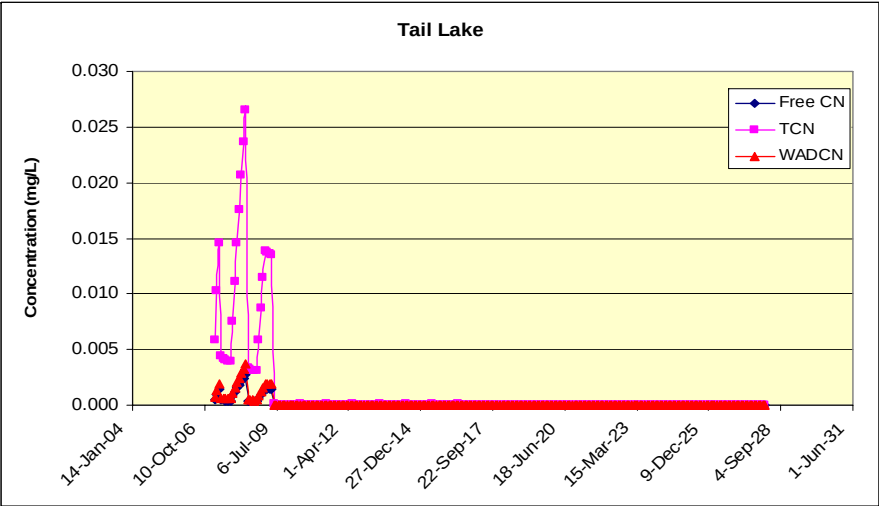


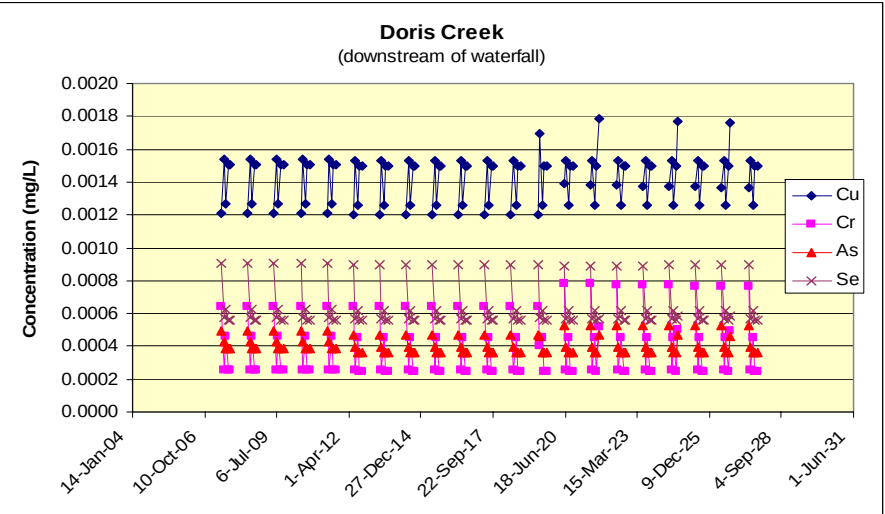
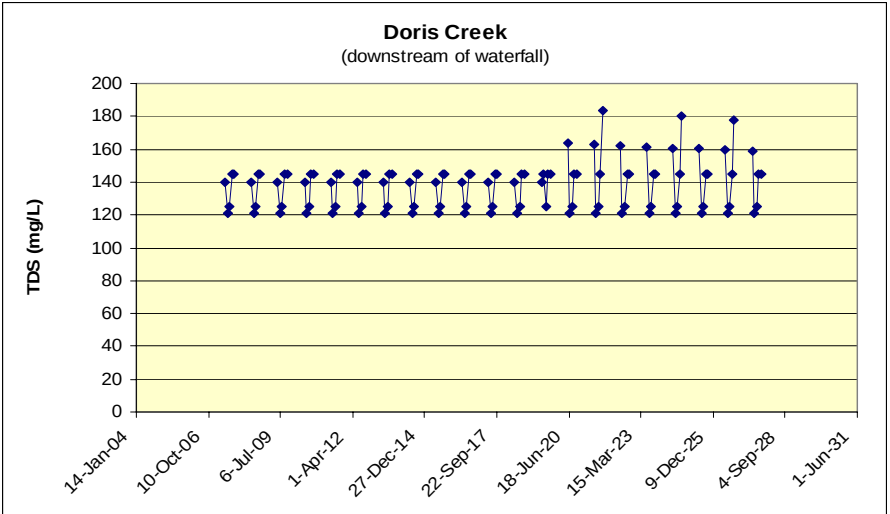
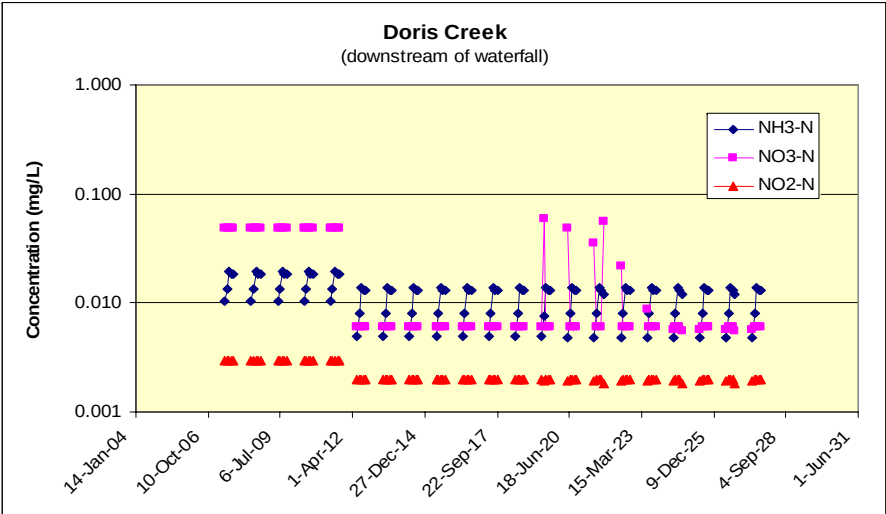
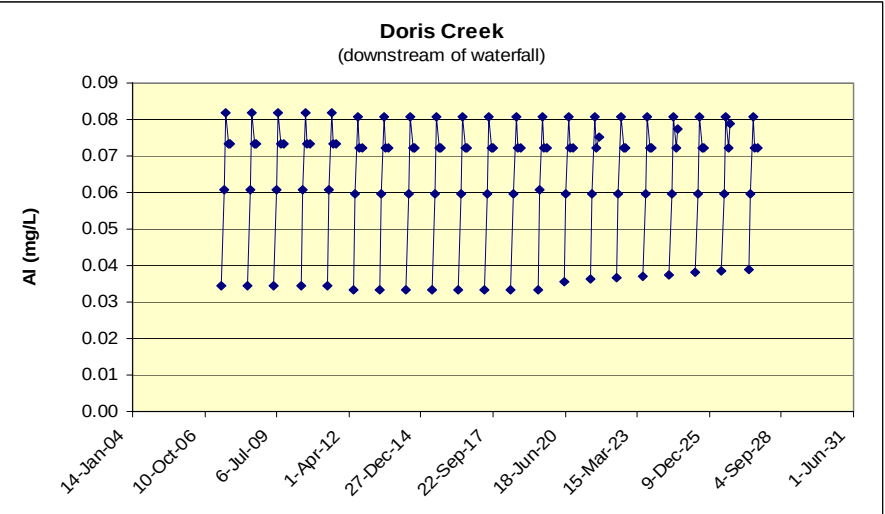
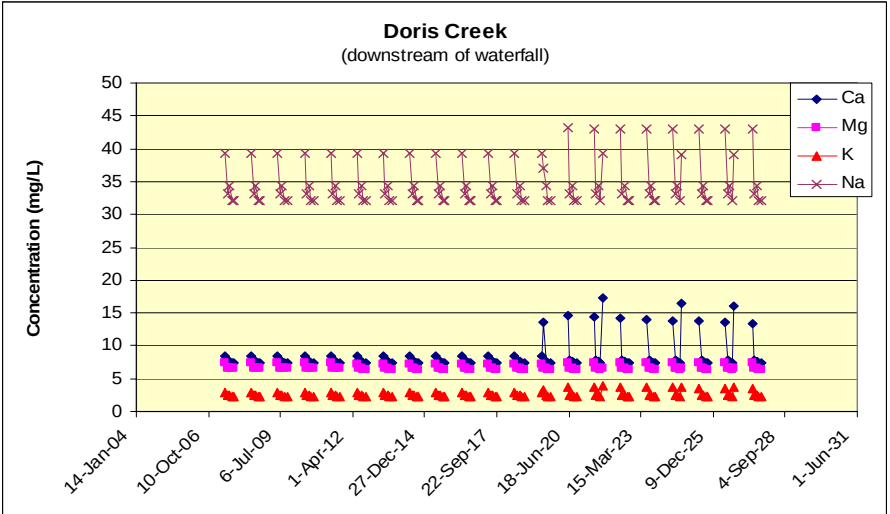
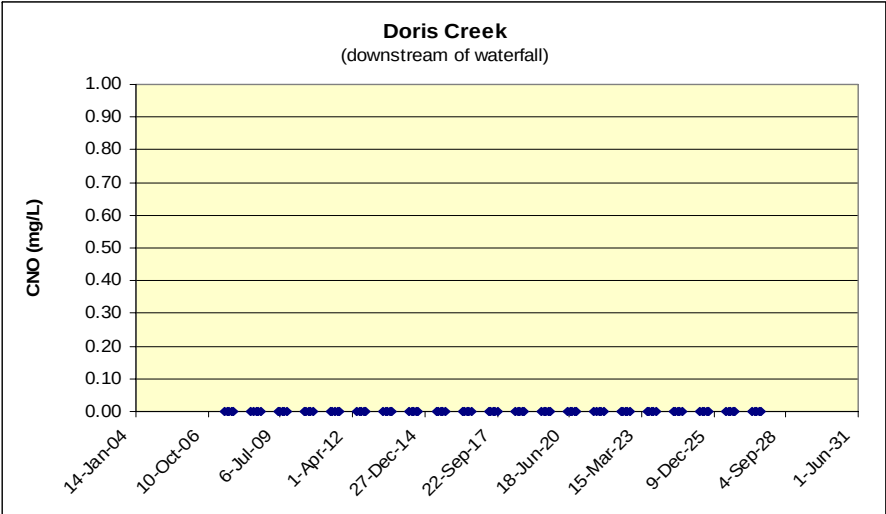
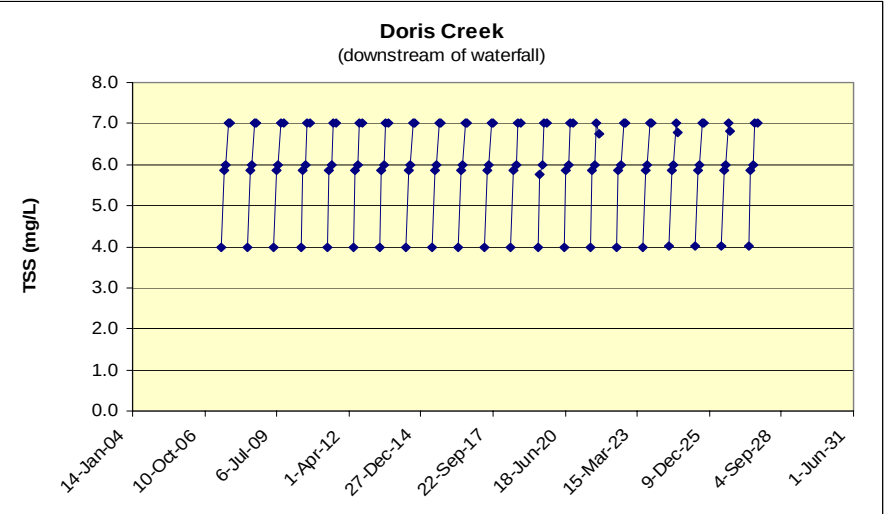
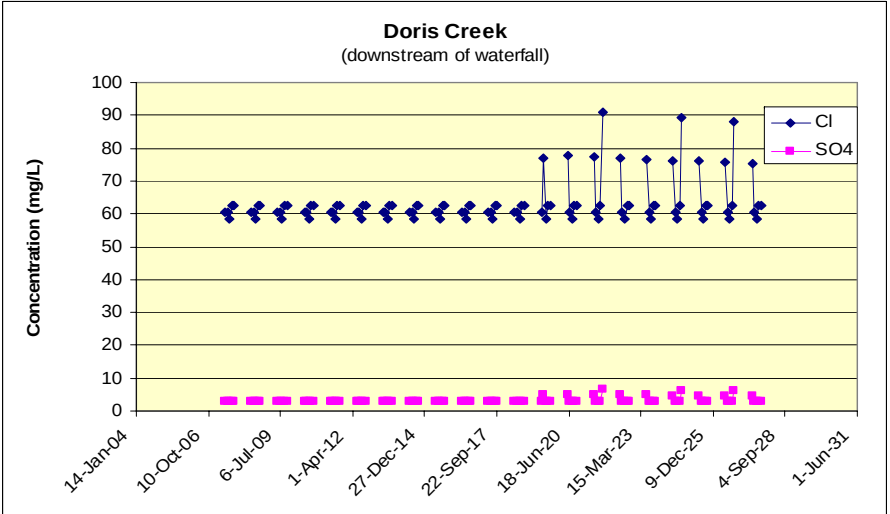
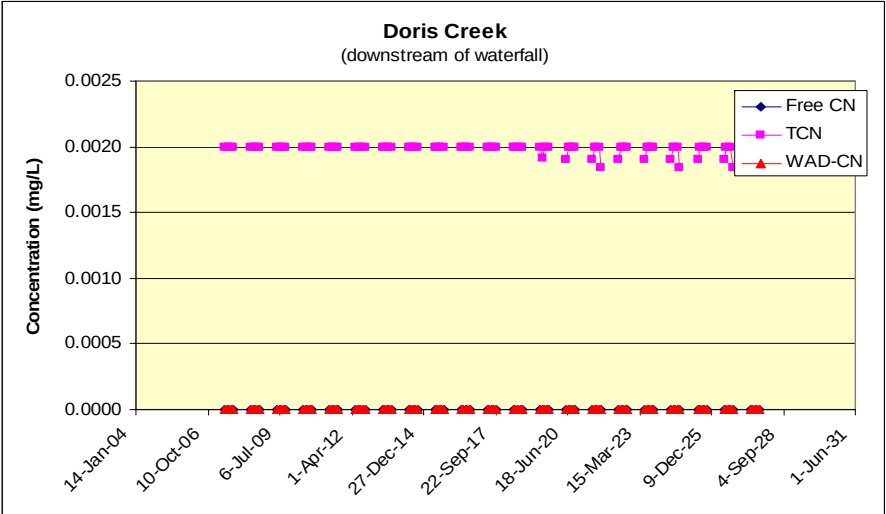
Key:

Flow	m3/year
Load	kg/year
Conc.	mg/L

MIRAMAR HOPE BAY LIMITED	SRK Consulting Engineers and Scientists			DORIS NORTH PROJECT WATER AND LOAD BALANCE	
				BASE CASE COPPER LOADS No Erosion Control	
	PROJECT: 1CM014.06	Date: Oct-05	Approved: JTC	FIGURE I-1-b.1	

Low Flow 2





Appendix I

Table I-1-b-A.1
Low Flow Scenario 2

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)	
Discharge rate Degradation Field(age)			m3/year					
			MMER	CCME	Tail Lake Year 2	Doris Creek Year 15		L'Roberts L Year 15
Maximum Concentration								
pH				6 to 9	7 to 8	7 to 8	7 to 8	
TDS			mg/L		736	183	186	
TSS			mg/L		4.7	7.0	8.1	
Free CN			mg/L	0.005	0.0028			
Total CN			mg/L	1.0	0.027	0.002	0.002	
WAD CN			mg/L		0.0037			
CNO			mg/L		3.0			
SCN			mg/L		0.101	0.004	0.002	
Sulphate			mg/L		93	6.5	6.4	
Chloride			mg/L		484	91	83	
Total Ammonia			mg/L	0.97	1.09	0.019	0.010	2%
Nitrate			mg/L	2.9	6.0	0.06	0.03	2%
Nitrite			mg/L	0.018	0.42	0.003	0.002	16%
Alkalinity			mg/L		55	28	27	
OrthoPhosphate-P			mg/L		0.1752	0.0080	0.0049	
Phosphate-P			mg/L		0.1782	0.0260	0.0265	
Org. Carbon			mg/L		5.7	7.5	7.0	
Hardness CaCO3			mg/L		108	47	47	
Total Metals								
Aluminum Al			mg/L	0.1	0.16	0.08	0.25	82%
Antimony Sb			mg/L		0.0160	0.0029	0.0019	
Arsenic As			mg/L	0.5	0.005	0.0005	0.0005	11%
Barium Ba			mg/L		0.0107	0.0033	0.0052	
Beryllium Be			mg/L		0.00062	0.00004	0.00002	
Bismuth Bi			mg/L		0.01543	0.00067	0.00044	
Boron B			mg/L		0.038	0.035	0.030	
Cadmium Cd			mg/L	0.000038	0.000057	0.0000047	0.0000152	12%
Calcium Ca			mg/L		252	17	13	
Chromium Cr			mg/L	0.001	0.0067	0.0008	0.001	78%
Cobalt Co			mg/L		0.0106	0.0009	0.0004	
Copper Cu			mg/L	0.3	0.002	0.00179	0.0021	89%
Iron Fe			mg/L	0.3	0.18	0.13	0.28	42%
Lead Pb			mg/L	0.2	0.002	0.00042	0.00007	4%
Lithium Li			mg/L		0.0056	0.0030	0.0030	
Magnesium Mg			mg/L		9.2	7.4	7.5	
Manganese Mn			mg/L		0.029	0.021	0.024	
Mercury Hg			mg/L	0.0001	0.0000133	0.00000156	0.0000011	2%
Molybdenum Mo			mg/L	0.073	0.0092	0.00049	0.00038	1%
Nickel Ni			mg/L	0.5	0.025	0.0008	0.0008	3%
Phosphorus P			mg/L		0.263	0.029	0.028	
Potassium K			mg/L		42	3.8	3.3	
Selenium Se			mg/L	0.001	0.00100	0.0009	0.00082	90%
Silicon SiO2			mg/L		4.0	0.67	0.61	
Silver Ag			mg/L	0.0001	0.00012	0.0000097	0.0000061	10%
Sodium Na			mg/L		132	43	41	
Strontium Sr			mg/L		0.088	0.043	0.048	
Tellurium Te			mg/L		0.047	0.050	0.052	
Thallium Tl			mg/L	0.0008	0.000042	0.000031	0.0020	4%
Thorium Th			mg/L		0.000054	0.0000041	0.0000022	
Tin Sn			mg/L		0.00241	0.00048	0.00006	
Titanium Ti			mg/L		0.0133	0.0065	0.0065	
Uranium U			mg/L		0.000082	0.000041	0.000045	
Vanadium V			mg/L		0.0036	0.0007	0.0005	
Zinc Zn			mg/L	0.5	0.03	0.0036	0.0056	12%
Zirconium Zr			mg/L		0.0050	0.0051	0.0052	

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE													
Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	194	214	242	273	296	315	336	356	374
TSS	mg/L	1.6	1.6	1.6	1.9	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2
Free CN	mg/L	0.00050	0.00096	0.00141	0.00044	0.00043	0.00042	0.00040	0.00041	0.00078	0.00115	0.00151	0.00181
Total CN	mg/L	0.006	0.010	0.015	0.004	0.004	0.004	0.004	0.004	0.008	0.011	0.015	0.018
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0006	0.0006	0.0006	0.0005	0.0005	0.0010	0.0015	0.0020	0.0024
CNO	mg/L	0.55	1.06	1.55	0.49	0.47	0.46	0.44	0.45	0.86	1.27	1.66	1.99
SCN	mg/L	0.008	0.014	0.021	0.027	0.031	0.037	0.043	0.048	0.052	0.057	0.061	0.065
Sulphate	mg/L	7.5	13.4	19.3	26.3	30.6	35.8	41.5	45.9	49.4	53.3	57.0	60.2
Chloride	mg/L	37	57	77	107	125	144	165	180	191	204	217	227
Total Ammonia	mg/L	0.070	0.133	0.194	0.633	0.242	0.226	0.228	0.208	0.254	0.300	0.345	0.384
Nitrate	mg/L	0.35	0.58	0.80	1.56	2.04	2.45	2.91	3.20	3.28	3.40	3.51	3.59
Nitrite	mg/L	0.054	0.102	0.150	0.222	0.207	0.202	0.202	0.198	0.232	0.268	0.302	0.331
Alkalinity	mg/L	16	18	21	25	27	29	32	34	35	37	38	40
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0363	0.0415	0.0487	0.0564	0.0629	0.0682	0.0741	0.0798	0.0846
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0401	0.0451	0.0523	0.0600	0.0664	0.0716	0.0774	0.0830	0.0878
Org. Carbon	mg/L	3.0	2.9	2.8	3.3	3.3	3.3	3.3	3.3	3.2	3.1	3.0	3.0
Hardness CaCO3	mg/L	23	29	35	43	47	52	58	62	65	69	73	76
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0037	0.0047	0.0054	0.0063	0.0068	0.0070	0.0073	0.0076	0.0079
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0009	0.0010	0.0012	0.0013	0.0015	0.0016	0.0017	0.0018	0.0018
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0036	0.0040	0.0046	0.0052	0.0056	0.0060	0.0064	0.0068	0.0071
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00024	0.00027	0.00030	0.00033	0.00034	0.00035	0.00036	0.00037	0.00037
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00346	0.00445	0.00515	0.00602	0.00646	0.00668	0.00695	0.00722	0.00744
Boron B	mg/L	0.007	0.008	0.009	0.013	0.014	0.015	0.017	0.018	0.018	0.019	0.019	0.020
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000170	0.0000205	0.0000237	0.0000275	0.0000299	0.0000316	0.0000334	0.0000352	0.0000368
Calcium Ca	mg/L	21	38	54	70	80	94	109	122	132	143	154	163
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0029	0.0034	0.0039	0.0046	0.0051	0.0055	0.0060	0.0064	0.0068
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0030	0.0033	0.0038	0.0044	0.0048	0.0052	0.0056	0.0059	0.0063
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00014	0.00016	0.00018	0.00021	0.00023	0.00024	0.00025	0.00026	0.00027
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0027	0.0028	0.0030	0.0032	0.0033	0.0034	0.0035	0.0036	0.0036
Magnesium Mg	mg/L	2.5	2.9	3.3	4.2	4.5	4.9	5.4	5.7	5.9	6.2	6.4	6.6
Manganese Mn	mg/L	0.002	0.004	0.006	0.008	0.009	0.011	0.013	0.014	0.015	0.017	0.018	0.019
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000019	0.0000022	0.0000025	0.0000029	0.0000032	0.0000033	0.0000035	0.0000037	0.0000038
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00251	0.00288	0.00339	0.00393	0.00438	0.00475	0.00516	0.00555	0.00589
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0025	0.0029	0.0034	0.0039	0.0043	0.0046	0.0049	0.0052	0.0055
Phosphorus P	mg/L	0.020	0.033	0.047	0.064	0.074	0.086	0.100	0.110	0.118	0.127	0.136	0.143
Potassium K	mg/L	3.8	6.6	9.3	12.0	13.6	15.9	18.4	20.4	22.1	23.9	25.7	27.2
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00029	0.00031	0.00032	0.00034	0.00035	0.00035	0.00036	0.00036	0.00036
Silicon SiO2	mg/L	0.70	0.92	1.14	1.46	1.61	1.81	2.03	2.20	2.32	2.46	2.59	2.71
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000724	0.0000768	0.0000792	0.0000836	0.0000844	0.0000838	0.0000839	0.0000840	0.0000841
Sodium Na	mg/L	11	13	16	19	21	23	25	27	29	30	32	33
Strontium Sr	mg/L	0.017	0.021	0.026	0.033	0.036	0.041	0.046	0.049	0.052	0.055	0.058	0.061
Tellurium Te	mg/L	0.025	0.024	0.024	0.027	0.027	0.027	0.028	0.027	0.026	0.026	0.025	0.025
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000024	0.000025	0.000027	0.000029	0.000030	0.000030	0.000031	0.000031	0.000032
Thorium Th	mg/L				0.000007	0.000011	0.000012	0.000014	0.000015	0.000014	0.000014	0.000013	0.000013
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00058	0.00074	0.00085	0.00099	0.00105	0.00108	0.00112	0.00115	0.00119
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0035	0.0036	0.0036	0.0037	0.0037	0.0036	0.0036	0.0035	0.0035
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000035	0.000038	0.000040	0.000042	0.000042	0.000040	0.000040	0.000039	0.000038
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0011	0.0013	0.0015	0.0017	0.0018	0.0019	0.0019	0.0020	0.0021
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0066	0.0076	0.0088	0.0103	0.0114	0.0123	0.0132	0.0141	0.0149
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0029	0.0029	0.0029	0.0031	0.0030	0.0029	0.0028	0.0028	0.0027

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	393	410	428	450	450	469	493	507	515	528	540	551
TSS	mg/L	2.2	2.2	2.2	2.4	2.4	2.5	2.6	2.6	2.5	2.6	2.6	2.6
Free CN	mg/L	0.00214	0.00245	0.00275	0.00033	0.00033	0.00032	0.00031	0.00032	0.00061	0.00091	0.00119	0.00144
Total CN	mg/L	0.021	0.024	0.027	0.003	0.003	0.003	0.003	0.003	0.006	0.009	0.012	0.014
WAD CN	mg/L	0.0029	0.0033	0.0037	0.0004	0.0004	0.0004	0.0004	0.0004	0.0008	0.0012	0.0016	0.0019
CNO	mg/L	2.36	2.69	3.03	0.36	0.36	0.36	0.34	0.35	0.67	1.00	1.31	1.58
SCN	mg/L	0.069	0.073	0.077	0.080	0.080	0.084	0.088	0.091	0.093	0.096	0.099	0.101
Sulphate	mg/L	63.8	66.9	70.1	74.3	74.6	78.2	82.6	85.2	86.8	89.1	91.4	93.3
Chloride	mg/L	239	249	260	279	282	295	311	320	325	332	340	346
Total Ammonia	mg/L	0.426	0.464	0.503	1.094	0.183	0.175	0.177	0.162	0.199	0.237	0.273	0.305
Nitrate	mg/L	3.70	3.78	3.87	4.62	4.82	5.11	5.47	5.65	5.64	5.67	5.71	5.73
Nitrite	mg/L	0.364	0.393	0.422	0.206	0.175	0.171	0.171	0.168	0.196	0.224	0.252	0.276
Alkalinity	mg/L	41	43	44	47	47	48	51	52	52	53	54	55
OrthoPhosphate-P	mg/L	0.0901	0.0949	0.0997	0.1041	0.1040	0.1089	0.1149	0.1187	0.1214	0.1249	0.1284	0.1314
Phosphate-P	mg/L	0.0932	0.0979	0.1027	0.1075	0.1072	0.1121	0.1181	0.1219	0.1245	0.1280	0.1314	0.1343
Org. Carbon	mg/L	2.9	2.8	2.8	3.1	3.1	3.1	3.2	3.1	3.1	3.0	2.9	2.9
Hardness CaCO3	mg/L	79	82	85	90	90	94	98	101	102	104	107	108
Total Metals													
Aluminum Al	mg/L	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0082	0.0084	0.0086	0.0099	0.0103	0.0108	0.0115	0.0118	0.0118	0.0120	0.0121	0.0122
Arsenic As	mg/L	0.0019	0.0020	0.0021	0.0023	0.0023	0.0024	0.0025	0.0026	0.0026	0.0027	0.0028	0.0028
Barium Ba	mg/L	0.0075	0.0079	0.0082	0.0087	0.0087	0.0091	0.0095	0.0098	0.0100	0.0102	0.0105	0.0107
Beryllium Be	mg/L	0.00038	0.00039	0.00040	0.00045	0.00047	0.00048	0.00051	0.00052	0.00052	0.00052	0.00052	0.00053
Bismuth Bi	mg/L	0.00770	0.00792	0.00815	0.00941	0.00980	0.01029	0.01097	0.01121	0.01125	0.01137	0.01149	0.01160
Boron B	mg/L	0.020	0.021	0.021	0.023	0.024	0.025	0.026	0.026	0.026	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000385	0.0000401	0.0000416	0.0000457	0.0000467	0.0000489	0.0000519	0.0000533	0.0000539	0.0000549	0.0000559	0.0000568
Calcium Ca	mg/L	173	182	191	200	200	209	221	228	233	240	247	252
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.007	0.007
Cobalt Co	mg/L	0.0072	0.0076	0.0080	0.0084	0.0084	0.0088	0.0093	0.0096	0.0098	0.0101	0.0103	0.0106
Copper Cu	mg/L	0.0066	0.0069	0.0073	0.0076	0.0076	0.0080	0.0084	0.0087	0.0088	0.0091	0.0093	0.0095
Iron Fe	mg/L	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00028	0.00029	0.00030	0.00033	0.00034	0.00035	0.00037	0.00038	0.00039	0.00039	0.00040	0.00040
Lithium Li	mg/L	0.0037	0.0038	0.0038	0.0042	0.0042	0.0043	0.0045	0.0046	0.0046	0.0046	0.0047	0.0047
Magnesium Mg	mg/L	6.8	7.0	7.2	7.8	7.8	8.1	8.5	8.7	8.7	8.9	9.0	9.1
Manganese Mn	mg/L	0.020	0.021	0.022	0.023	0.023	0.024	0.026	0.026	0.027	0.028	0.028	0.029
Mercury Hg	mg/L	0.0000040	0.0000042	0.0000043	0.0000047	0.0000048	0.0000050	0.0000053	0.0000055	0.0000055	0.0000056	0.0000057	0.0000058
Molybdenum Mo	mg/L	0.00627	0.00660	0.00694	0.00725	0.00725	0.00759	0.00801	0.00828	0.00846	0.00871	0.00895	0.00916
Nickel Ni	mg/L	0.0058	0.0061	0.0063	0.0067	0.0068	0.0071	0.0075	0.0077	0.0079	0.0080	0.0082	0.0084
Phosphorus P	mg/L	0.151	0.159	0.166	0.176	0.177	0.185	0.196	0.202	0.206	0.211	0.216	0.221
Potassium K	mg/L	28.9	30.4	31.9	33.4	33.3	34.9	36.8	38.0	38.8	39.9	41.0	41.9
Selenium Se	mg/L	0.00037	0.00037	0.00038	0.00042	0.00042	0.00043	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	2.84	2.96	3.07	3.27	3.27	3.41	3.59	3.68	3.74	3.82	3.90	3.97
Silver Ag	mg/L	0.0000845	0.0000846	0.0000847	0.0000969	0.0000989	0.0001008	0.0001042	0.0001045	0.0001034	0.0001030	0.0001028	0.0001025
Sodium Na	mg/L	34	36	37	39	39	41	43	44	44	45	46	47
Strontium Sr	mg/L	0.064	0.066	0.069	0.073	0.073	0.076	0.080	0.082	0.083	0.085	0.087	0.088
Tellurium Te	mg/L	0.024	0.024	0.023	0.026	0.026	0.026	0.026	0.026	0.025	0.025	0.024	0.024
Thallium Tl	mg/L	0.000032	0.000033	0.000033	0.000037	0.000037	0.000038	0.000040	0.000040	0.000040	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000013	0.000013	0.000012	0.000017	0.000019	0.000020	0.000022	0.000022	0.000022	0.000021	0.000021	0.000020
Tin Sn	mg/L	0.00122	0.00125	0.00129	0.00149	0.00155	0.00163	0.00174	0.00177	0.00178	0.00179	0.00181	0.00182
Titanium Ti	mg/L	0.0034	0.0034	0.0034	0.0038	0.0038	0.0038	0.0039	0.0039	0.0038	0.0038	0.0037	0.0037
Uranium U	mg/L	0.000037	0.000037	0.000036	0.000044	0.000046	0.000047	0.000049	0.000048	0.000047	0.000046	0.000046	0.000045
Vanadium V	mg/L	0.0022	0.0022	0.0023	0.0026	0.0026	0.0028	0.0029	0.0030	0.0030	0.0031	0.0031	0.0031
Zinc Zn	mg/L	0.0158	0.0166	0.0173	0.0183	0.0184	0.0192	0.0204	0.0210	0.0214	0.0220	0.0226	0.0230
Zirconium Zr	mg/L	0.0027	0.0026	0.0025	0.0029	0.0029	0.0030	0.0031	0.0030	0.0029	0.0029	0.0028	0.0028

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	557	567	577	592	578	588	603	606	611	619	628	636
TSS	mg/L	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.5
Free CN	mg/L	0.00142	0.00141	0.00140									
Total CN	mg/L	0.014	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0019	0.0019	0.0019									
CNO	mg/L	1.56	1.55	1.54									
SCN	mg/L	0.100	0.099	0.099	0.098	0.093	0.093	0.093	0.091	0.090	0.090	0.089	0.089
Sulphate	mg/L	92.4	92.2	92.0	92.8	89.2	89.2	90.1	89.1	88.4	88.2	88.0	87.9
Chloride	mg/L	354	365	376	393	391	402	418	424	431	440	449	458
Total Ammonia	mg/L	0.307	0.312	0.317	0.558	0.026	0.014	0.017	0.010	0.015	0.021	0.027	0.032
Nitrate	mg/L	5.59	5.51	5.42	5.84	5.74	5.91	6.04	6.00	5.87	5.78	5.70	5.62
Nitrite	mg/L	0.289	0.304	0.319	0.148	0.141	0.020	0.019	0.018	0.033	0.048	0.063	0.077
Alkalinity	mg/L	54	54	53	54	52	52	53	52	51	51	51	51
OrthoPhosphate-P	mg/L	0.1353	0.1400	0.1448	0.1493	0.1474	0.1516	0.1572	0.1600	0.1631	0.1672	0.1714	0.1752
Phosphate-P	mg/L	0.1382	0.1429	0.1476	0.1525	0.1505	0.1547	0.1603	0.1631	0.1661	0.1702	0.1744	0.1782
Org. Carbon	mg/L	2.8	2.8	2.8	3.1	3.1	3.2	3.2	3.2	3.1	3.1	3.1	3.1
Hardness CaCO3	mg/L	107	106	106	107	103	102	103	101	100	100	99	99
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0124	0.0126	0.0129	0.0140	0.0141	0.0145	0.0152	0.0153	0.0154	0.0156	0.0158	0.0160
Arsenic As	mg/L	0.0028	0.0028	0.0028	0.0028	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
Barium Ba	mg/L	0.0105	0.0105	0.0104	0.0105	0.0101	0.0101	0.0102	0.0100	0.0099	0.0099	0.0098	0.0098
Beryllium Be	mg/L	0.00053	0.00053	0.00054	0.00058	0.00058	0.00059	0.00061	0.00061	0.00061	0.00061	0.00061	0.00062
Bismuth Bi	mg/L	0.01176	0.01201	0.01226	0.01335	0.01352	0.01394	0.01454	0.01472	0.01482	0.01502	0.01523	0.01543
Boron B	mg/L	0.027	0.027	0.027	0.028	0.028	0.028	0.029	0.029	0.028	0.028	0.028	0.028
Cadmium Cd	mg/L	0.0000561	0.0000558	0.0000555	0.0000565	0.0000546	0.0000546	0.0000552	0.0000546	0.0000540	0.0000537	0.0000534	0.0000532
Calcium Ca	mg/L	249	248	246	245	234	232	233	230	227	226	225	224
Chromium Cr	mg/L	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0104	0.0104	0.0103	0.0103	0.0099	0.0098	0.0099	0.0098	0.0097	0.0096	0.0096	0.0096
Copper Cu	mg/L	0.0094	0.0093	0.0093	0.0093	0.0089	0.0089	0.0089	0.0088	0.0087	0.0086	0.0086	0.0086
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00040	0.00040	0.00040	0.00042	0.00041	0.00042	0.00042	0.00042	0.00042	0.00042	0.00042	0.00042
Lithium Li	mg/L	0.0046	0.0046	0.0046	0.0048	0.0047	0.0047	0.0048	0.0048	0.0047	0.0047	0.0047	0.0047
Magnesium Mg	mg/L	9.0	9.0	9.0	9.2	9.0	9.0	9.2	9.1	9.0	9.0	8.9	8.9
Manganese Mn	mg/L	0.029	0.029	0.028	0.028	0.027	0.027	0.027	0.027	0.027	0.026	0.026	0.026
Mercury Hg	mg/L	0.0000058	0.0000057	0.0000057	0.0000058	0.0000056	0.0000056	0.0000057	0.0000056	0.0000056	0.0000055	0.0000055	0.0000055
Molybdenum Mo	mg/L	0.00904	0.00899	0.00894	0.00890	0.00848	0.00842	0.00845	0.00833	0.00823	0.00819	0.00815	0.00811
Nickel Ni	mg/L	0.0083	0.0083	0.0083	0.0084	0.0081	0.0081	0.0082	0.0081	0.0080	0.0080	0.0080	0.0080
Phosphorus P	mg/L	0.224	0.228	0.233	0.240	0.235	0.240	0.247	0.249	0.251	0.255	0.260	0.263
Potassium K	mg/L	41.4	41.2	40.9	40.8	38.8	38.6	38.7	38.2	37.7	37.5	37.3	37.1
Selenium Se	mg/L	0.00045	0.00045	0.00044	0.00047	0.00046	0.00046	0.00046	0.00046	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	3.92	3.90	3.88	3.92	3.77	3.75	3.78	3.73	3.69	3.67	3.65	3.64
Silver Ag	mg/L	0.0001018	0.0001018	0.0001019	0.0001106	0.0001103	0.0001110	0.0001130	0.0001123	0.0001115	0.0001114	0.0001114	0.0001114
Sodium Na	mg/L	46	46	46	46	44	44	45	44	43	43	43	43
Strontium Sr	mg/L	0.087	0.087	0.086	0.087	0.084	0.084	0.084	0.083	0.082	0.082	0.082	0.081
Tellurium Te	mg/L	0.024	0.024	0.023	0.026	0.026	0.026	0.027	0.026	0.026	0.026	0.026	0.026
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000042	0.000041	0.000041	0.000042	0.000041	0.000041	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000020	0.000020	0.000020	0.000022	0.000023	0.000023	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024
Tin Sn	mg/L	0.00184	0.00188	0.00192	0.00209	0.00212	0.00219	0.00228	0.00231	0.00232	0.00235	0.00238	0.00241
Titanium Ti	mg/L	0.0037	0.0037	0.0037	0.0040	0.0040	0.0040	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041
Uranium U	mg/L	0.000045	0.000044	0.000044	0.000049	0.000050	0.000050	0.000051	0.000051	0.000051	0.000050	0.000050	0.000050
Vanadium V	mg/L	0.0031	0.0032	0.0032	0.0034	0.0034	0.0034	0.0035	0.0035	0.0035	0.0035	0.0036	0.0036
Zinc Zn	mg/L	0.0228	0.0227	0.0226	0.0227	0.0218	0.0218	0.0220	0.0218	0.0216	0.0215	0.0214	0.0214
Zirconium Zr	mg/L	0.0027	0.0027	0.0027	0.0030	0.0030	0.0031	0.0031	0.0031	0.0031	0.0030	0.0030	0.0030

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	633	632	630	632	609	607	611	605	599	597	595	594
TSS	mg/L	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.089	0.088	0.088	0.088	0.084	0.084	0.084	0.083	0.083	0.082	0.082	0.082
Sulphate	mg/L	87.5	87.3	87.0	86.8	83.3	83.0	83.5	82.5	81.8	81.5	81.2	81.1
Chloride	mg/L	456	455	453	453	435	434	436	431	427	426	425	424
Total Ammonia	mg/L	0.032	0.032	0.032	0.014	0.008	0.004	0.005	0.002	0.002	0.002	0.002	0.002
Nitrate	mg/L	5.54	5.47	5.39	5.55	5.39	5.40	5.46	5.41	5.31	5.23	5.16	5.10
Nitrite	mg/L	0.076	0.076	0.076	0.006	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	50	50	50	51	50	50	50	50	49	49	49	49
OrthoPhosphate-P	mg/L	0.1744	0.1739	0.1734	0.1728	0.1657	0.1651	0.1660	0.1640	0.1626	0.1620	0.1615	0.1612
Phosphate-P	mg/L	0.1774	0.1769	0.1764	0.1761	0.1689	0.1684	0.1692	0.1673	0.1658	0.1652	0.1647	0.1644
Org. Carbon	mg/L	3.1	3.1	3.1	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.3	3.3
Hardness CaCO3	mg/L	98	98	98	99	96	96	96	95	94	94	94	94
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0159	0.0159	0.0158	0.0158	0.0152	0.0151	0.0152	0.0150	0.0149	0.0148	0.0148	0.0147
Arsenic As	mg/L	0.0027	0.0026	0.0026	0.0027	0.0026	0.0026	0.0026	0.0026	0.0025	0.0025	0.0025	0.0025
Barium Ba	mg/L	0.0098	0.0097	0.0097	0.0098	0.0094	0.0094	0.0094	0.0093	0.0093	0.0092	0.0092	0.0092
Beryllium Be	mg/L	0.00062	0.00061	0.00061	0.00062	0.00060	0.00060	0.00061	0.00060	0.00060	0.00059	0.00059	0.00059
Bismuth Bi	mg/L	0.01536	0.01532	0.01527	0.01521	0.01459	0.01454	0.01462	0.01444	0.01432	0.01427	0.01422	0.01420
Boron B	mg/L	0.028	0.028	0.028	0.029	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028
Cadmium Cd	mg/L	0.0000530	0.0000528	0.0000527	0.0000537	0.0000522	0.0000523	0.0000530	0.0000525	0.0000520	0.0000519	0.0000517	0.0000516
Calcium Ca	mg/L	223	222	221	221	212	211	212	210	208	207	207	206
Chromium Cr	mg/L	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0095	0.0095	0.0095	0.0094	0.0091	0.0090	0.0091	0.0090	0.0089	0.0089	0.0088	0.0088
Copper Cu	mg/L	0.0085	0.0085	0.0085	0.0085	0.0082	0.0081	0.0082	0.0081	0.0080	0.0080	0.0080	0.0080
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00042	0.00042	0.00042	0.00042	0.00041	0.00041	0.00041	0.00041	0.00041	0.00040	0.00040	0.00040
Lithium Li	mg/L	0.0047	0.0047	0.0047	0.0048	0.0047	0.0047	0.0047	0.0046	0.0046	0.0046	0.0046	0.0046
Magnesium Mg	mg/L	8.9	8.9	8.8	9.0	8.7	8.7	8.8	8.7	8.7	8.6	8.6	8.6
Manganese Mn	mg/L	0.026	0.026	0.026	0.026	0.025	0.025	0.025	0.025	0.024	0.024	0.024	0.024
Mercury Hg	mg/L	0.0000055	0.0000055	0.0000054	0.0000055	0.0000054	0.0000054	0.0000055	0.0000054	0.0000054	0.0000053	0.0000053	0.0000053
Molybdenum Mo	mg/L	0.00808	0.00806	0.00803	0.00800	0.00768	0.00765	0.00769	0.00760	0.00753	0.00750	0.00748	0.00747
Nickel Ni	mg/L	0.0079	0.0079	0.0079	0.0079	0.0076	0.0076	0.0076	0.0075	0.0074	0.0074	0.0074	0.0074
Phosphorus P	mg/L	0.262	0.262	0.261	0.261	0.251	0.250	0.251	0.249	0.246	0.245	0.245	0.244
Potassium K	mg/L	37.0	36.9	36.8	36.7	35.2	35.1	35.3	34.9	34.6	34.5	34.4	34.3
Selenium Se	mg/L	0.00044	0.00044	0.00044	0.00046	0.00045	0.00046	0.00046	0.00046	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	3.62	3.61	3.60	3.64	3.52	3.51	3.54	3.50	3.47	3.46	3.45	3.44
Silver Ag	mg/L	0.0001110	0.0001107	0.0001103	0.0001162	0.0001144	0.0001144	0.0001155	0.0001144	0.0001134	0.0001129	0.0001126	0.0001124
Sodium Na	mg/L	43	42	42	43	41	41	42	41	41	41	41	41
Strontium Sr	mg/L	0.081	0.081	0.081	0.081	0.079	0.079	0.079	0.078	0.078	0.077	0.077	0.077
Tellurium Te	mg/L	0.025	0.025	0.025	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000041	0.000041	0.000041	0.000041	0.000041	0.000041	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000023	0.000023	0.000023	0.000026	0.000026	0.000026	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027
Tin Sn	mg/L	0.00240	0.00239	0.00239	0.00239	0.00230	0.00229	0.00231	0.00228	0.00226	0.00225	0.00225	0.00224
Titanium Ti	mg/L	0.0040	0.0040	0.0040	0.0043	0.0042	0.0043	0.0043	0.0043	0.0043	0.0043	0.0042	0.0042
Uranium U	mg/L	0.000050	0.000050	0.000050	0.000054	0.000054	0.000055	0.000056	0.000055	0.000055	0.000055	0.000055	0.000054
Vanadium V	mg/L	0.0036	0.0036	0.0036	0.0036	0.0034	0.0034	0.0035	0.0034	0.0034	0.0034	0.0034	0.0034
Zinc Zn	mg/L	0.0213	0.0212	0.0212	0.0211	0.0203	0.0202	0.0204	0.0202	0.0200	0.0200	0.0199	0.0199
Zirconium Zr	mg/L	0.0030	0.0030	0.0030	0.0032	0.0033	0.0033	0.0034	0.0033	0.0033	0.0033	0.0033	0.0033

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	593	591	590	592	572	571	575	569	564	562	561	560
TSS	mg/L	2.6	2.5	2.5	2.7	2.6	2.6	2.7	2.6	2.6	2.6	2.6	2.6
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.082	0.081	0.081	0.081	0.078	0.078	0.078	0.077	0.076	0.076	0.076	0.076
Sulphate	mg/L	80.9	80.7	80.5	80.3	77.3	77.1	77.5	76.7	76.0	75.8	75.6	75.4
Chloride	mg/L	423	422	420	420	405	404	406	402	399	397	396	395
Total Ammonia	mg/L	0.002	0.002	0.002	0.013	0.008	0.003	0.004	0.001	0.001	0.001	0.001	0.001
Nitrate	mg/L	5.03	4.96	4.89	4.97	4.85	4.86	4.92	4.88	4.78	4.71	4.65	4.59
Nitrite	mg/L	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	49	48	48	49	48	48	48	48	47	47	47	47
OrthoPhosphate-P	mg/L	0.1609	0.1605	0.1600	0.1595	0.1535	0.1531	0.1538	0.1522	0.1509	0.1504	0.1500	0.1497
Phosphate-P	mg/L	0.1640	0.1636	0.1631	0.1629	0.1569	0.1564	0.1572	0.1555	0.1542	0.1537	0.1533	0.1530
Org. Carbon	mg/L	3.3	3.3	3.3	3.6	3.6	3.6	3.7	3.6	3.6	3.6	3.6	3.6
Hardness CaCO3	mg/L	93	93	93	94	91	91	92	91	90	90	90	90
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0147	0.0147	0.0146	0.0146	0.0140	0.0140	0.0141	0.0139	0.0138	0.0138	0.0137	0.0137
Arsenic As	mg/L	0.0025	0.0025	0.0025	0.0025	0.0024	0.0024	0.0025	0.0024	0.0024	0.0024	0.0024	0.0024
Barium Ba	mg/L	0.0092	0.0091	0.0091	0.0092	0.0088	0.0088	0.0088	0.0088	0.0087	0.0087	0.0087	0.0087
Beryllium Be	mg/L	0.00059	0.00059	0.00059	0.00060	0.00058	0.00058	0.00058	0.00058	0.00057	0.00057	0.00057	0.00057
Bismuth Bi	mg/L	0.01417	0.01413	0.01409	0.01404	0.01351	0.01348	0.01354	0.01340	0.01329	0.01324	0.01320	0.01318
Boron B	mg/L	0.028	0.027	0.027	0.028	0.027	0.027	0.028	0.028	0.027	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000515	0.0000514	0.0000512	0.0000522	0.0000509	0.0000510	0.0000516	0.0000512	0.0000508	0.0000506	0.0000504	0.0000503
Calcium Ca	mg/L	206	205	205	204	197	196	197	195	193	193	192	192
Chromium Cr	mg/L	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0088	0.0088	0.0087	0.0087	0.0084	0.0084	0.0084	0.0083	0.0083	0.0082	0.0082	0.0082
Copper Cu	mg/L	0.0079	0.0079	0.0079	0.0079	0.0076	0.0076	0.0077	0.0076	0.0075	0.0075	0.0075	0.0075
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00040	0.00040	0.00040	0.00040	0.00039	0.00039	0.00040	0.00039	0.00039	0.00039	0.00039	0.00039
Lithium Li	mg/L	0.0046	0.0046	0.0046	0.0047	0.0046	0.0046	0.0047	0.0046	0.0046	0.0046	0.0045	0.0045
Magnesium Mg	mg/L	8.6	8.5	8.5	8.7	8.4	8.4	8.5	8.4	8.4	8.3	8.3	8.3
Manganese Mn	mg/L	0.024	0.024	0.024	0.024	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Mercury Hg	mg/L	0.0000053	0.0000053	0.0000053	0.0000054	0.0000052	0.0000052	0.0000053	0.0000052	0.0000052	0.0000052	0.0000052	0.0000052
Molybdenum Mo	mg/L	0.00745	0.00743	0.00741	0.00739	0.00711	0.00709	0.00713	0.00705	0.00699	0.00697	0.00695	0.00693
Nickel Ni	mg/L	0.0074	0.0074	0.0073	0.0073	0.0071	0.0070	0.0071	0.0070	0.0070	0.0069	0.0069	0.0069
Phosphorus P	mg/L	0.244	0.243	0.242	0.243	0.234	0.233	0.235	0.232	0.230	0.230	0.229	0.229
Potassium K	mg/L	34.2	34.1	34.0	34.0	32.7	32.6	32.8	32.5	32.2	32.1	32.0	31.9
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00047	0.00046	0.00046	0.00047	0.00046	0.00046	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	3.44	3.43	3.42	3.45	3.35	3.35	3.37	3.34	3.31	3.30	3.29	3.28
Silver Ag	mg/L	0.0001122	0.0001119	0.0001115	0.0001169	0.0001153	0.0001153	0.0001164	0.0001153	0.0001143	0.0001140	0.0001136	0.0001134
Sodium Na	mg/L	41	40	40	41	40	40	40	39	39	39	39	39
Strontium Sr	mg/L	0.077	0.077	0.076	0.077	0.075	0.075	0.075	0.074	0.074	0.074	0.073	0.073
Tellurium Te	mg/L	0.028	0.028	0.027	0.030	0.029	0.030	0.030	0.030	0.030	0.030	0.029	0.029
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000041	0.000041	0.000041	0.000042	0.000041	0.000041	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000027	0.000027	0.000026	0.000029	0.000029	0.000029	0.000030	0.000030	0.000030	0.000030	0.000030	0.000029
Tin Sn	mg/L	0.00224	0.00223	0.00223	0.00223	0.00215	0.00215	0.00216	0.00214	0.00212	0.00211	0.00211	0.00210
Titanium Ti	mg/L	0.0042	0.0042	0.0042	0.0045	0.0044	0.0044	0.0045	0.0045	0.0044	0.0044	0.0044	0.0044
Uranium U	mg/L	0.000054	0.000054	0.000054	0.000058	0.000058	0.000059	0.000060	0.000059	0.000059	0.000059	0.000058	0.000058
Vanadium V	mg/L	0.0034	0.0033	0.0033	0.0033	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
Zinc Zn	mg/L	0.0198	0.0198	0.0197	0.0197	0.0190	0.0189	0.0191	0.0189	0.0188	0.0187	0.0186	0.0186
Zirconium Zr	mg/L	0.0033	0.0033	0.0033	0.0035	0.0035	0.0035	0.0036	0.0036	0.0035	0.0035	0.0035	0.0035

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	559	557	556	558	541	540	544	538	534	532	531	530
TSS	mg/L	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.076	0.076	0.075	0.075	0.072	0.072	0.073	0.072	0.071	0.071	0.071	0.071
Sulphate	mg/L	75.3	75.1	74.9	74.7	72.2	72.1	72.4	71.7	71.1	70.9	70.7	70.6
Chloride	mg/L	395	394	393	392	379	379	381	377	374	373	372	371
Total Ammonia	mg/L	0.001	0.001	0.001	0.012	0.007	0.003	0.004	0.001	0.001	0.001	0.001	0.001
Nitrate	mg/L	4.52	4.46	4.39	4.47	4.38	4.39	4.44	4.41	4.32	4.26	4.20	4.14
Nitrite	mg/L	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	47	47	47	48	47	47	47	47	46	46	46	46
OrthoPhosphate-P	mg/L	0.1494	0.1490	0.1486	0.1482	0.1430	0.1427	0.1434	0.1420	0.1409	0.1404	0.1401	0.1398
Phosphate-P	mg/L	0.1527	0.1523	0.1519	0.1517	0.1465	0.1462	0.1469	0.1455	0.1443	0.1439	0.1435	0.1432
Org. Carbon	mg/L	3.6	3.5	3.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Hardness CaCO3	mg/L	89	89	89	90	88	88	88	88	87	87	86	86
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0137	0.0136	0.0136	0.0136	0.0131	0.0131	0.0132	0.0130	0.0129	0.0129	0.0128	0.0128
Arsenic As	mg/L	0.0024	0.0024	0.0024	0.0024	0.0023	0.0023	0.0024	0.0023	0.0023	0.0023	0.0023	0.0023
Barium Ba	mg/L	0.0086	0.0086	0.0086	0.0086	0.0084	0.0084	0.0084	0.0084	0.0083	0.0083	0.0082	0.0082
Beryllium Be	mg/L	0.00057	0.00057	0.00057	0.00058	0.00056	0.00056	0.00057	0.00056	0.00056	0.00055	0.00055	0.00055
Bismuth Bi	mg/L	0.01315	0.01312	0.01308	0.01304	0.01259	0.01256	0.01263	0.01250	0.01240	0.01236	0.01233	0.01231
Boron B	mg/L	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000502	0.0000501	0.0000500	0.0000509	0.0000497	0.0000499	0.0000505	0.0000501	0.0000497	0.0000495	0.0000494	0.0000493
Calcium Ca	mg/L	191	191	190	190	184	183	184	182	181	180	180	179
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0082	0.0082	0.0081	0.0081	0.0078	0.0078	0.0079	0.0078	0.0077	0.0077	0.0077	0.0077
Copper Cu	mg/L	0.0075	0.0074	0.0074	0.0074	0.0072	0.0072	0.0072	0.0072	0.0071	0.0071	0.0071	0.0070
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00038	0.00038	0.00038	0.00039	0.00038	0.00038	0.00038	0.00038	0.00037	0.00037	0.00037	0.00037
Lithium Li	mg/L	0.0045	0.0045	0.0045	0.0046	0.0045	0.0045	0.0046	0.0045	0.0045	0.0045	0.0045	0.0045
Magnesium Mg	mg/L	8.3	8.3	8.2	8.4	8.2	8.2	8.3	8.2	8.1	8.1	8.1	8.1
Manganese Mn	mg/L	0.023	0.023	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.021	0.021	0.021
Mercury Hg	mg/L	0.0000051	0.0000051	0.0000051	0.0000052	0.0000051	0.0000051	0.0000051	0.0000051	0.0000051	0.0000050	0.0000050	0.0000050
Molybdenum Mo	mg/L	0.00692	0.00690	0.00688	0.00686	0.00663	0.00661	0.00664	0.00658	0.00653	0.00650	0.00649	0.00648
Nickel Ni	mg/L	0.0069	0.0069	0.0068	0.0068	0.0066	0.0066	0.0066	0.0066	0.0065	0.0065	0.0065	0.0065
Phosphorus P	mg/L	0.228	0.227	0.227	0.227	0.220	0.219	0.221	0.218	0.217	0.216	0.215	0.215
Potassium K	mg/L	31.9	31.8	31.7	31.7	30.6	30.5	30.7	30.4	30.1	30.0	30.0	29.9
Selenium Se	mg/L	0.00046	0.00045	0.00045	0.00047	0.00046	0.00047	0.00047	0.00047	0.00046	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	3.28	3.27	3.26	3.29	3.20	3.20	3.23	3.20	3.17	3.16	3.15	3.15
Silver Ag	mg/L	0.0001132	0.0001129	0.0001126	0.0001175	0.0001161	0.0001162	0.0001172	0.0001161	0.0001152	0.0001149	0.0001146	0.0001143
Sodium Na	mg/L	39	39	39	39	38	38	39	38	38	38	38	38
Strontium Sr	mg/L	0.073	0.073	0.073	0.073	0.071	0.071	0.072	0.071	0.071	0.070	0.070	0.070
Tellurium Te	mg/L	0.029	0.029	0.029	0.031	0.031	0.031	0.032	0.031	0.031	0.031	0.031	0.031
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000042	0.000041	0.000041	0.000042	0.000041	0.000041	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000029	0.000029	0.000029	0.000031	0.000031	0.000032	0.000033	0.000032	0.000032	0.000032	0.000032	0.000032
Tin Sn	mg/L	0.00210	0.00210	0.00209	0.00209	0.00202	0.00202	0.00204	0.00202	0.00200	0.00199	0.00199	0.00199
Titanium Ti	mg/L	0.0044	0.0044	0.0044	0.0046	0.0045	0.0046	0.0046	0.0046	0.0046	0.0045	0.0045	0.0045
Uranium U	mg/L	0.000058	0.000058	0.000058	0.000062	0.000062	0.000062	0.000063	0.000063	0.000062	0.000062	0.000062	0.000062
Vanadium V	mg/L	0.0032	0.0031	0.0031	0.0032	0.0031	0.0031	0.0031	0.0030	0.0030	0.0030	0.0030	0.0030
Zinc Zn	mg/L	0.0186	0.0185	0.0185	0.0185	0.0178	0.0178	0.0180	0.0178	0.0177	0.0176	0.0176	0.0175
Zirconium Zr	mg/L	0.0035	0.0035	0.0035	0.0037	0.0037	0.0037	0.0038	0.0038	0.0037	0.0037	0.0037	0.0037

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	529	528	526	529	514	513	516	512	508	506	505	504
TSS	mg/L	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.071	0.070	0.070	0.070	0.068	0.068	0.068	0.067	0.067	0.067	0.066	0.066
Sulphate	mg/L	70.5	70.3	70.1	69.9	67.7	67.6	68.0	67.3	66.8	66.6	66.5	66.3
Chloride	mg/L	371	370	369	369	357	357	359	355	353	352	351	350
Total Ammonia	mg/L	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	4.08	4.02	3.96	3.95	3.82	3.82	3.83	3.80	3.72	3.66	3.60	3.55
Nitrite	mg/L	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	46	46	46	46	45	45	46	45	45	45	45	45
OrthoPhosphate-P	mg/L	0.1395	0.1392	0.1388	0.1384	0.1340	0.1338	0.1344	0.1331	0.1322	0.1318	0.1314	0.1312
Phosphate-P	mg/L	0.1430	0.1426	0.1422	0.1421	0.1376	0.1374	0.1380	0.1367	0.1357	0.1353	0.1350	0.1347
Org. Carbon	mg/L	3.7	3.7	3.7	3.9	3.9	4.0	4.0	4.0	3.9	3.9	3.9	3.9
Hardness CaCO3	mg/L	86	86	86	87	84	84	85	84	84	84	83	83
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0128	0.0128	0.0127	0.0127	0.0123	0.0123	0.0123	0.0122	0.0121	0.0121	0.0121	0.0120
Arsenic As	mg/L	0.0023	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Barium Ba	mg/L	0.0082	0.0082	0.0082	0.0082	0.0080	0.0080	0.0080	0.0079	0.0079	0.0079	0.0078	0.0078
Beryllium Be	mg/L	0.00055	0.00055	0.00055	0.00055	0.00054	0.00054	0.00054	0.00054	0.00053	0.00053	0.00053	0.00053
Bismuth Bi	mg/L	0.01228	0.01225	0.01222	0.01218	0.01179	0.01177	0.01182	0.01171	0.01162	0.01159	0.01156	0.01154
Boron B	mg/L	0.027	0.027	0.026	0.027	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Cadmium Cd	mg/L	0.0000492	0.0000491	0.0000490	0.0000489	0.0000473	0.0000472	0.0000475	0.0000470	0.0000467	0.0000465	0.0000464	0.0000463
Calcium Ca	mg/L	179	179	178	178	172	172	173	171	170	169	169	169
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0076	0.0076	0.0076	0.0076	0.0073	0.0073	0.0074	0.0073	0.0072	0.0072	0.0072	0.0072
Copper Cu	mg/L	0.0070	0.0070	0.0070	0.0070	0.0068	0.0068	0.0068	0.0068	0.0067	0.0067	0.0067	0.0067
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00037	0.00037	0.00037	0.00037	0.00036	0.00036	0.00036	0.00036	0.00035	0.00035	0.00035	0.00035
Lithium Li	mg/L	0.0045	0.0045	0.0044	0.0046	0.0045	0.0045	0.0045	0.0045	0.0044	0.0044	0.0044	0.0044
Magnesium Mg	mg/L	8.0	8.0	8.0	8.1	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.8
Manganese Mn	mg/L	0.021	0.021	0.021	0.021	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Mercury Hg	mg/L	0.0000050	0.0000050	0.0000050	0.0000050	0.0000048	0.0000048	0.0000049	0.0000048	0.0000048	0.0000048	0.0000048	0.0000048
Molybdenum Mo	mg/L	0.00646	0.00645	0.00643	0.00641	0.00621	0.00620	0.00623	0.00617	0.00612	0.00610	0.00609	0.00608
Nickel Ni	mg/L	0.0065	0.0065	0.0064	0.0064	0.0062	0.0062	0.0063	0.0062	0.0062	0.0061	0.0061	0.0061
Phosphorus P	mg/L	0.215	0.214	0.214	0.213	0.206	0.206	0.207	0.205	0.203	0.203	0.202	0.202
Potassium K	mg/L	29.9	29.8	29.7	29.7	28.7	28.7	28.8	28.6	28.4	28.3	28.2	28.1
Selenium Se	mg/L	0.00046	0.00046	0.00046	0.00047	0.00046	0.00046	0.00047	0.00046	0.00046	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	3.14	3.13	3.13	3.15	3.06	3.06	3.08	3.05	3.03	3.02	3.02	3.01
Silver Ag	mg/L	0.0001141	0.0001139	0.0001136	0.0001169	0.0001148	0.0001146	0.0001152	0.0001141	0.0001132	0.0001129	0.0001126	0.0001124
Sodium Na	mg/L	38	37	37	38	37	37	37	37	36	36	36	36
Strontium Sr	mg/L	0.070	0.070	0.070	0.070	0.068	0.068	0.069	0.068	0.068	0.068	0.067	0.067
Tellurium Te	mg/L	0.031	0.031	0.031	0.032	0.032	0.032	0.033	0.033	0.033	0.032	0.032	0.032
Thallium Tl	mg/L	0.000041	0.000041	0.000040	0.000041	0.000041	0.000041	0.000041	0.000041	0.000040	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000032	0.000032	0.000032	0.000032	0.000031	0.000031	0.000031	0.000030	0.000030	0.000030	0.000030	0.000030
Tin Sn	mg/L	0.00198	0.00198	0.00197	0.00197	0.00191	0.00191	0.00192	0.00190	0.00189	0.00188	0.00188	0.00187
Titanium Ti	mg/L	0.0045	0.0045	0.0045	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0046	0.0046
Uranium U	mg/L	0.000062	0.000061	0.000061	0.000063	0.000062	0.000062	0.000062	0.000061	0.000061	0.000061	0.000061	0.000061
Vanadium V	mg/L	0.0030	0.0030	0.0030	0.0030	0.0029	0.0029	0.0029	0.0029	0.0029	0.0028	0.0028	0.0028
Zinc Zn	mg/L	0.0175	0.0175	0.0174	0.0174	0.0168	0.0168	0.0170	0.0168	0.0167	0.0166	0.0166	0.0166
Zirconium Zr	mg/L	0.0037	0.0037	0.0037	0.0039	0.0038	0.0038	0.0039	0.0039	0.0038	0.0038	0.0038	0.0038

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	503	502	501	503	490	490	493	489	485	484	483	482
TSS	mg/L	2.7	2.7	2.6	2.7	2.7	2.7	2.8	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.066	0.066	0.066	0.066	0.064	0.064	0.064	0.063	0.063	0.063	0.063	0.063
Sulphate	mg/L	66.2	66.1	65.9	65.8	63.8	63.7	64.1	63.5	63.0	62.9	62.7	62.6
Chloride	mg/L	350	349	348	348	338	338	340	337	334	333	332	332
Total Ammonia	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	3.50	3.44	3.38	3.37	3.27	3.27	3.28	3.25	3.18	3.13	3.08	3.02
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	45	45	44	45	44	44	45	44	44	44	44	44
OrthoPhosphate-P	mg/L	0.1310	0.1307	0.1303	0.1300	0.1261	0.1260	0.1265	0.1254	0.1245	0.1242	0.1239	0.1237
Phosphate-P	mg/L	0.1345	0.1342	0.1339	0.1337	0.1298	0.1296	0.1303	0.1291	0.1282	0.1278	0.1275	0.1273
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Hardness CaCO3	mg/L	83	83	83	83	82	82	82	82	81	81	81	81
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0120	0.0120	0.0120	0.0119	0.0116	0.0116	0.0116	0.0115	0.0114	0.0114	0.0114	0.0113
Arsenic As	mg/L	0.0022	0.0022	0.0022	0.0022	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Barium Ba	mg/L	0.0078	0.0078	0.0078	0.0078	0.0076	0.0076	0.0077	0.0076	0.0075	0.0075	0.0075	0.0075
Beryllium Be	mg/L	0.00053	0.00053	0.00052	0.00053	0.00052	0.00052	0.00052	0.00051	0.00051	0.00051	0.00051	0.00051
Bismuth Bi	mg/L	0.01152	0.01149	0.01146	0.01143	0.01108	0.01107	0.01112	0.01102	0.01094	0.01091	0.01089	0.01087
Boron B	mg/L	0.026	0.026	0.026	0.026	0.025	0.025	0.026	0.025	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000463	0.0000462	0.0000460	0.0000460	0.0000446	0.0000446	0.0000448	0.0000444	0.0000441	0.0000439	0.0000438	0.0000438
Calcium Ca	mg/L	168	168	168	167	162	162	163	161	160	160	159	159
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0072	0.0072	0.0071	0.0071	0.0069	0.0069	0.0069	0.0069	0.0068	0.0068	0.0068	0.0068
Copper Cu	mg/L	0.0066	0.0066	0.0066	0.0066	0.0064	0.0064	0.0065	0.0064	0.0064	0.0063	0.0063	0.0063
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00035	0.00035	0.00035	0.00035	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00033	0.00033
Lithium Li	mg/L	0.0044	0.0044	0.0044	0.0045	0.0044	0.0044	0.0045	0.0044	0.0044	0.0044	0.0044	0.0044
Magnesium Mg	mg/L	7.8	7.8	7.8	7.9	7.7	7.8	7.8	7.7	7.7	7.7	7.7	7.7
Manganese Mn	mg/L	0.020	0.020	0.020	0.020	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Mercury Hg	mg/L	0.0000047	0.0000047	0.0000047	0.0000047	0.0000046	0.0000046	0.0000046	0.0000046	0.0000045	0.0000045	0.0000045	0.0000045
Molybdenum Mo	mg/L	0.00607	0.00605	0.00604	0.00602	0.00584	0.00584	0.00586	0.00581	0.00577	0.00575	0.00574	0.00573
Nickel Ni	mg/L	0.0061	0.0061	0.0061	0.0061	0.0059	0.0059	0.0059	0.0059	0.0058	0.0058	0.0058	0.0058
Phosphorus P	mg/L	0.202	0.201	0.201	0.200	0.194	0.194	0.195	0.193	0.192	0.191	0.191	0.191
Potassium K	mg/L	28.1	28.0	28.0	27.9	27.1	27.1	27.2	27.0	26.8	26.7	26.7	26.6
Selenium Se	mg/L	0.00046	0.00046	0.00045	0.00047	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046	0.00045
Silicon SiO2	mg/L	3.00	3.00	2.99	3.01	2.94	2.94	2.96	2.93	2.91	2.90	2.89	2.89
Silver Ag	mg/L	0.0001122	0.0001120	0.0001117	0.0001148	0.0001129	0.0001128	0.0001133	0.0001123	0.0001115	0.0001112	0.0001109	0.0001108
Sodium Na	mg/L	36	36	36	37	36	36	36	36	36	35	35	35
Strontium Sr	mg/L	0.067	0.067	0.067	0.067	0.066	0.066	0.066	0.066	0.065	0.065	0.065	0.065
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.033	0.034	0.034	0.034	0.034	0.034	0.033	0.033
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000041	0.000040	0.000040	0.000041	0.000040	0.000040	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000030	0.000030	0.000030	0.000030	0.000029	0.000029	0.000029	0.000029	0.000028	0.000028	0.000028	0.000028
Tin Sn	mg/L	0.00187	0.00187	0.00186	0.00186	0.00181	0.00181	0.00182	0.00180	0.00179	0.00178	0.00178	0.00178
Titanium Ti	mg/L	0.0046	0.0046	0.0046	0.0048	0.0047	0.0048	0.0048	0.0048	0.0048	0.0047	0.0047	0.0047
Uranium U	mg/L	0.000060	0.000060	0.000060	0.000062	0.000061	0.000061	0.000061	0.000060	0.000060	0.000060	0.000060	0.000059
Vanadium V	mg/L	0.0028	0.0028	0.0028	0.0028	0.0027	0.0027	0.0028	0.0027	0.0027	0.0027	0.0027	0.0027
Zinc Zn	mg/L	0.0165	0.0165	0.0164	0.0164	0.0159	0.0159	0.0161	0.0159	0.0158	0.0158	0.0157	0.0157
Zirconium Zr	mg/L	0.0038	0.0038	0.0038	0.0039	0.0039	0.0039	0.0040	0.0039	0.0039	0.0039	0.0039	0.0039

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	481	480	479	481	469	469	472	468	465	464	463	462
TSS	mg/L	2.7	2.7	2.7	2.8	2.7	2.7	2.8	2.8	2.7	2.7	2.7	2.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.062	0.062	0.062	0.062	0.060	0.060	0.060	0.060	0.059	0.059	0.059	0.059
Sulphate	mg/L	62.5	62.4	62.2	62.1	60.4	60.3	60.6	60.1	59.7	59.5	59.4	59.3
Chloride	mg/L	331	331	330	330	321	321	323	320	318	317	316	316
Total Ammonia	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	2.97	2.92	2.87	2.86	2.78	2.78	2.79	2.77	2.70	2.65	2.60	2.55
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	44	44	43	44	43	43	44	43	43	43	43	43
OrthoPhosphate-P	mg/L	0.1235	0.1232	0.1229	0.1226	0.1192	0.1191	0.1196	0.1186	0.1178	0.1175	0.1172	0.1170
Phosphate-P	mg/L	0.1271	0.1268	0.1265	0.1264	0.1229	0.1228	0.1234	0.1223	0.1215	0.1212	0.1209	0.1207
Org. Carbon	mg/L	4.1	4.0	4.0	4.2	4.2	4.2	4.3	4.2	4.2	4.2	4.2	4.2
Hardness CaCO3	mg/L	80	80	80	81	79	79	80	79	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0113	0.0113	0.0113	0.0112	0.0109	0.0109	0.0110	0.0109	0.0108	0.0108	0.0108	0.0107
Arsenic As	mg/L	0.0021	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Barium Ba	mg/L	0.0075	0.0075	0.0074	0.0075	0.0073	0.0073	0.0073	0.0073	0.0072	0.0072	0.0072	0.0072
Beryllium Be	mg/L	0.00051	0.00050	0.00050	0.00051	0.00050	0.00050	0.00050	0.00049	0.00049	0.00049	0.00049	0.00049
Bismuth Bi	mg/L	0.01085	0.01083	0.01080	0.01077	0.01046	0.01046	0.01050	0.01041	0.01034	0.01031	0.01029	0.01027
Boron B	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000437	0.0000436	0.0000435	0.0000434	0.0000422	0.0000422	0.0000424	0.0000420	0.0000418	0.0000416	0.0000415	0.0000415
Calcium Ca	mg/L	159	159	158	158	153	153	154	153	152	151	151	151
Chromium Cr	mg/L	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0068	0.0067	0.0067	0.0067	0.0065	0.0065	0.0065	0.0065	0.0064	0.0064	0.0064	0.0064
Copper Cu	mg/L	0.0063	0.0063	0.0063	0.0063	0.0061	0.0061	0.0062	0.0061	0.0061	0.0061	0.0060	0.0060
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00033	0.00033	0.00033	0.00033	0.00032	0.00032	0.00033	0.00032	0.00032	0.00032	0.00032	0.00032
Lithium Li	mg/L	0.0044	0.0043	0.0043	0.0044	0.0044	0.0044	0.0044	0.0044	0.0043	0.0043	0.0043	0.0043
Magnesium Mg	mg/L	7.6	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.5	7.5	7.5	7.5
Manganese Mn	mg/L	0.019	0.019	0.019	0.019	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Mercury Hg	mg/L	0.0000045	0.0000045	0.0000045	0.0000045	0.0000044	0.0000044	0.0000044	0.0000044	0.0000043	0.0000043	0.0000043	0.0000043
Molybdenum Mo	mg/L	0.00572	0.00571	0.00569	0.00568	0.00552	0.00552	0.00554	0.00549	0.00546	0.00544	0.00543	0.00542
Nickel Ni	mg/L	0.0058	0.0058	0.0057	0.0057	0.0056	0.0056	0.0056	0.0056	0.0055	0.0055	0.0055	0.0055
Phosphorus P	mg/L	0.190	0.190	0.189	0.189	0.184	0.184	0.185	0.183	0.182	0.181	0.181	0.181
Potassium K	mg/L	26.6	26.5	26.4	26.4	25.7	25.7	25.8	25.6	25.4	25.3	25.3	25.2
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00046	0.00046	0.00046	0.00046	0.00046	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	2.88	2.88	2.87	2.89	2.82	2.83	2.84	2.82	2.80	2.79	2.79	2.78
Silver Ag	mg/L	0.0001106	0.0001103	0.0001101	0.0001130	0.0001113	0.0001112	0.0001117	0.0001108	0.0001100	0.0001097	0.0001094	0.0001093
Sodium Na	mg/L	35	35	35	35	35	35	35	35	35	34	34	34
Strontium Sr	mg/L	0.065	0.065	0.064	0.065	0.063	0.064	0.064	0.064	0.063	0.063	0.063	0.063
Tellurium Te	mg/L	0.033	0.033	0.033	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.034
Thallium Tl	mg/L	0.000040	0.000039	0.000039	0.000040	0.000040	0.000040	0.000040	0.000040	0.000039	0.000039	0.000039	0.000039
Thorium Th	mg/L	0.000028	0.000028	0.000028	0.000028	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027
Tin Sn	mg/L	0.00177	0.00177	0.00177	0.00176	0.00172	0.00172	0.00173	0.00171	0.00170	0.00170	0.00169	0.00169
Titanium Ti	mg/L	0.0047	0.0047	0.0047	0.0049	0.0048	0.0049	0.0049	0.0049	0.0048	0.0048	0.0048	0.0048
Uranium U	mg/L	0.000059	0.000059	0.000059	0.000061	0.000060	0.000060	0.000060	0.000059	0.000059	0.000059	0.000059	0.000059
Vanadium V	mg/L	0.0027	0.0027	0.0027	0.0027	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Zinc Zn	mg/L	0.0157	0.0156	0.0156	0.0156	0.0152	0.0152	0.0153	0.0152	0.0150	0.0150	0.0150	0.0149
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040

Appendix I

Table I-1-b-A.2
Low Flow Scenario 2

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	461	460	459	520	566	623	684	736	731	729	728
TSS	mg/L	2.7	2.7	2.7	2.9	2.9	2.9	3.0	2.9	2.9	2.9	2.9
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.059	0.059	0.059	0.059	0.057	0.057	0.057	0.057	0.056	0.056	0.056
Sulphate	mg/L	59.2	59.1	58.9	58.8	57.3	57.3	57.6	57.1	56.7	56.6	56.4
Chloride	mg/L	315	314	314	352	380	415	452	484	481	479	478
Total Ammonia	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	2.51	2.46	2.41	2.40	2.34	2.33	2.35	2.33	2.27	2.22	2.17
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	43	43	43	43	43	43	43	43	42	42	42
OrthoPhosphate-P	mg/L	0.1168	0.1166	0.1163	0.1160	0.1130	0.1129	0.1134	0.1125	0.1118	0.1115	0.1112
Phosphate-P	mg/L	0.1205	0.1203	0.1200	0.1205	0.1177	0.1177	0.1183	0.1174	0.1167	0.1163	0.1161
Org. Carbon	mg/L	4.2	4.2	4.2	4.3	4.3	4.3	4.4	4.4	4.3	4.3	4.3
Hardness CaCO3	mg/L	78	78	78	79	77	77	78	77	77	76	76
Total Metals												
Aluminum Al	mg/L	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Antimony Sb	mg/L	0.0107	0.0107	0.0107	0.0107	0.0104	0.0104	0.0104	0.0103	0.0103	0.0102	0.0102
Arsenic As	mg/L	0.0020	0.0019	0.0019	0.0020	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
Barium Ba	mg/L	0.0072	0.0072	0.0071	0.0072	0.0070	0.0070	0.0071	0.0070	0.0070	0.0069	0.0069
Beryllium Be	mg/L	0.00049	0.00049	0.00048	0.00049	0.00048	0.00048	0.00048	0.00048	0.00047	0.00047	0.00047
Bismuth Bi	mg/L	0.01026	0.01024	0.01021	0.01018	0.00991	0.00991	0.00995	0.00987	0.00981	0.00978	0.00976
Boron B	mg/L	0.024	0.024	0.024	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Cadmium Cd	mg/L	0.0000414	0.0000413	0.0000412	0.0000415	0.0000406	0.0000406	0.0000408	0.0000405	0.0000403	0.0000402	0.0000401
Calcium Ca	mg/L	151	150	150	153	153	156	160	162	161	161	160
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0064	0.0064	0.0064	0.0064	0.0062	0.0062	0.0062	0.0062	0.0061	0.0061	0.0061
Copper Cu	mg/L	0.0060	0.0060	0.0060	0.0060	0.0059	0.0059	0.0059	0.0059	0.0058	0.0058	0.0058
Iron Fe	mg/L	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.06	0.06
Lead Pb	mg/L	0.00032	0.00032	0.00032	0.00032	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031
Lithium Li	mg/L	0.0043	0.0043	0.0043	0.0045	0.0044	0.0044	0.0045	0.0045	0.0044	0.0044	0.0044
Magnesium Mg	mg/L	7.5	7.5	7.4	7.6	7.6	7.6	7.7	7.6	7.6	7.5	7.5
Manganese Mn	mg/L	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.017	0.017	0.017
Mercury Hg	mg/L	0.0000043	0.0000043	0.0000043	0.0000049	0.0000051	0.0000052	0.0000053	0.0000053	0.0000053	0.0000053	0.0000053
Molybdenum Mo	mg/L	0.00541	0.00540	0.00539	0.00539	0.00525	0.00525	0.00527	0.00523	0.00520	0.00518	0.00517
Nickel Ni	mg/L	0.0055	0.0055	0.0055	0.0055	0.0053	0.0053	0.0054	0.0053	0.0053	0.0053	0.0053
Phosphorus P	mg/L	0.180	0.180	0.180	0.179	0.175	0.174	0.175	0.174	0.173	0.172	0.172
Potassium K	mg/L	25.2	25.1	25.1	25.1	24.5	24.5	24.7	24.5	24.3	24.3	24.2
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00049	0.00050	0.00051	0.00052	0.00051	0.00051	0.00051	0.00051
Silicon SiO2	mg/L	2.78	2.77	2.77	2.80	2.75	2.76	2.78	2.76	2.74	2.73	2.73
Silver Ag	mg/L	0.0001091	0.0001089	0.0001086	0.0001117	0.0001103	0.0001102	0.0001108	0.0001099	0.0001092	0.0001089	0.0001087
Sodium Na	mg/L	34	34	34	56	74	93	113	132	131	130	130
Strontium Sr	mg/L	0.063	0.062	0.062	0.063	0.062	0.062	0.063	0.062	0.062	0.062	0.062
Tellurium Te	mg/L	0.034	0.034	0.034	0.036	0.035	0.036	0.036	0.036	0.036	0.036	0.035
Thallium Tl	mg/L	0.000039	0.000039	0.000039	0.000040	0.000039	0.000039	0.000040	0.000039	0.000039	0.000039	0.000039
Thorium Th	mg/L	0.000027	0.000027	0.000026	0.000029	0.000029	0.000029	0.000030	0.000030	0.000030	0.000029	0.000029
Tin Sn	mg/L	0.00169	0.00168	0.00168	0.00168	0.00164	0.00164	0.00165	0.00164	0.00163	0.00162	0.00162
Titanium Ti	mg/L	0.0048	0.0048	0.0048	0.0054	0.0056	0.0056	0.0058	0.0058	0.0057	0.0057	0.0057
Uranium U	mg/L	0.000058	0.000058	0.000058	0.000061	0.000061	0.000061	0.000062	0.000061	0.000061	0.000061	0.000061
Vanadium V	mg/L	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Zinc Zn	mg/L	0.0149	0.0149	0.0149	0.0149	0.0145	0.0145	0.0146	0.0145	0.0144	0.0144	0.0144
Zirconium Zr	mg/L	0.0040	0.0039	0.0039	0.0041	0.0040	0.0041	0.0041	0.0041	0.0041	0.0040	0.0040

Appendix I

Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	102472	93338	84298	83253	82389	78530	81148	81148	73295
TSS	183	177	183	830	488	278	295	214	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18054	16907	15355	15221	14773	13840	14302	14302	12918
Chloride	49110	47526	49110	78414	68416	56603	57202	52361	47526	49110	49110	44357
Total Ammonia	149	145	149	287	238	186	193	166	145	149	149	135
Nitrate	758	733	758	1854	1453	1050	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	12146	10077	7778	7688	7186	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	23	22	21	21	21	21	21	21	19
Org. Carbon				1305.95	711.13	189.02	196.77	51.71				
Hardness CaCO3	14992	14508	14992	21691	19360	16157	16004	15385	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	17.06	11.32	8.30	8.26	5.77	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.65	3.42	2.21	2.42	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.67	0.57	0.46	0.47	0.42	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.06	1.88	1.70	1.67	1.61	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.21	0.14	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.54	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	8.67	6.40	4.18	4.37	3.34	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	41451	41786	41010	39821	40686	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.27	1.22	1.10	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.84	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.72	1.63	1.51	1.48	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	15.81	9.44	7.68	7.74	5.55	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.12	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.38	0.93	0.62	0.65	0.52	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2311	1784	1349	1349	1172	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.06	4.93	4.76	4.68	4.64	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.49	1.51	1.49	1.44	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.70	1.54	1.37	1.36	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	44	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	6904	6922	6763	6581	6725	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.16	0.10	0.06	0.06	0.04	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	841	714	612	609	578	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.05	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	9609	8290	6935	6879	6547	6148	6353	6353	5739
Strontium Sr	12	12	12	18	16	13	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	10.93	5.12	1.60	2.00	0.54	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.54	0.33	0.36	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	1.60	0.83	0.34	0.40	0.18	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.02	0.76	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.3	4.1	3.8	4.0	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				1.42	0.71	0.24	0.31	0.09				

Appendix I

Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	101574	92930	84196	83102	82351	78530	81148	81148	73295
TSS	183	177	183	806	478	275	292	213	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18038	16898	15353	15217	14773	13840	14302	14302	12918
Chloride	49110	47526	49110	78177	68279	56569	57156	52349	47526	49110	49110	44357
Total Ammonia	149	145	149	287	238	186	193	166	145	149	149	135
Nitrate	758	733	758	1854	1453	1050	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	11941	9972	7751	7657	7178	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	22	22	21	21	21	21	21	21	19
Org. Carbon				1256.92	687.30	182.93	190.50	50.12				
Hardness CaCO3	14992	14508	14992	21421	19214	16120	15956	15373	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	16.93	11.28	8.25	8.23	5.76	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.65	3.42	2.21	2.42	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.66	0.57	0.46	0.47	0.42	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.05	1.87	1.70	1.66	1.61	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.21	0.14	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.54	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	8.57	6.35	4.16	4.35	3.33	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	41409	41766	41002	39813	40684	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.26	1.21	1.10	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.84	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.71	1.62	1.51	1.48	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	15.47	9.33	7.60	7.66	5.53	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.12	0.09	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.35	0.92	0.62	0.64	0.52	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2277	1768	1344	1344	1171	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.06	4.92	4.75	4.68	4.64	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.48	1.51	1.49	1.44	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.69	1.54	1.37	1.36	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	44	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	6891	6916	6762	6578	6725	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.15	0.10	0.06	0.06	0.04	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	833	711	611	608	577	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.04	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	9481	8226	6917	6856	6541	6148	6353	6353	5739
Strontium Sr	12	12	12	18	16	13	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	10.53	4.95	1.55	1.93	0.52	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.54	0.33	0.36	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	1.55	0.81	0.33	0.39	0.18	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.02	0.76	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.3	4.0	3.8	4.0	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				1.38	0.70	0.24	0.30	0.09				

Appendix I

Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	71585	62219	53655	53518	51844	49028	50662	50662	45759
TSS				615	289	90	112	30				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5336	3819	2313	2589	1748	1247	1289	1289	1164
Chloride	49110	47526	49110	78048	68204	56550	57131	52343	47526	49110	49110	44357
Total Ammonia	25	24	25	152	104	58	67	40	24	25	25	22
Nitrate	29	28	29	1035	653	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				5127	2986	808	936	246				
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	22	22	21	21	21	21	21	21	19
Org. Carbon				1230.40	674.15	179.57	187.10	49.26				
Hardness CaCO3				6767	4141	1107	1422	374				
Total Metals												
Aluminum Al	0.81	0.78	0.81	10.36	5.77	3.79	3.68	1.75	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.53	3.30	2.10	2.31	1.60	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.24	0.16	0.08	0.09	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.58	0.36	0.19	0.20	0.10	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.17	0.11	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.51	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	5.70	3.70	1.77	1.99	1.05	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	2289	1427	732	826	441	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.33	0.25	0.14	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.26	0.19	0.11	0.12	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.30	0.18	0.07	0.09	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	10.34	4.44	2.98	3.13	1.04	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.07	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	0.94	0.50	0.21	0.25	0.12	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1312	789	376	405	207	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.78	0.51	0.35	0.41	0.24	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.07	0.04	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.58	0.39	0.23	0.25	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	32	28	25	25	24	22	23	23	21
Potassium K	25	24	25	424	239	89	120	52	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.10	0.05	0.02	0.02	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	268	142	56	68	27	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	3271	1847	564	706	196	12	12	12	11
Strontium Sr	0	0	0	6	4	1	2	1	0	0	0	0
Tellurium Te				10.27	4.83	1.50	1.88	0.49				
Thallium Tl	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.71	0.53	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	1.47	0.75	0.29	0.35	0.14	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.81	0.56	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.0	0.7	0.5	0.7	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.22	0.60	0.20	0.25	0.07				

Appendix I

Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				22342	11454	2967	4453	1173				
TSS				609	286	89	111	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				547	334	99	157	46				
Chloride				5890	3818	1009	1373	362				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5078	2959	801	928	244				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1218.64	668.16	178.03	185.53	48.86				
Hardness CaCO3				6703	4104	1098	1410	371				
Total Metals												
Aluminum Al				7.64	3.77	2.48	2.25	0.72				
Antimony Sb				0.05	0.04	0.02	0.03	0.01				
Arsenic As				0.14	0.09	0.03	0.04	0.01				
Barium Ba				0.35	0.19	0.08	0.09	0.02				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				3.44	2.05	0.73	0.84	0.25				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1304	711	278	329	94				
Chromium Cr				0.09	0.08	0.03	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.21	0.11	0.03	0.04	0.01				
Iron Fe				9.53	3.87	2.59	2.71	0.74				
Lead Pb				0.03	0.02	0.01	0.01	0.00				
Lithium Li				0.70	0.33	0.11	0.13	0.04				
Magnesium Mg				854	457	166	175	47				
Manganese Mn				0.19	0.08	0.07	0.11	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.13	0.06	0.02	0.02	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				327	169	45	72	19				
Selenium Se				0.10	0.05	0.02	0.02	0.01				
Silicon SiO2				230	115	39	49	14				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				3195	1798	539	677	179				
Strontium Sr				5	3	1	1	0				
Tellurium Te				10.18	4.78	1.49	1.86	0.49				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.01				
Titanium Ti				1.24	0.58	0.18	0.23	0.06				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.14	0.07	0.02	0.01	0.00				
Zinc Zn				0.3	0.1	0.1	0.3	0.1				
Zirconium Zr				1.21	0.60	0.20	0.25	0.07				

Appendix I

Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				22185	11377	2947	4423	1165				
TSS				605	284	88	111	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				544	332	99	156	45				
Chloride				5849	3792	1002	1364	359				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5042	2939	796	921	243				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1210.10	663.66	176.84	184.29	48.54				
Hardness CaCO3				6656	4077	1091	1401	369				
Total Metals												
Aluminum Al				7.61	3.76	2.47	2.25	0.71				
Antimony Sb				0.05	0.04	0.02	0.03	0.01				
Arsenic As				0.14	0.09	0.03	0.04	0.01				
Barium Ba				0.35	0.19	0.08	0.09	0.02				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				3.42	2.04	0.73	0.84	0.25				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1296	708	277	327	93				
Chromium Cr				0.09	0.08	0.03	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.21	0.11	0.03	0.04	0.01				
Iron Fe				9.47	3.84	2.58	2.70	0.74				
Lead Pb				0.03	0.02	0.01	0.01	0.00				
Lithium Li				0.70	0.33	0.10	0.13	0.04				
Magnesium Mg				848	454	165	174	47				
Manganese Mn				0.18	0.08	0.07	0.11	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.13	0.06	0.02	0.02	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				325	168	45	71	19				
Selenium Se				0.10	0.05	0.02	0.02	0.01				
Silicon SiO2				229	115	39	49	14				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				3173	1786	535	673	177				
Strontium Sr				5	3	1	1	0				
Tellurium Te				10.10	4.75	1.48	1.85	0.49				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.01				
Titanium Ti				1.23	0.58	0.18	0.23	0.06				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.14	0.07	0.02	0.01	0.00				
Zinc Zn				0.3	0.1	0.1	0.3	0.1				
Zirconium Zr				1.21	0.60	0.20	0.25	0.07				

Appendix I

Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				22040	11305	2929	4395	1158				
TSS				601	283	88	110	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				542	330	98	156	45				
Chloride				5811	3768	996	1355	357				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5009	2920	791	916	241				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1202.21	659.46	175.73	183.13	48.24				
Hardness CaCO3				6612	4051	1084	1392	367				
Total Metals												
Aluminum Al				7.59	3.75	2.46	2.24	0.71				
Antimony Sb				0.05	0.04	0.02	0.03	0.01				
Arsenic As				0.14	0.09	0.03	0.04	0.01				
Barium Ba				0.35	0.19	0.08	0.09	0.02				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				3.40	2.03	0.72	0.84	0.25				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1289	704	276	325	93				
Chromium Cr				0.09	0.08	0.03	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.21	0.11	0.03	0.03	0.01				
Iron Fe				9.42	3.82	2.56	2.68	0.74				
Lead Pb				0.03	0.02	0.01	0.01	0.00				
Lithium Li				0.69	0.33	0.10	0.13	0.03				
Magnesium Mg				843	451	164	173	46				
Manganese Mn				0.18	0.08	0.07	0.11	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.13	0.06	0.02	0.02	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				323	167	44	71	19				
Selenium Se				0.10	0.05	0.01	0.02	0.01				
Silicon SiO2				228	114	39	49	14				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				3152	1775	532	669	176				
Strontium Sr				5	3	1	1	0				
Tellurium Te				10.04	4.72	1.47	1.84	0.48				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.01				
Titanium Ti				1.22	0.58	0.18	0.23	0.06				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.14	0.07	0.02	0.01	0.00				
Zinc Zn				0.3	0.1	0.1	0.3	0.1				
Zirconium Zr				1.20	0.59	0.20	0.25	0.07				

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Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				21904	11236	2911	4369	1151				
TSS				597	281	87	109	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				392	238	60	106	28				
Chloride				5775	3745	990	1347	355				
Total Ammonia				1	0	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				4978	2903	786	910	240				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1194.77	655.46	174.67	182.03	47.95				
Hardness CaCO3				6571	4026	1077	1383	364				
Total Metals												
Aluminum Al				3.29	1.09	1.33	0.80	0.21				
Antimony Sb				0.03	0.02	0.02	0.02	0.01				
Arsenic As				0.04	0.03	0.01	0.01	0.00				
Barium Ba				0.33	0.18	0.08	0.08	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				2.39	1.40	0.46	0.50	0.13				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1031	545	209	240	63				
Chromium Cr				0.07	0.07	0.02	0.00	0.00				
Cobalt Co				0.02	0.01	0.00	0.00	0.00				
Copper Cu				0.18	0.09	0.02	0.03	0.01				
Iron Fe				8.36	3.18	2.29	2.33	0.61				
Lead Pb				0.01	0.00	0.00	0.00	0.00				
Lithium Li				0.67	0.32	0.10	0.12	0.03				
Magnesium Mg				812	433	156	163	43				
Manganese Mn				0.16	0.07	0.07	0.10	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.10	0.05	0.01	0.01	0.00				
Phosphorus P				2	0	0	0	0				
Potassium K				315	162	43	68	18				
Selenium Se				0.08	0.04	0.01	0.01	0.00				
Silicon SiO2				179	84	26	33	9				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				3126	1760	527	663	175				
Strontium Sr				4	3	1	1	0				
Tellurium Te				9.96	4.68	1.46	1.82	0.48				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.02	0.03	0.01	0.01	0.00				
Titanium Ti				1.19	0.56	0.17	0.22	0.06				
Uranium U				0.01	0.00	0.00	0.00	0.00				
Vanadium V				0.10	0.04	0.01	0.00	0.00				
Zinc Zn				0.2	0.1	0.1	0.3	0.1				
Zirconium Zr				1.00	0.47	0.15	0.18	0.05				

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Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				21773	11170	2894	4343	1144				
TSS				594	279	87	109	29				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				390	236	59	105	28				
Chloride				5740	3723	984	1339	353				
Total Ammonia				1	0	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				4948	2886	781	905	238				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1187.63	651.59	173.65	180.97	47.67				
Hardness CaCO3				6532	4003	1071	1375	362				
Total Metals												
Aluminum Al				3.27	1.08	1.32	0.80	0.21				
Antimony Sb				0.03	0.02	0.02	0.02	0.01				
Arsenic As				0.04	0.03	0.01	0.01	0.00				
Barium Ba				0.33	0.18	0.08	0.08	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				2.38	1.40	0.46	0.50	0.13				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1025	542	208	239	63				
Chromium Cr				0.07	0.07	0.02	0.00	0.00				
Cobalt Co				0.02	0.01	0.00	0.00	0.00				
Copper Cu				0.18	0.09	0.02	0.03	0.01				
Iron Fe				8.31	3.16	2.27	2.32	0.61				
Lead Pb				0.01	0.00	0.00	0.00	0.00				
Lithium Li				0.67	0.31	0.10	0.12	0.03				
Magnesium Mg				808	430	155	163	43				
Manganese Mn				0.16	0.07	0.07	0.10	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.10	0.05	0.01	0.01	0.00				
Phosphorus P				2	0	0	0	0				
Potassium K				313	161	42	68	18				
Selenium Se				0.08	0.04	0.01	0.01	0.00				
Silicon SiO2				178	84	26	33	9				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				3108	1750	524	659	174				
Strontium Sr				4	3	1	1	0				
Tellurium Te				9.90	4.65	1.45	1.81	0.48				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.02	0.03	0.01	0.01	0.00				
Titanium Ti				1.19	0.56	0.17	0.22	0.06				
Uranium U				0.01	0.00	0.00	0.00	0.00				
Vanadium V				0.10	0.04	0.01	0.00	0.00				
Zinc Zn				0.2	0.1	0.1	0.3	0.1				
Zirconium Zr				0.99	0.47	0.14	0.18	0.05				

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Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				21646	11105	2877	4318	1137				
TSS				590	278	86	108	28				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				388	235	59	105	28				
Chloride				5707	3702	978	1331	351				
Total Ammonia				1	0	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				4919	2869	777	900	237				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				2	0	0	0	0				
Org. Carbon				1180.67	647.80	172.64	179.92	47.39				
Hardness CaCO3				6494	3979	1065	1367	360				
Total Metals												
Aluminum Al				3.25	1.07	1.31	0.80	0.21				
Antimony Sb				0.03	0.02	0.02	0.02	0.01				
Arsenic As				0.04	0.03	0.01	0.01	0.00				
Barium Ba				0.33	0.18	0.08	0.08	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				2.36	1.39	0.45	0.49	0.13				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1019	539	206	237	62				
Chromium Cr				0.07	0.07	0.02	0.00	0.00				
Cobalt Co				0.02	0.01	0.00	0.00	0.00				
Copper Cu				0.18	0.09	0.02	0.03	0.01				
Iron Fe				8.26	3.15	2.26	2.31	0.61				
Lead Pb				0.01	0.00	0.00	0.00	0.00				
Lithium Li				0.66	0.31	0.10	0.12	0.03				
Magnesium Mg				803	428	155	162	43				
Manganese Mn				0.16	0.06	0.07	0.10	0.03				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.02	0.01	0.00	0.00	0.00				
Nickel Ni				0.10	0.05	0.01	0.01	0.00				
Phosphorus P				2	0	0	0	0				
Potassium K				311	160	42	67	18				
Selenium Se				0.08	0.04	0.01	0.01	0.00				
Silicon SiO2				177	83	26	32	9				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				3089	1740	521	655	173				
Strontium Sr				4	2	1	1	0				
Tellurium Te				9.84	4.63	1.44	1.80	0.47				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.02	0.03	0.01	0.01	0.00				
Titanium Ti				1.18	0.56	0.17	0.22	0.06				
Uranium U				0.01	0.00	0.00	0.00	0.00				
Vanadium V				0.09	0.04	0.01	0.00	0.00				
Zinc Zn				0.2	0.1	0.1	0.3	0.1				
Zirconium Zr				0.98	0.46	0.14	0.18	0.05				

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Table I-2-b-A.3
Low Flow Scenario 2

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				399732	389253	381073	382506	379343				
TSS				1179	554	172	216	57				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				385	234	59	104	27				
Chloride				252110	241618	233711	234650	231514				
Total Ammonia				1	0	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				4891	2852	772	894	236				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				6	2	1	1	0				
Org. Carbon				1173.81	644.04	171.65	178.88	47.12				
Hardness CaCO3				6456	3956	1058	1360	358				
Total Metals												
Aluminum Al				54.55	25.20	8.81	10.18	2.68				
Antimony Sb				0.04	0.03	0.02	0.03	0.01				
Arsenic As				0.12	0.07	0.02	0.02	0.01				
Barium Ba				0.32	0.18	0.08	0.08	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				8.75	4.39	1.39	1.66	0.44				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				23775	23039	22551	22600	22360				
Chromium Cr				0.17	0.12	0.04	0.02	0.01				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.34	0.17	0.04	0.06	0.01				
Iron Fe				58.11	26.59	9.54	11.42	3.01				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.13	0.53	0.17	0.21	0.05				
Magnesium Mg				1479	745	253	285	75				
Manganese Mn				1.35	0.62	0.24	0.32	0.08				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.09	0.04	0.01	0.01	0.00				
Nickel Ni				0.15	0.07	0.02	0.02	0.01				
Phosphorus P				2	0	0	0	0				
Potassium K				844	411	120	165	43				
Selenium Se				0.29	0.13	0.04	0.05	0.01				
Silicon SiO2				301	142	44	55	15				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				138141	131754	127456	127938	126175				
Strontium Sr				8	4	1	2	0				
Tellurium Te				9.78	4.60	1.43	1.79	0.47				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.03	0.03	0.01	0.01	0.00				
Titanium Ti				4.09	1.92	0.60	0.75	0.20				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.52	0.24	0.07	0.08	0.02				
Zinc Zn				0.4	0.2	0.1	0.3	0.1				
Zirconium Zr				0.99	0.47	0.15	0.18	0.05				

Appendix I

Table I-1-b-B.1
Low Flow Scenario 2

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate Degradation Field(age)		m3/year					
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 15	L'Roberts L Year 15	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			736	183	186	
TSS	mg/L			4.7	7.0	8.1	
Free CN	mg/L		0.005	0.0028			
Total CN	mg/L	1.0		0.027	0.002	0.002	
WAD CN	mg/L			0.0037			
CNO	mg/L			3.0			
SCN	mg/L			0.101	0.004	0.002	
Sulphate	mg/L			93	6.5	6.4	
Chloride	mg/L			484	91	83	
Total Ammonia	mg/L		0.97	1.09	0.019	0.010	2%
Nitrate	mg/L		2.9	6.0	0.06	0.03	2%
Nitrite	mg/L		0.018	0.42	0.003	0.002	16%
Alkalinity	mg/L			55	28	27	
OrthoPhosphate-P	mg/L			0.1752	0.0080	0.0049	
Phosphate-P	mg/L			0.1782	0.0260	0.0265	
Org. Carbon	mg/L			5.7	7.5	7.0	
Hardness CaCO3	mg/L			108	47	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.16	0.08	0.25	82%
Antimony Sb	mg/L			0.0160	0.0029	0.0019	
Arsenic As	mg/L	0.5	0.005	0.00	0.0005	0.0005	11%
Barium Ba	mg/L			0.0107	0.0033	0.0052	
Beryllium Be	mg/L			0.00062	0.00004	0.00002	
Bismuth Bi	mg/L			0.01543	0.00067	0.00044	
Boron B	mg/L			0.038	0.035	0.030	
Cadmium Cd	mg/L		0.000038	0.000057	0.0000047	0.0000152	12%
Calcium Ca	mg/L			252	17	13	
Chromium Cr	mg/L		0.001	0.0067	0.001	0.001	78%
Cobalt Co	mg/L			0.0106	0.0009	0.0004	
Copper Cu	mg/L	0.3	0.002	0.010	0.0018	0.0021	89%
Iron Fe	mg/L		0.3	0.18	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00042	0.00007	0.00026	4%
Lithium Li	mg/L			0.0056	0.0030	0.0030	
Magnesium Mg	mg/L			9.2	7.4	7.5	
Manganese Mn	mg/L			0.029	0.021	0.024	
Mercury Hg	mg/L		0.0001	0.0000133	0.0000016	0.0000011	2%
Molybdenum Mo	mg/L		0.073	0.0092	0.00049	0.00038	1%
Nickel Ni	mg/L	0.5	0.025	0.008	0.0008	0.0008	3%
Phosphorus P	mg/L			0.263	0.029	0.028	
Potassium K	mg/L			42	3.8	3.3	
Selenium Se	mg/L		0.001	0.00100	0.00090	0.00082	90%
Silicon SiO2	mg/L			4.0	0.67	0.61	
Silver Ag	mg/L		0.0001	0.00012	0.0000097	0.0000061	10%
Sodium Na	mg/L			132	43	41	
Strontium Sr	mg/L			0.088	0.043	0.048	
Tellurium Te	mg/L			0.047	0.050	0.052	
Thallium Tl	mg/L		0.0008	0.000042	0.000031	0.002002	4%
Thorium Th	mg/L			0.000054	0.0000041	0.0000022	
Tin Sn	mg/L			0.00241	0.00048	0.00006	
Titanium Ti	mg/L			0.0133	0.0065	0.0065	
Uranium U	mg/L			0.000082	0.000041	0.000045	
Vanadium V	mg/L			0.0036	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.023	0.0036	0.0056	12%
Zirconium Zr	mg/L			0.0050	0.0051	0.0052	

Appendix I

Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				140	121	125	145	145				
TSS	mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride	mg/L				61	61	59	63	63				
Total Ammonia	mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate	mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P	mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon	mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B	mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca	mg/L				9	8	8	7	7				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P	mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se	mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn	mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				140	121	125	145	145				
TSS	mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride	mg/L				61	61	59	63	63				
Total Ammonia	mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate	mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P	mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon	mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B	mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca	mg/L				9	8	8	7	7				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P	mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se	mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn	mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca mg/L				9	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca mg/L				9	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.8	2.9	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.010	0.013	0.019	0.018	0.018				
Nitrate mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B mg/L				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd mg/L				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca mg/L				9	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.019	0.025	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag mg/L				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn mg/L				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V mg/L				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.7	2.8	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca mg/L				8	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L												
Tin Sn mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V mg/L				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.7	2.8	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca mg/L				8	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L												
Tin Sn mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V mg/L				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.7	2.8	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca mg/L				8	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L												
Tin Sn mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V mg/L				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS mg/L				140	121	125	145	145				
TSS mg/L				4.0	5.9	6.0	7.0	7.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L												
Sulphate mg/L				2.8	2.7	2.8	3.0	3.0				
Chloride mg/L				61	61	59	63	63				
Total Ammonia mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P mg/L				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon mg/L				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca mg/L				8	8	8	7	7				
Chromium Cr mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co mg/L				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe mg/L				0.05	0.13	0.08	0.09	0.09				
Lead Pb mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K mg/L				2.8	2.4	2.4	2.3	2.3				
Selenium Se mg/L				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na mg/L				39	33	34	32	32				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L												
Tin Sn mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V mg/L				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn mg/L				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-1-b-B.2

Low Flow Scenario 2

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				140	121	125	145	145			
TSS	mg/L				4.0	5.9	6.0	7.0	7.0			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L											
Sulphate	mg/L				2.8	2.7	2.8	3.0	3.0			
Chloride	mg/L				61	61	59	63	63			
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				28	25	27	27	27			
OrthoPhosphate-P	mg/L				0.0008	0.0008	0.0008	0.0008	0.0008			
Phosphate-P	mg/L				0.0165	0.0179	0.0240	0.0195	0.0195			
Org. Carbon	mg/L				5.5	5.1	7.5	5.0	5.0			
Hardness CaCO3	mg/L				46	43	43	44	44			
Total Metals												
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0004	0.0008	0.0028	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031			
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000			
Bismuth Bi	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003			
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020			
Calcium Ca	mg/L				8	8	8	7	7			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0000	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015			
Iron Fe	mg/L				0.05	0.13	0.08	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5			
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006			
Molybdenum Mo	mg/L				0.00016	0.00015	0.00018	0.00016	0.00016			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.017	0.018	0.024	0.020	0.020			
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3			
Selenium Se	mg/L				0.00090	0.00057	0.00062	0.00056	0.00056			
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50			
Silver Ag	mg/L				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007			
Sodium Na	mg/L				39	33	34	32	32			
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L											
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040			
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060			
Uranium U	mg/L				0.000025	0.000030	0.000038	0.000031	0.000031			
Vanadium V	mg/L				0.0006	0.0000	0.0002	0.0001	0.0001			
Zinc Zn	mg/L				0.0009	0.0032	0.0028	0.0017	0.0017			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

Appendix I

Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

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Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

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Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

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Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

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Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12594	7557	3337	4479	1563				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				46	37	22	27	9				
Nitrate				214	133	56	72	25				
Nitrite				13	8	3	4	2				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				152	167	95	109	38				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.2	1.2	0.5	0.6	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.05	0.02	0.01	0.01	0.00				
Bismuth Bi				0.16	0.10	0.04	0.05	0.02				
Boron B				153	63	27	33	12				
Cadmium Cd				0.02	0.01	0.00	0.00	0.00				
Calcium Ca				37797	21630	8871	10930	3814				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.23	0.39	1.03	0.12	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				227	344	98	134	47				
Lead Pb				0.10	0.18	0.05	0.06	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32345	18029	7666	9600	3350				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.70	0.42	0.21	0.24	0.08				
Nickel Ni				1.81	1.58	0.54	0.65	0.23				
Phosphorus P				77	51	29	30	10				
Potassium K				12491	6649	2784	3467	1210				
Selenium Se				4.00	1.58	0.72	0.83	0.29				
Silicon SiO2				2270	1408	593	759	265				
Silver Ag				0.01	0.01	0.00	0.00	0.00				
Sodium Na				173977	90880	39796	47583	16604				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.14	0.08	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				1.79	1.11	0.47	0.60	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.12	0.09	0.05	0.05	0.02				
Vanadium V				2.48	0.15	0.28	0.22	0.08				
Zinc Zn				4.10	8.75	3.32	2.55	0.89				
Zirconium Zr				22	14	6	7	3				

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Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

Appendix I

Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

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Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

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Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

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Table I-2-b-B.3

Low Flow Scenario 2

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				619738	332889	144600	214702	74922				
TSS				17707	16130	6941	10365	3617				
Free CN												
Total CN				9	5	2	3	1				
WAD CN												
CNO												
SCN												
Sulphate				12417	7447	3291	4420	1542				
Chloride				267815	166101	67673	92544	32294				
Total Ammonia				22	22	16	19	7				
Nitrate				27	16	7	9	3				
Nitrite				9	5	2	3	1				
Alkalinity				121734	69666	31234	39239	13693				
OrthoPhosphate-P				3	2	1	1	0				
Phosphate-P				73	49	28	29	10				
Org. Carbon				24347	14071	8676	7404	2584				
Hardness CaCO3				201415	117369	49164	65151	22735				
Total Metals												
Aluminum Al				147	164	93	107	37				
Antimony Sb				1.6	2.3	3.3	0.7	0.2				
Arsenic As				2.1	1.1	0.4	0.5	0.2				
Barium Ba				13	9	3	5	2				
Beryllium Be				0.03	0.01	0.00	0.00	0.00				
Bismuth Bi				0.13	0.08	0.03	0.04	0.02				
Boron B				152	62	27	33	12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				37494	21442	8792	10829	3779				
Chromium Cr				3	1	1	0	0				
Cobalt Co				0.20	0.37	1.03	0.11	0.04				
Copper Cu				5	4	1	2	1				
Iron Fe				226	343	98	134	47				
Lead Pb				0.08	0.17	0.04	0.05	0.02				
Lithium Li				12	8	3	4	1				
Magnesium Mg				32315	18010	7658	9590	3347				
Manganese Mn				29	57	15	15	5				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.69	0.42	0.21	0.24	0.08				
Nickel Ni				1.79	1.56	0.53	0.64	0.22				
Phosphorus P				73	49	28	29	10				
Potassium K				12483	6644	2782	3465	1209				
Selenium Se				3.98	1.57	0.71	0.82	0.29				
Silicon SiO2				2213	1373	578	740	258				
Silver Ag				0.00	0.00	0.00	0.00	0.00				
Sodium Na				173969	90875	39794	47580	16603				
Strontium Sr				180	115	41	59	21				
Tellurium Te				221	137	58	74	26				
Thallium Tl				0.13	0.08	0.03	0.04	0.02				
Thorium Th												
Tin Sn				1.77	1.10	0.46	0.59	0.21				
Titanium Ti				27	16	7	9	3				
Uranium U				0.11	0.08	0.04	0.05	0.02				
Vanadium V				2.43	0.12	0.27	0.20	0.07				
Zinc Zn				3.98	8.68	3.29	2.51	0.88				
Zirconium Zr				22	14	6	7	3				

Table I-1-b-C.1
Low Flow Scenario 2

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate Degradation Field(age)			m3/year				
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 15	L'Roberts L Year 15	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			736	183	186	
TSS	mg/L			4.7	7.0	8.1	
Free CN	mg/L		0.005	0.0028			
Total CN	mg/L	1.0		0.027	0.002	0.002	
WAD CN	mg/L			0.0037			
CNO	mg/L			3.0			
SCN	mg/L			0.101	0.004	0.002	
Sulphate	mg/L			93	6.5	6.4	
Chloride	mg/L			484	91	83	
Total Ammonia	mg/L		0.97	1.09	0.019	0.010	2%
Nitrate	mg/L		2.9	6.0	0.06	0.03	2%
Nitrite	mg/L		0.018	0.42	0.003	0.002	16%
Alkalinity	mg/L			55	28	27	
OrthoPhosphate-P	mg/L			0.1752	0.0080	0.0049	
Phosphate-P	mg/L			0.1782	0.0260	0.0265	
Org. Carbon	mg/L			5.7	7.5	7.0	
Hardness CaCO3	mg/L			108	47	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.16	0.08	0.25	82%
Antimony Sb	mg/L			0.0160	0.0029	0.0019	
Arsenic As	mg/L	0.5	0.005	0.00	0.0005	0.0005	11%
Barium Ba	mg/L			0.0107	0.0033	0.0052	
Beryllium Be	mg/L			0.00062	0.00004	0.00002	
Bismuth Bi	mg/L			0.01543	0.00067	0.00044	
Boron B	mg/L			0.038	0.035	0.030	
Cadmium Cd	mg/L		0.000038	0.000057	0.0000047	0.0000152	12%
Calcium Ca	mg/L			252	17	13	
Chromium Cr	mg/L		0.001	0.0067	0.001	0.001	78%
Cobalt Co	mg/L			0.0106	0.0009	0.0004	
Copper Cu	mg/L	0.3	0.002	0.010	0.0018	0.0021	89%
Iron Fe	mg/L		0.3	0.18	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00042	0.00007	0.00026	4%
Lithium Li	mg/L			0.0056	0.0030	0.0030	
Magnesium Mg	mg/L			9.2	7.4	7.5	
Manganese Mn	mg/L			0.029	0.021	0.024	
Mercury Hg	mg/L		0.0001	0.0000133	0.0000016	0.0000011	2%
Molybdenum Mo	mg/L		0.073	0.0092	0.00049	0.00038	1%
Nickel Ni	mg/L	0.5	0.025	0.008	0.0008	0.0008	3%
Phosphorus P	mg/L			0.263	0.029	0.028	
Potassium K	mg/L			42	3.8	3.3	
Selenium Se	mg/L		0.001	0.00100	0.00090	0.00082	90%
Silicon SiO2	mg/L			4.0	0.67	0.61	
Silver Ag	mg/L		0.0001	0.00012	0.0000097	0.0000061	10%
Sodium Na	mg/L			132	43	41	
Strontium Sr	mg/L			0.088	0.043	0.048	
Tellurium Te	mg/L			0.047	0.050	0.052	
Thallium Tl	mg/L		0.0008	0.000042	0.000031	0.002002	4%
Thorium Th	mg/L			0.000054	0.0000041	0.0000022	
Tin Sn	mg/L			0.00241	0.00048	0.00006	
Titanium Ti	mg/L			0.0133	0.0065	0.0065	
Uranium U	mg/L			0.000082	0.000041	0.000045	
Vanadium V	mg/L			0.0036	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.023	0.0036	0.0056	12%
Zirconium Zr	mg/L			0.0050	0.0051	0.0052	

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Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter	mg/L				150	150	140	160	160				
TDS	mg/L				7.0	8.0	4.0	5.0	5.0				
TSS	mg/L												
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.5	4.5				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000031	0.0000046	0.0000152	0.0000027	0.0000027				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51				
Silver Ag	mg/L				0.0000041	0.0000014	0.0000038	0.0000021	0.0000021				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter	mg/L				150	150	140	160	160				
TDS	mg/L				7.0	8.0	4.0	5.0	5.0				
TSS	mg/L												
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.005	0.005		0.007	0.007				
Nitrate	mg/L				0.01	0.01		0.01	0.01				
Nitrite	mg/L				0.002	0.002		0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L												
Tin Sn	mg/L												
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042				
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.005	0.005		0.007	0.007				
Nitrate	mg/L				0.01	0.01		0.01	0.01				
Nitrite	mg/L				0.002	0.002		0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L												
Tin Sn	mg/L												
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042				
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.005	0.005		0.007	0.007				
Nitrate	mg/L				0.01	0.01		0.01	0.01				
Nitrite	mg/L				0.002	0.002		0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L												
Tin Sn	mg/L												
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042				
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				150	150	140	160	160				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L												
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4				
Chloride	mg/L				61	58	57	65	65				
Total Ammonia	mg/L				0.005	0.005		0.007	0.007				
Nitrate	mg/L				0.01	0.01		0.01	0.01				
Nitrite	mg/L				0.002	0.002		0.002	0.002				
Alkalinity	mg/L				23	23	24	25	25				
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010				
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190				
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3	mg/L				43	38	40	44	44				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010				
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020				
Calcium Ca	mg/L				8	7	7	7	7				
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1				
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020				
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019				
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059				
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50				
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013				
Sodium Na	mg/L				37	31	34	36	36				
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th	mg/L												
Tin Sn	mg/L												
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042				
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-b-C.2
Low Flow Scenario 2

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter	mg/L				150	150	140	160	160			
TDS	mg/L				7.0	8.0	4.0	5.0	5.0			
TSS	mg/L											
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L											
Sulphate	mg/L				3.8	3.7	4.7	4.4	4.4			
Chloride	mg/L				61	58	57	65	65			
Total Ammonia	mg/L				0.005	0.005		0.007	0.007			
Nitrate	mg/L				0.01	0.01		0.01	0.01			
Nitrite	mg/L				0.002	0.002		0.002	0.002			
Alkalinity	mg/L				23	23	24	25	25			
OrthoPhosphate-P	mg/L				0.0010	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0240	0.0160	0.0070	0.0190	0.0190			
Org. Carbon	mg/L				6.0	4.0	7.0	5.0	5.0			
Hardness CaCO3	mg/L				43	38	40	44	44			
Total Metals												
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0044	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00000	0.00000	0.00000	0.00000			
Bismuth Bi	mg/L				0.00010	0.00010	0.00010	0.00010	0.00010			
Boron B	mg/L				0.029	0.020	0.028	0.026	0.026			
Cadmium Cd	mg/L				0.0000024	0.0000040	0.0000145	0.0000020	0.0000020			
Calcium Ca	mg/L				8	7	7	7	7			
Chromium Cr	mg/L				0.000	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0018	0.0018			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.0	5.0	5.2	7.1	7.1			
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008			
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006			
Molybdenum Mo	mg/L				0.00018	0.00016	0.00024	0.00020	0.00020			
Nickel Ni	mg/L				0.0006	0.0005	0.0006	0.0006	0.0006			
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.7	2.2	2.2	2.5	2.5			
Selenium Se	mg/L				0.00064	0.00037	0.00082	0.00059	0.00059			
Silicon SiO2	mg/L				0.50	0.50	0.50	0.50	0.50			
Silver Ag	mg/L				0.0000032	0.0000005	0.0000029	0.0000013	0.0000013			
Sodium Na	mg/L				37	31	34	36	36			
Strontium Sr	mg/L				0.044	0.037	0.039	0.045	0.045			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000100	0.000300	0.000300	0.002000	0.002000			
Thorium Th	mg/L											
Tin Sn	mg/L											
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060			
Uranium U	mg/L				0.000035	0.000031	0.000034	0.000042	0.000042			
Vanadium V	mg/L				0.0004	0.0001	0.0004	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0015	0.0051	0.0051			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

Appendix I

Table I-2-b-C.3

Low Flow Scenario 2

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-2-b-C.3

Low Flow Scenario 2

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-2-b-C.3

Low Flow Scenario 2

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-2-b-C.3

Low Flow Scenario 2

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-2-b-C.3

Low Flow Scenario 2

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.8	2.9	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.010	0.013	0.019	0.018	0.018				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0029	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00004	0.00004	0.00004	0.00004	0.00004				
Boron B				0.035	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000038	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.019	0.025	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000026	0.0000028	0.0000024	0.0000025	0.0000025				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000027	0.0000027	0.0000027				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0029	0.0017	0.0017				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-2-b-C.3

Low Flow Scenario 2

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-2-b-C.3

Low Flow Scenario 2

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-2-b-C.3

Low Flow Scenario 2

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.0020	0.0020	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-2-b-C.3

Low Flow Scenario 2

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

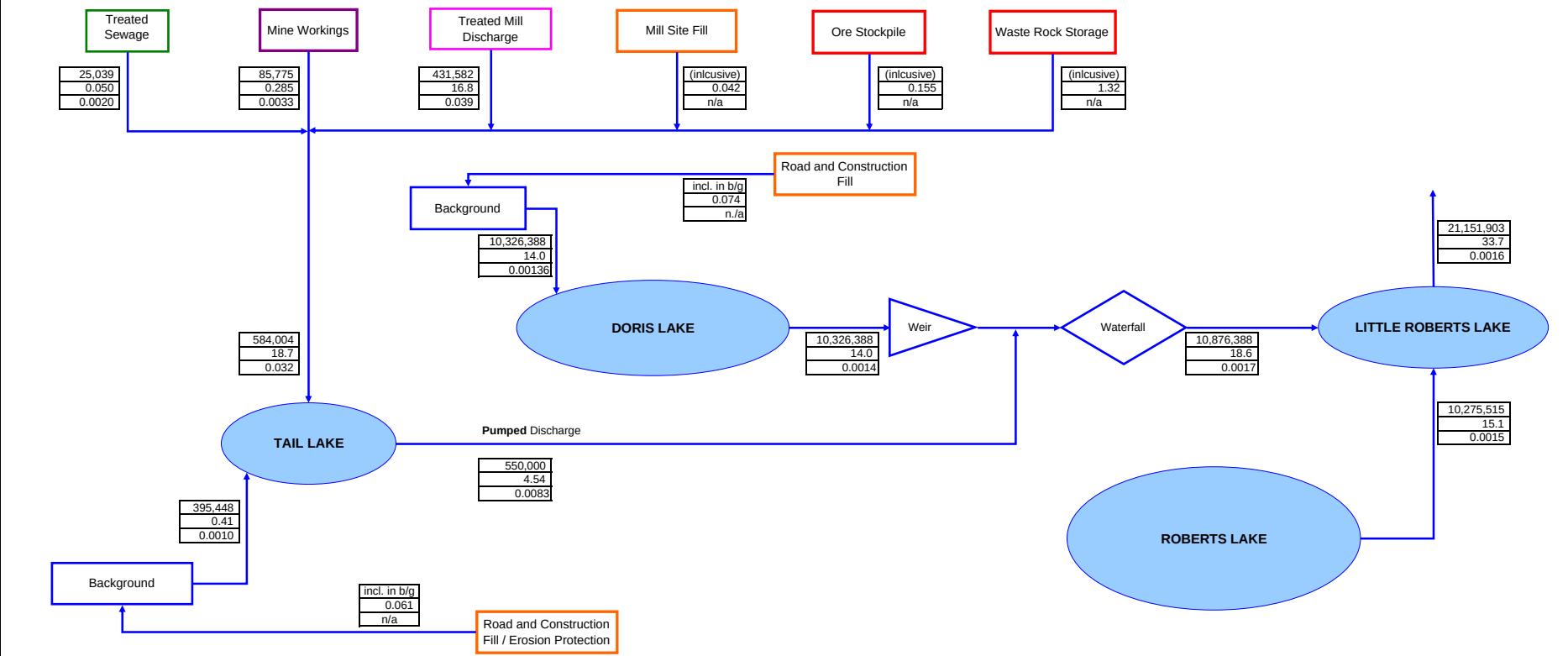
Table I-2-b-C.3

Low Flow Scenario 2

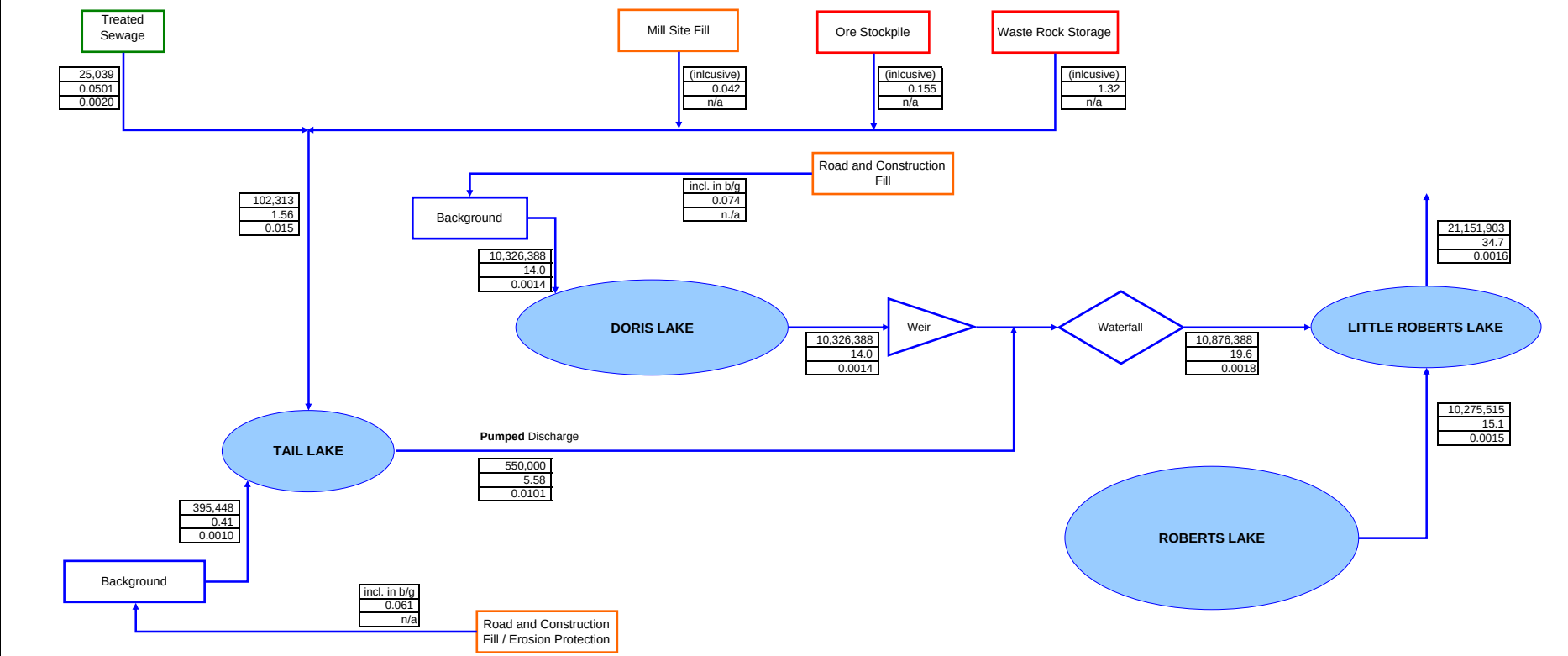
Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				140	121	125	145	145				
TSS				4.0	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN												
Sulphate				2.8	2.7	2.8	3.0	3.0				
Chloride				61	61	59	63	63				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0008	0.0008	0.0008	0.0008	0.0008				
Phosphate-P				0.0165	0.0179	0.0240	0.0195	0.0195				
Org. Carbon				5.5	5.1	7.5	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00000	0.00000	0.00000	0.00000				
Bismuth Bi				0.00003	0.00003	0.00003	0.00003	0.00003				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000025	0.0000025	0.0000020	0.0000020	0.0000020				
Calcium Ca				8	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0000	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.13	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00015	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00090	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.50	0.50	0.50	0.50	0.50				
Silver Ag				0.0000008	0.0000010	0.0000006	0.0000007	0.0000007				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th												
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0006	0.0000	0.0002	0.0001	0.0001				
Zinc Zn				0.0009	0.0032	0.0028	0.0017	0.0017				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

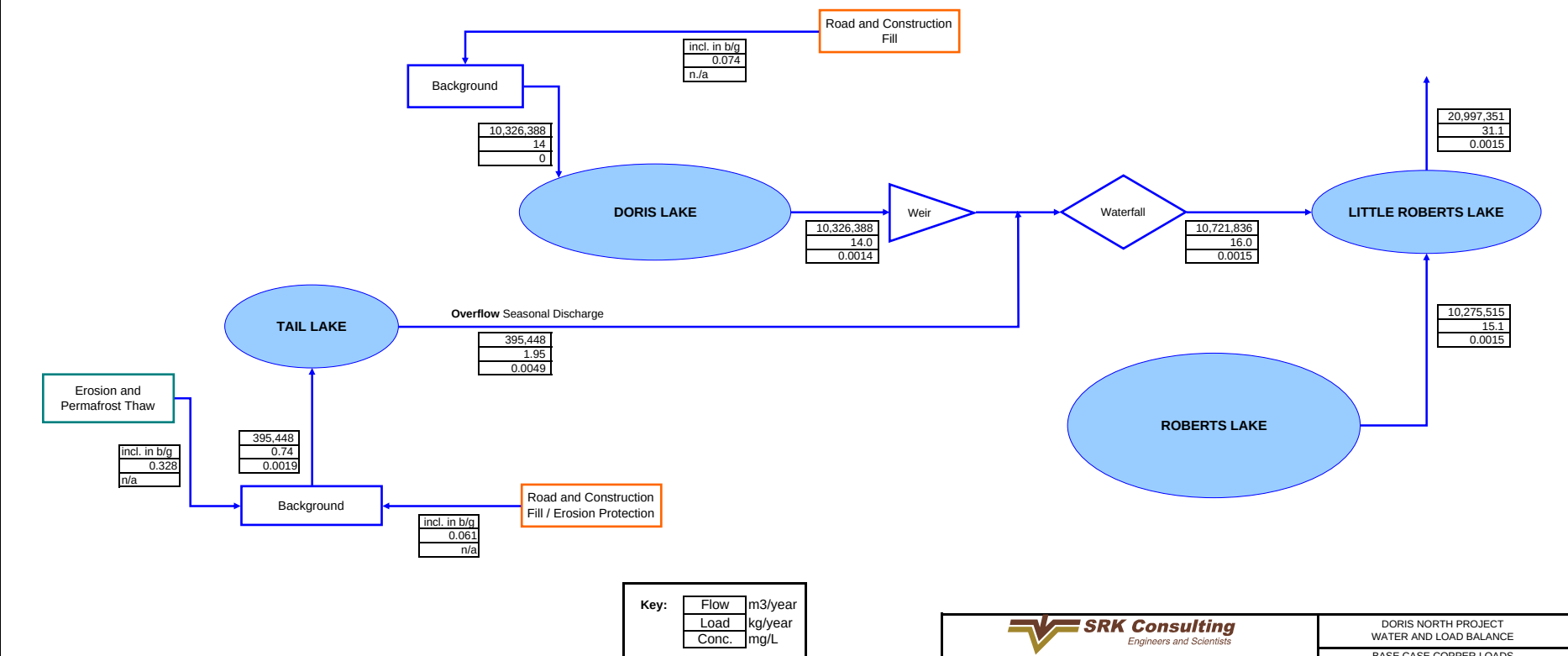
OPERATIONAL CONDITIONS
Year 2



POST MILLING OPERATIONAL CONDITIONS
Year 3

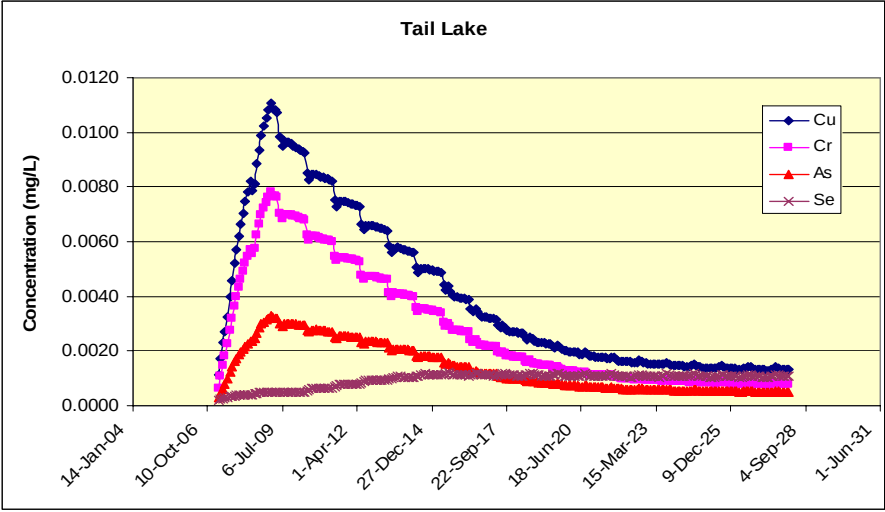
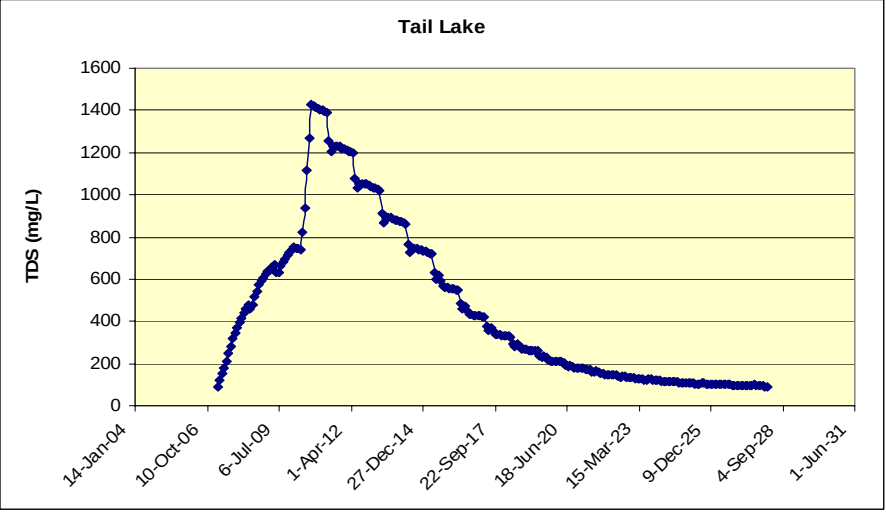
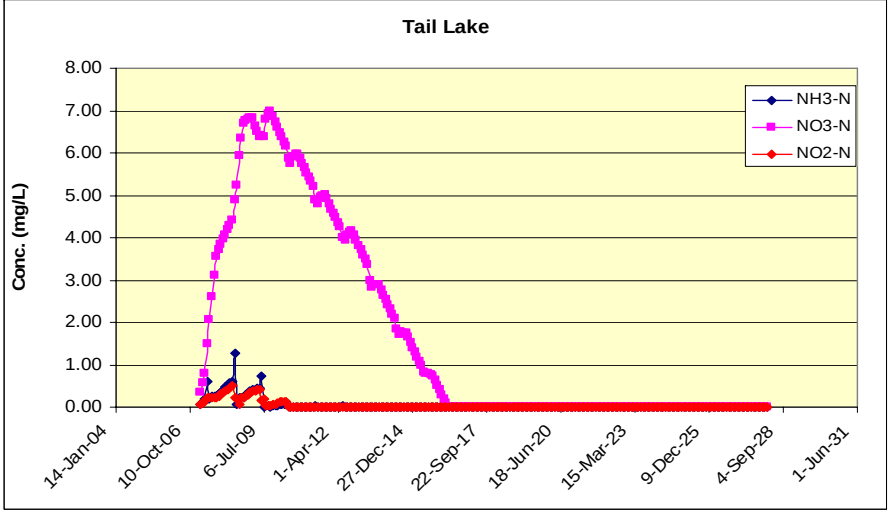
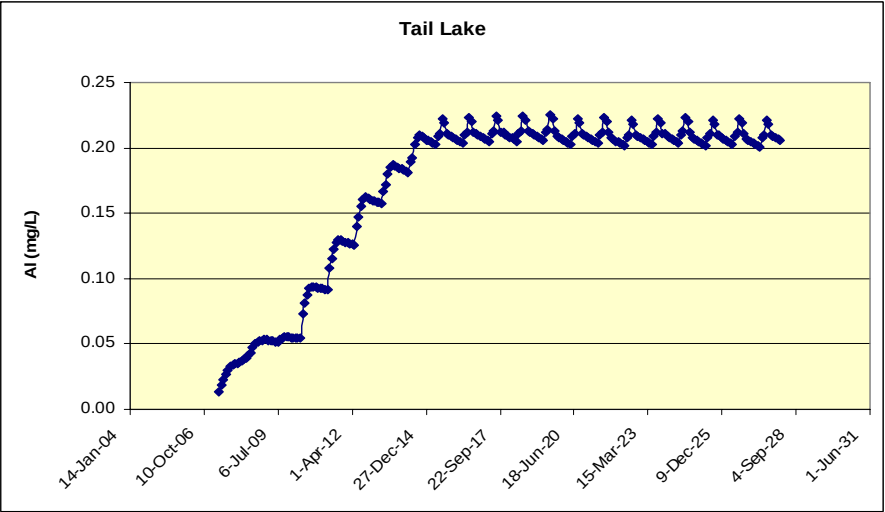
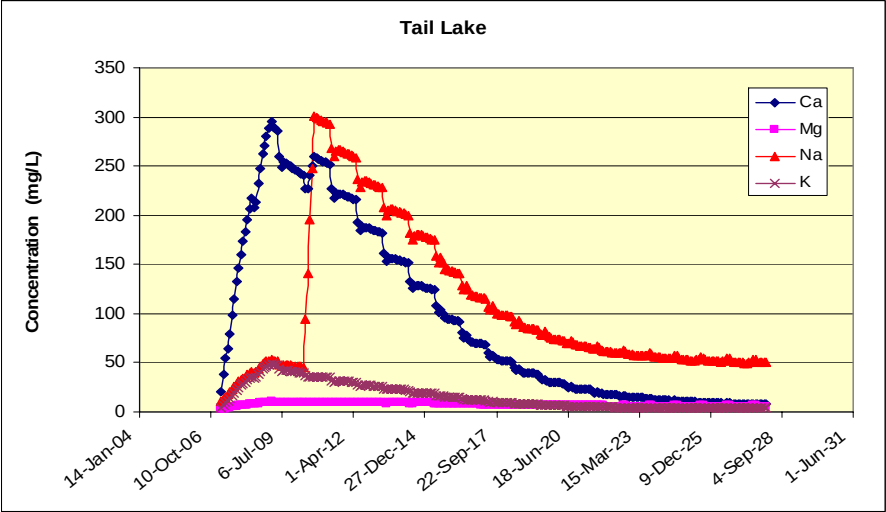
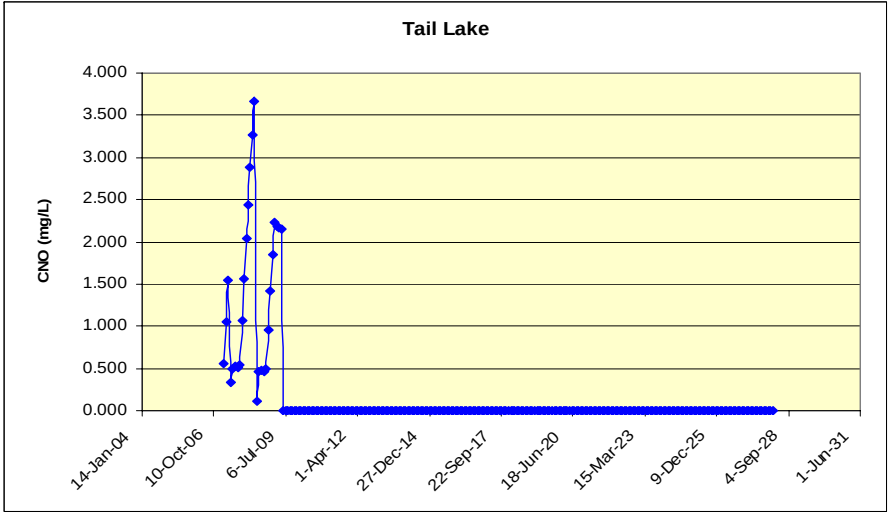
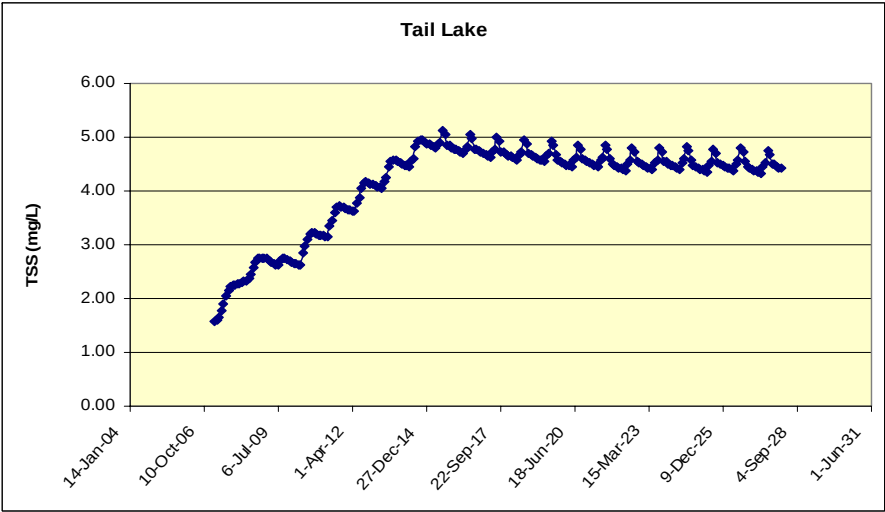
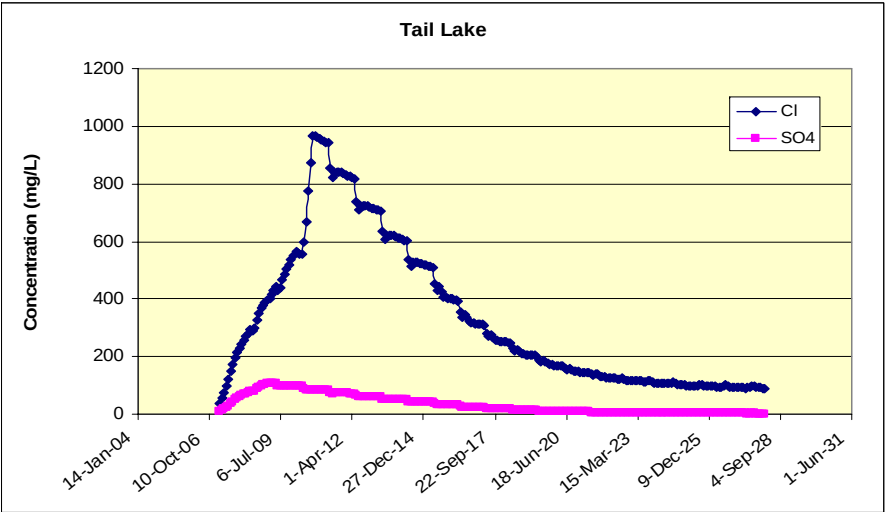
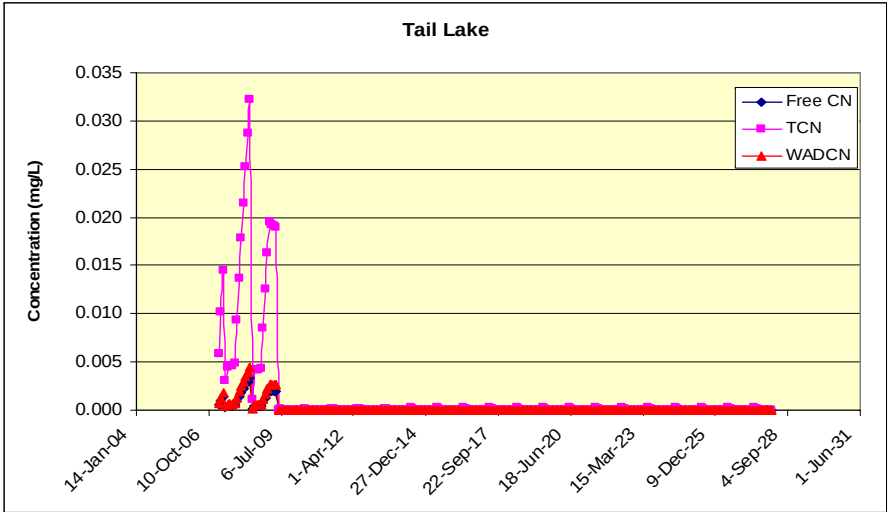


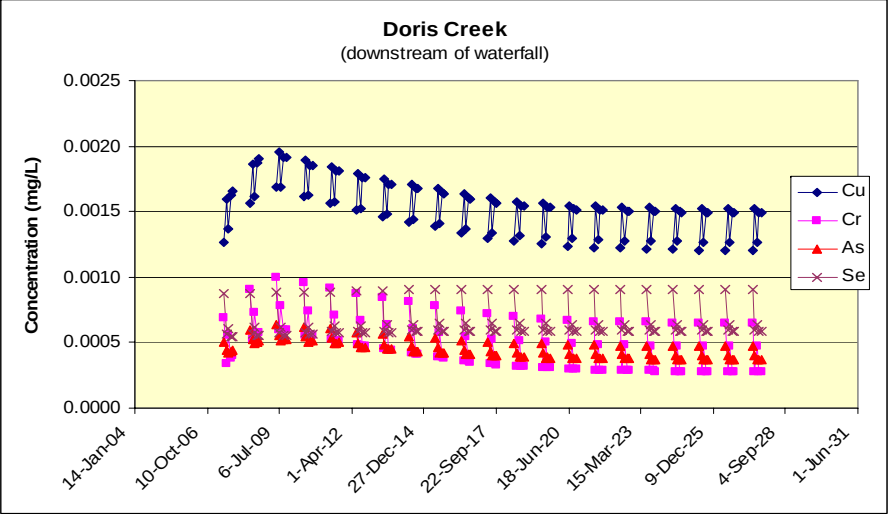
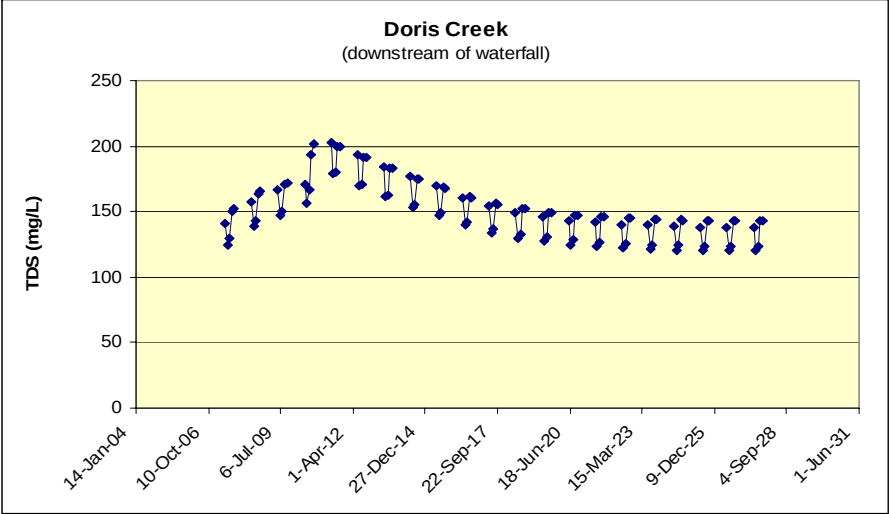
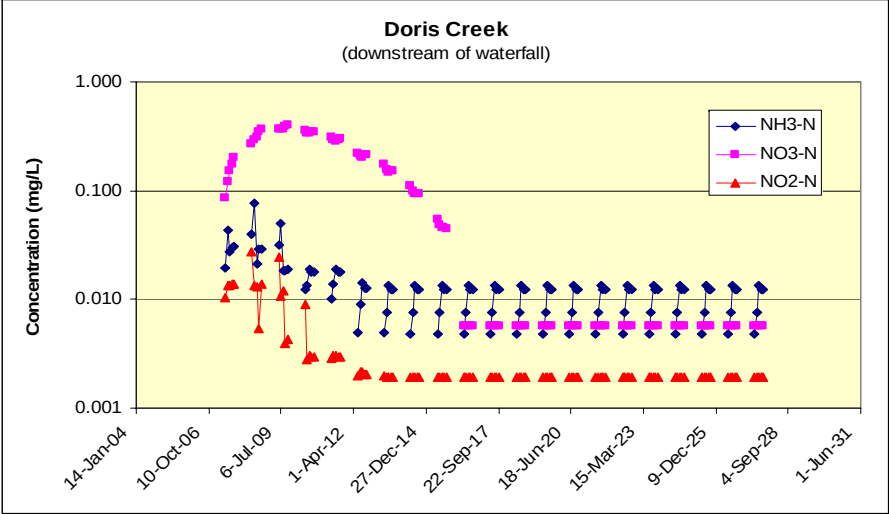
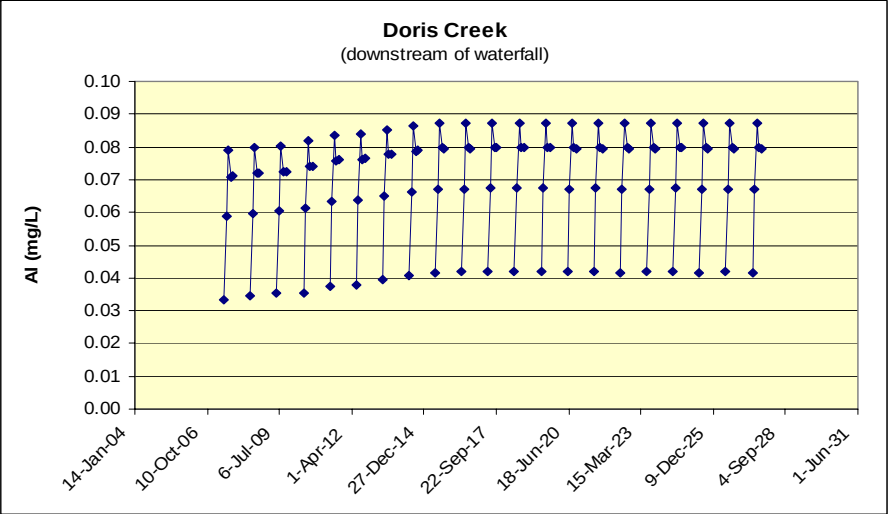
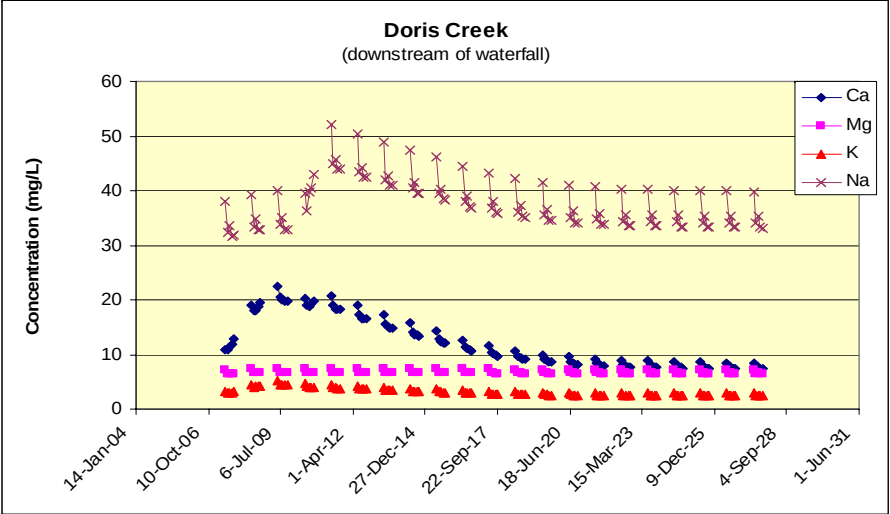
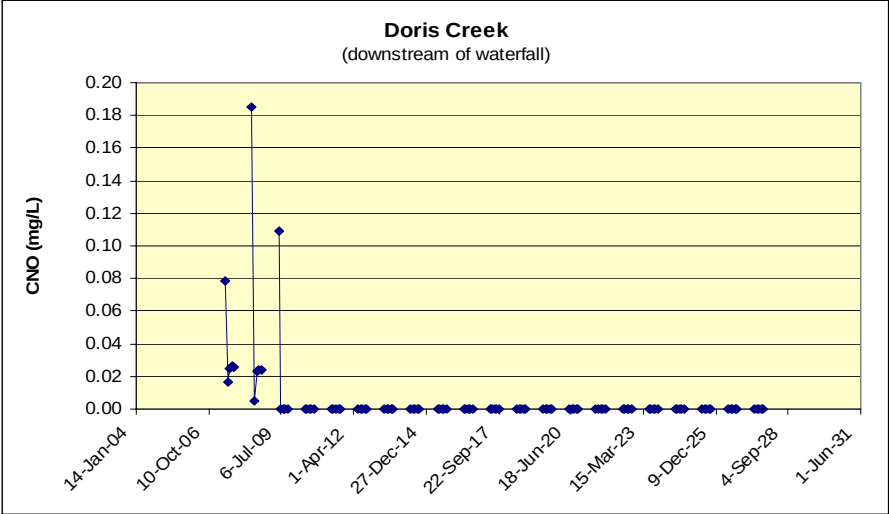
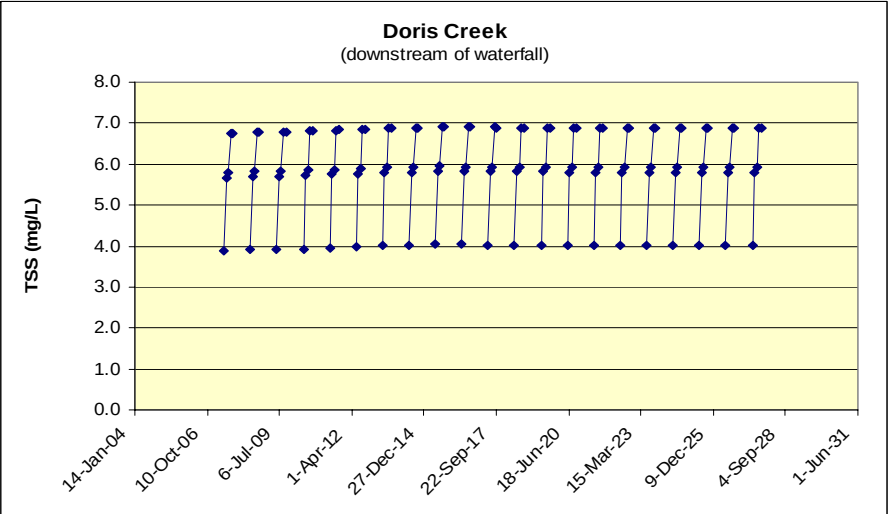
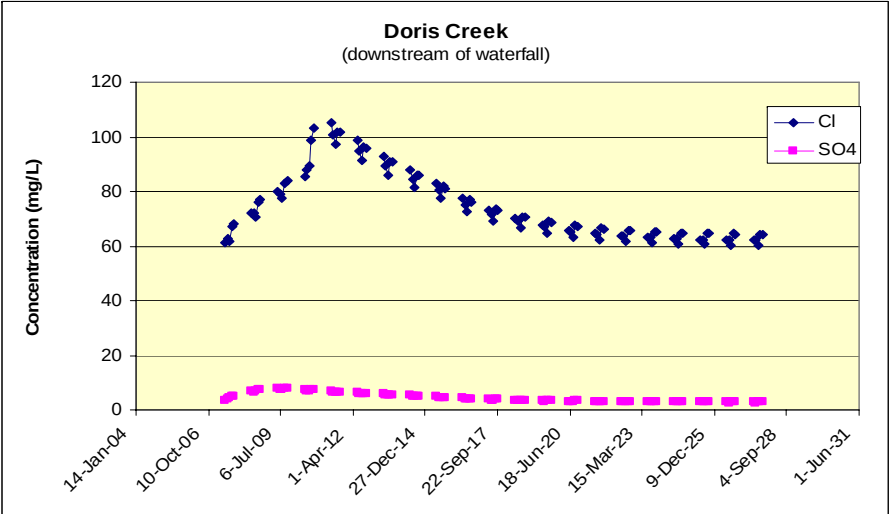
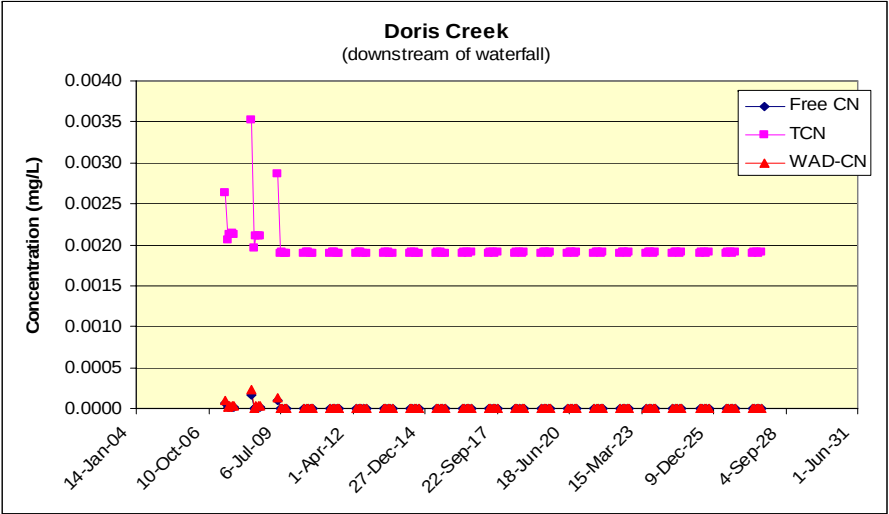
POST CLOSURE CONDITIONS
Year 9



Key:	Flow	m3/year
	Load	kg/year
	Conc.	mg/L

 MIRAMAR HOPE BAY LIMITED	DORIS NORTH PROJECT WATER AND LOAD BALANCE			
	BASE CASE COPPER LOADS No Erosion Control			
	PROJECT: 1CM014.06	Date: Oct-05	Approved: JTC	FIGURE I-1-c.1





Appendix I

Table I-1-c-A.1
Low Flow Scenario 3

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		550000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		14			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1427	203	193	
TSS	mg/L			5.1	6.9	8.1	
Free CN	mg/L		0.005	0.0033	0.00017	0.00009	3%
Total CN	mg/L	1.0		0.032	0.004	0.003	
WAD CN	mg/L			0.0044	0.0002	0.0001	
CNO	mg/L			3.7	0.19	0.10	
SCN	mg/L			0.119	0.006	0.003	
Sulphate	mg/L			109	8.1	7.2	
Chloride	mg/L			968	105	88	
Total Ammonia	mg/L		0.97	1.26	0.077	0.041	8%
Nitrate	mg/L		2.9	7.0	0.40	0.21	14%
Nitrite	mg/L		0.018	0.49	0.028	0.015	152%
Alkalinity	mg/L			62	29	26	
OrthoPhosphate-P	mg/L			0.2166	0.0115	0.0065	
Phosphate-P	mg/L			0.2195	0.0324	0.0296	
Org. Carbon	mg/L			5.4	7.4	7.1	
Hardness CaCO3	mg/L			124	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.22	0.09	0.25	87%
Antimony Sb	mg/L			0.0197	0.0036	0.0022	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0124	0.0036	0.0054	
Beryllium Be	mg/L			0.00073	0.00005	0.00003	
Bismuth Bi	mg/L			0.01903	0.00098	0.00059	
Boron B	mg/L			0.044	0.035	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000069	0.0000167	18%
Calcium Ca	mg/L			296	23	15	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	100%
Cobalt Co	mg/L			0.0124	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.00196	0.0021	98%
Iron Fe	mg/L		0.3	0.24	0.13	0.28	43%
Lead Pb	mg/L	0.2	0.002	0.00049	0.00009	0.00027	4%
Lithium Li	mg/L			0.0059	0.0030	0.0029	
Magnesium Mg	mg/L			10.3	7.4	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000178	0.00000147	0.0000011	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00067	0.00047	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.317	0.037	0.033	
Potassium K	mg/L			49	5.1	3.9	
Selenium Se	mg/L		0.001	0.00121	0.0009	0.00085	91%
Silicon SiO2	mg/L			4.6	0.71	0.62	
Silver Ag	mg/L		0.0001	0.00013	0.0000089	0.0000073	9%
Sodium Na	mg/L			301	52	45	
Strontium Sr	mg/L			0.102	0.045	0.048	
Tellurium Te	mg/L			0.044	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000046	0.000031	0.0020	4%
Thorium Th	mg/L			0.000077	0.0000056	0.0000029	
Tin Sn	mg/L			0.00297	0.00053	0.00008	
Titanium Ti	mg/L			0.0167	0.0065	0.0064	
Uranium U	mg/L			0.000097	0.000042	0.000046	
Vanadium V	mg/L			0.0042	0.0007	0.0006	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0049	0.0050	0.0051	

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE													
Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	179	209	249	283	319	345	371	395	416
TSS	mg/L	1.6	1.6	1.6	1.8	1.9	2.0	2.1	2.2	2.2	2.3	2.3	2.3
Free CN	mg/L	0.00050	0.00096	0.00141	0.00030	0.00045	0.00048	0.00047	0.00050	0.00096	0.00142	0.00185	0.00222
Total CN	mg/L	0.006	0.010	0.015	0.003	0.004	0.005	0.005	0.005	0.009	0.014	0.018	0.021
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0004	0.0006	0.0006	0.0006	0.0007	0.0013	0.0019	0.0025	0.0030
CNO	mg/L	0.55	1.06	1.55	0.33	0.49	0.52	0.51	0.55	1.06	1.56	2.04	2.44
SCN	mg/L	0.008	0.014	0.021	0.025	0.031	0.038	0.045	0.052	0.058	0.064	0.069	0.073
Sulphate	mg/L	7.5	13.4	19.3	24.4	30.3	37.4	43.9	50.3	55.2	59.8	64.2	68.0
Chloride	mg/L	37	57	77	100	123	150	174	197	213	228	243	255
Total Ammonia	mg/L	0.070	0.133	0.194	0.613	0.175	0.252	0.260	0.248	0.306	0.363	0.416	0.462
Nitrate	mg/L	0.35	0.58	0.80	1.48	2.07	2.60	3.13	3.56	3.70	3.84	3.97	4.07
Nitrite	mg/L	0.054	0.102	0.150	0.207	0.208	0.218	0.219	0.225	0.269	0.312	0.353	0.388
Alkalinity	mg/L	16	18	21	23	26	30	33	36	38	40	42	43
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0334	0.0407	0.0507	0.0595	0.0687	0.0761	0.0832	0.0900	0.0957
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0370	0.0442	0.0542	0.0630	0.0722	0.0795	0.0865	0.0931	0.0988
Org. Carbon	mg/L	3.0	2.9	2.8	3.0	3.1	3.3	3.3	3.3	3.2	3.1	3.0	3.0
Hardness CaCO3	mg/L	23	29	35	39	45	53	60	66	71	76	80	83
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0035	0.0048	0.0058	0.0068	0.0076	0.0079	0.0083	0.0086	0.0089
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0017	0.0019	0.0020	0.0021
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0033	0.0039	0.0047	0.0054	0.0061	0.0066	0.0071	0.0076	0.0080
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00022	0.00027	0.00031	0.00034	0.00037	0.00038	0.00039	0.00040	0.00041
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00330	0.00453	0.00552	0.00650	0.00719	0.00752	0.00784	0.00815	0.00840
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.016	0.018	0.019	0.020	0.020	0.021	0.021
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000159	0.0000205	0.0000250	0.0000293	0.0000330	0.0000353	0.0000375	0.0000397	0.0000414
Calcium Ca	mg/L	21	38	54	65	79	98	115	133	147	160	173	184
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0027	0.0033	0.0041	0.0048	0.0056	0.0061	0.0067	0.0072	0.0077
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0027	0.0033	0.0040	0.0046	0.0052	0.0057	0.0062	0.0066	0.0070
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00013	0.00016	0.00019	0.00022	0.00025	0.00026	0.00028	0.00029	0.00030
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0027	0.0030	0.0033	0.0035	0.0036	0.0037	0.0038	0.0039
Magnesium Mg	mg/L	2.5	2.9	3.3	3.9	4.4	5.1	5.6	6.1	6.4	6.7	7.0	7.2
Manganese Mn	mg/L	0.002	0.004	0.006	0.008	0.009	0.011	0.013	0.015	0.017	0.019	0.020	0.021
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000018	0.0000022	0.0000027	0.0000031	0.0000035	0.0000037	0.0000039	0.0000041	0.0000043
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00232	0.00283	0.00353	0.00414	0.00479	0.00530	0.00579	0.00626	0.00666
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0023	0.0029	0.0035	0.0041	0.0046	0.0051	0.0055	0.0059	0.0062
Phosphorus P	mg/L	0.020	0.033	0.047	0.060	0.073	0.090	0.105	0.120	0.132	0.142	0.153	0.161
Potassium K	mg/L	3.8	6.6	9.3	11.0	13.4	16.5	19.3	22.3	24.6	26.8	28.9	30.7
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00027	0.00030	0.00033	0.00035	0.00037	0.00037	0.00038	0.00038	0.00039
Silicon SiO2	mg/L	0.70	0.92	1.14	1.34	1.57	1.86	2.12	2.37	2.54	2.71	2.87	3.01
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000670	0.0000749	0.0000805	0.0000849	0.0000879	0.0000882	0.0000882	0.0000883	0.0000883
Sodium Na	mg/L	11	13	16	18	20	23	26	29	31	33	35	36
Strontium Sr	mg/L	0.017	0.021	0.026	0.030	0.035	0.042	0.047	0.053	0.057	0.061	0.064	0.067
Tellurium Te	mg/L	0.025	0.024	0.024	0.025	0.026	0.027	0.027	0.027	0.027	0.026	0.025	0.025
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000022	0.000025	0.000027	0.000030	0.000031	0.000032	0.000033	0.000034	0.000034
Thorium Th	mg/L				0.000007	0.000011	0.000013	0.000016	0.000016	0.000016	0.000016	0.000015	0.000015
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00055	0.00075	0.00091	0.00106	0.00117	0.00121	0.00126	0.00130	0.00133
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0032	0.0034	0.0036	0.0037	0.0038	0.0037	0.0037	0.0036	0.0035
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000033	0.000038	0.000041	0.000043	0.000044	0.000043	0.000042	0.000041	0.000040
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0018	0.0020	0.0021	0.0022	0.0023	0.0023
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0061	0.0075	0.0092	0.0109	0.0125	0.0137	0.0148	0.0159	0.0168
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0026	0.0028	0.0029	0.0031	0.0031	0.0030	0.0029	0.0028	0.0027

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	439	459	479	462	475	515	545	574	592	608	624	637
TSS	mg/L	2.3	2.3	2.3	2.4	2.4	2.6	2.7	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L	0.00262	0.00297	0.00333	0.00009	0.00042	0.00043	0.00043	0.00045	0.00088	0.00129	0.00169	0.00203
Total CN	mg/L	0.025	0.029	0.032	0.001	0.004	0.004	0.004	0.004	0.008	0.012	0.016	0.020
WAD CN	mg/L	0.0035	0.0040	0.0044	0.0001	0.0006	0.0006	0.0006	0.0006	0.0012	0.0017	0.0022	0.0027
CNO	mg/L	2.88	3.27	3.66	0.10	0.46	0.48	0.47	0.50	0.96	1.42	1.85	2.23
SCN	mg/L	0.078	0.083	0.087	0.083	0.085	0.093	0.099	0.105	0.109	0.112	0.116	0.119
Sulphate	mg/L	72.2	75.9	79.5	77.1	79.9	87.1	92.5	97.9	101.0	104.0	106.9	109.2
Chloride	mg/L	269	281	293	289	301	328	348	367	377	386	395	403
Total Ammonia	mg/L	0.512	0.557	0.601	1.265	0.051	0.237	0.237	0.225	0.279	0.331	0.380	0.423
Nitrate	mg/L	4.19	4.29	4.40	4.88	5.25	5.94	6.34	6.71	6.75	6.78	6.82	6.83
Nitrite	mg/L	0.426	0.460	0.494	0.207	0.201	0.049	0.218	0.217	0.257	0.297	0.334	0.366
Alkalinity	mg/L	45	47	48	47	49	52	55	58	59	60	61	62
OrthoPhosphate-P	mg/L	0.1021	0.1077	0.1132	0.1080	0.1110	0.1210	0.1284	0.1362	0.1411	0.1457	0.1502	0.1540
Phosphate-P	mg/L	0.1051	0.1106	0.1161	0.1111	0.1141	0.1242	0.1315	0.1393	0.1441	0.1487	0.1531	0.1568
Org. Carbon	mg/L	2.9	2.8	2.7	2.9	3.0	3.2	3.2	3.2	3.1	3.0	2.9	2.9
Hardness CaCO3	mg/L	88	91	95	92	95	103	108	114	117	119	122	124
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0092	0.0095	0.0097	0.0104	0.0112	0.0122	0.0131	0.0137	0.0139	0.0140	0.0142	0.0143
Arsenic As	mg/L	0.0022	0.0023	0.0024	0.0023	0.0025	0.0027	0.0028	0.0030	0.0031	0.0031	0.0032	0.0033
Barium Ba	mg/L	0.0084	0.0088	0.0092	0.0089	0.0092	0.0100	0.0106	0.0112	0.0115	0.0118	0.0121	0.0124
Beryllium Be	mg/L	0.00042	0.00043	0.00043	0.00046	0.00049	0.00053	0.00056	0.00058	0.00059	0.00059	0.00060	0.00060
Bismuth Bi	mg/L	0.00870	0.00895	0.00920	0.00986	0.01066	0.01164	0.01248	0.01305	0.01320	0.01333	0.01346	0.01356
Boron B	mg/L	0.022	0.023	0.023	0.024	0.025	0.027	0.029	0.030	0.030	0.030	0.031	0.031
Cadmium Cd	mg/L	0.0000435	0.0000453	0.0000470	0.0000476	0.0000503	0.0000548	0.0000584	0.0000615	0.0000628	0.0000641	0.0000653	0.0000664
Calcium Ca	mg/L	196	207	217	208	214	233	247	262	271	280	288	296
Chromium Cr	mg/L	0.005	0.005	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.008	0.008
Cobalt Co	mg/L	0.0082	0.0086	0.0090	0.0087	0.0090	0.0098	0.0104	0.0110	0.0114	0.0117	0.0121	0.0124
Copper Cu	mg/L	0.0075	0.0078	0.0082	0.0079	0.0081	0.0088	0.0094	0.0099	0.0102	0.0105	0.0108	0.0111
Iron Fe	mg/L	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00031	0.00032	0.00033	0.00034	0.00036	0.00039	0.00042	0.00044	0.00045	0.00046	0.00046	0.00047
Lithium Li	mg/L	0.0040	0.0041	0.0041	0.0042	0.0043	0.0046	0.0049	0.0050	0.0051	0.0051	0.0052	0.0052
Magnesium Mg	mg/L	7.5	7.7	7.9	7.9	8.2	8.8	9.3	9.7	9.9	10.0	10.2	10.3
Manganese Mn	mg/L	0.023	0.024	0.025	0.024	0.025	0.027	0.029	0.030	0.031	0.032	0.033	0.034
Mercury Hg	mg/L	0.0000045	0.0000047	0.0000049	0.0000049	0.0000052	0.0000056	0.0000060	0.0000063	0.0000064	0.0000065	0.0000067	0.0000068
Molybdenum Mo	mg/L	0.00711	0.00749	0.00788	0.00753	0.00774	0.00844	0.00895	0.00950	0.00984	0.01016	0.01047	0.01073
Nickel Ni	mg/L	0.0065	0.0069	0.0072	0.0070	0.0072	0.0079	0.0084	0.0088	0.0091	0.0094	0.0096	0.0098
Phosphorus P	mg/L	0.171	0.179	0.188	0.183	0.189	0.206	0.219	0.232	0.239	0.246	0.252	0.258
Potassium K	mg/L	32.7	34.4	36.2	34.6	35.6	38.7	41.1	43.5	45.0	46.5	47.9	49.1
Selenium Se	mg/L	0.00039	0.00040	0.00040	0.00041	0.00043	0.00046	0.00048	0.00049	0.00049	0.00050	0.00050	0.00050
Silicon SiO2	mg/L	3.16	3.30	3.43	3.35	3.46	3.75	3.97	4.17	4.29	4.39	4.49	4.58
Silver Ag	mg/L	0.0000887	0.0000887	0.0000888	0.0000957	0.0001016	0.0001072	0.0001110	0.0001135	0.0001130	0.0001124	0.0001118	0.0001112
Sodium Na	mg/L	38	39	41	40	41	44	47	49	50	51	53	54
Strontium Sr	mg/L	0.071	0.074	0.077	0.075	0.077	0.083	0.088	0.093	0.095	0.098	0.100	0.102
Tellurium Te	mg/L	0.024	0.023	0.023	0.024	0.025	0.026	0.027	0.027	0.026	0.025	0.025	0.024
Thallium Tl	mg/L	0.000035	0.000035	0.000036	0.000037	0.000038	0.000041	0.000043	0.000045	0.000045	0.000045	0.000045	0.000046
Thorium Th	mg/L	0.000014	0.000014	0.000014	0.000018	0.000022	0.000024	0.000026	0.000026	0.000026	0.000025	0.000024	0.000024
Tin Sn	mg/L	0.00138	0.00141	0.00144	0.00155	0.00169	0.00184	0.00197	0.00206	0.00208	0.00209	0.00211	0.00212
Titanium Ti	mg/L	0.0035	0.0034	0.0034	0.0036	0.0037	0.0039	0.0040	0.0041	0.0040	0.0040	0.0039	0.0038
Uranium U	mg/L	0.000039	0.000038	0.000037	0.000044	0.000048	0.000050	0.000052	0.000053	0.000052	0.000050	0.000049	0.000048
Vanadium V	mg/L	0.0024	0.0025	0.0026	0.0027	0.0028	0.0031	0.0033	0.0034	0.0035	0.0035	0.0036	0.0036
Zinc Zn	mg/L	0.0179	0.0188	0.0197	0.0190	0.0196	0.0214	0.0228	0.0242	0.0250	0.0257	0.0264	0.0270
Zirconium Zr	mg/L	0.0027	0.0026	0.0025	0.0028	0.0029	0.0030	0.0031	0.0032	0.0031	0.0030	0.0029	0.0028

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	644	658	671	634	630	662	679	697	712	725	739	752
TSS	mg/L	2.7	2.7	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L	0.00199	0.00197	0.00196									
Total CN	mg/L	0.019	0.019	0.019		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0027	0.0026	0.0026									
CNO	mg/L	2.19	2.17	2.15									
SCN	mg/L	0.116	0.116	0.115	0.104	0.099	0.101	0.101	0.100	0.099	0.099	0.098	0.097
Sulphate	mg/L	107.7	107.4	107.0	98.8	96.0	98.6	99.1	99.4	99.1	98.8	98.5	98.3
Chloride	mg/L	414	428	443	430	437	466	486	505	520	535	550	563
Total Ammonia	mg/L	0.424	0.430	0.436	0.741		0.022	0.026	0.016	0.025	0.034	0.044	0.052
Nitrate	mg/L	6.63	6.51	6.39	6.42	6.40	6.81	6.93	6.99	6.87	6.73	6.61	6.49
Nitrite	mg/L	0.384	0.404	0.425	0.154	0.181	0.023	0.029	0.029	0.054	0.078	0.103	0.125
Alkalinity	mg/L	61	61	60	56	55	56	56	56	56	55	55	55
OrthoPhosphate-P	mg/L	0.1591	0.1656	0.1722	0.1634	0.1645	0.1755	0.1828	0.1905	0.1973	0.2039	0.2105	0.2166
Phosphate-P	mg/L	0.1618	0.1683	0.1749	0.1664	0.1675	0.1786	0.1858	0.1936	0.2003	0.2069	0.2135	0.2195
Org. Carbon	mg/L	2.8	2.8	2.8	3.0	3.1	3.2	3.3	3.3	3.3	3.3	3.2	3.2
Hardness CaCO3	mg/L	122	121	120	111	108	111	111	110	109	108	108	107
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.05	0.05
Antimony Sb	mg/L	0.0145	0.0148	0.0152	0.0154	0.0159	0.0170	0.0178	0.0184	0.0188	0.0191	0.0194	0.0197
Arsenic As	mg/L	0.0032	0.0032	0.0032	0.0030	0.0029	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
Barium Ba	mg/L	0.0122	0.0121	0.0120	0.0111	0.0108	0.0110	0.0110	0.0110	0.0110	0.0109	0.0108	0.0108
Beryllium Be	mg/L	0.00060	0.00060	0.00061	0.00062	0.00063	0.00067	0.00069	0.00070	0.00071	0.00071	0.00072	0.00073
Bismuth Bi	mg/L	0.01377	0.01410	0.01444	0.01471	0.01531	0.01637	0.01719	0.01776	0.01810	0.01841	0.01873	0.01903
Boron B	mg/L	0.031	0.031	0.031	0.030	0.030	0.031	0.032	0.032	0.032	0.032	0.032	0.032
Cadmium Cd	mg/L	0.0000652	0.0000647	0.0000643	0.0000602	0.0000589	0.0000605	0.0000609	0.0000609	0.0000605	0.0000600	0.0000596	0.0000593
Calcium Ca	mg/L	290	288	286	260	249	254	253	252	250	248	246	245
Chromium Cr	mg/L	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Cobalt Co	mg/L	0.0122	0.0121	0.0120	0.0110	0.0106	0.0108	0.0108	0.0108	0.0107	0.0107	0.0106	0.0105
Copper Cu	mg/L	0.0109	0.0108	0.0107	0.0098	0.0095	0.0097	0.0097	0.0096	0.0096	0.0095	0.0094	0.0094
Iron Fe	mg/L	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00046	0.00046	0.00047	0.00045	0.00045	0.00047	0.00048	0.00048	0.00048	0.00048	0.00048	0.00049
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0050	0.0050	0.0051	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Magnesium Mg	mg/L	10.2	10.1	10.1	9.6	9.5	9.8	10.0	10.0	10.0	9.9	9.9	9.9
Manganese Mn	mg/L	0.033	0.033	0.033	0.030	0.029	0.030	0.030	0.030	0.030	0.029	0.029	0.029
Mercury Hg	mg/L	0.0000067	0.0000066	0.0000066	0.0000062	0.0000060	0.0000062	0.0000063	0.0000063	0.0000062	0.0000062	0.0000061	0.0000061
Molybdenum Mo	mg/L	0.01054	0.01046	0.01039	0.00942	0.00904	0.00920	0.00916	0.00913	0.00907	0.00900	0.00893	0.00888
Nickel Ni	mg/L	0.0097	0.0097	0.0096	0.0089	0.0087	0.0089	0.0090	0.0090	0.0090	0.0090	0.0089	0.0089
Phosphorus P	mg/L	0.262	0.268	0.274	0.260	0.260	0.274	0.282	0.291	0.298	0.304	0.311	0.317
Potassium K	mg/L	48.2	47.8	47.5	43.1	41.4	42.1	41.9	41.8	41.5	41.1	40.8	40.6
Selenium Se	mg/L	0.00049	0.00049	0.00048	0.00047	0.00047	0.00049	0.00049	0.00049	0.00049	0.00049	0.00048	0.00048
Silicon SiO2	mg/L	4.50	4.47	4.44	4.11	3.99	4.08	4.09	4.08	4.06	4.03	4.00	3.98
Silver Ag	mg/L	0.0001101	0.0001101	0.0001102	0.0001131	0.0001160	0.0001203	0.0001224	0.0001235	0.0001235	0.0001234	0.0001233	0.0001233
Sodium Na	mg/L	53	52	52	48	47	48	48	48	47	47	47	46
Strontium Sr	mg/L	0.100	0.099	0.099	0.092	0.089	0.091	0.091	0.091	0.091	0.090	0.089	0.089
Tellurium Te	mg/L	0.023	0.023	0.023	0.025	0.026	0.027	0.027	0.027	0.027	0.027	0.027	0.027
Thallium Tl	mg/L	0.000045	0.000044	0.000044	0.000043	0.000043	0.000044	0.000045	0.000045	0.000044	0.000044	0.000044	0.000043
Thorium Th	mg/L	0.000023	0.000023	0.000023	0.000024	0.000026	0.000027	0.000028	0.000029	0.000028	0.000028	0.000028	0.000028
Tin Sn	mg/L	0.00215	0.00220	0.00225	0.00230	0.00240	0.00256	0.00269	0.00278	0.00283	0.00288	0.00292	0.00297
Titanium Ti	mg/L	0.0038	0.0038	0.0038	0.0040	0.0041	0.0043	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044
Uranium U	mg/L	0.000048	0.000047	0.000047	0.000050	0.000053	0.000055	0.000056	0.000056	0.000056	0.000056	0.000056	0.000055
Vanadium V	mg/L	0.0036	0.0037	0.0037	0.0036	0.0037	0.0039	0.0040	0.0041	0.0041	0.0042	0.0042	0.0042
Zinc Zn	mg/L	0.0265	0.0264	0.0263	0.0242	0.0234	0.0240	0.0242	0.0242	0.0241	0.0240	0.0239	0.0238
Zirconium Zr	mg/L	0.0028	0.0028	0.0027	0.0029	0.0031	0.0032	0.0033	0.0033	0.0033	0.0032	0.0032	0.0032

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	747	744	741	823	939	1112	1269	1427	1423	1415	1408	1404
TSS	mg/L	2.6	2.6	2.6	2.9	3.0	3.1	3.2	3.2	3.2	3.2	3.2	3.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.097	0.096	0.096	0.087	0.083	0.085	0.085	0.085	0.084	0.084	0.084	0.083
Sulphate	mg/L	97.7	97.3	96.8	87.9	84.4	86.2	86.1	86.1	85.8	85.4	85.0	84.7
Chloride	mg/L	560	558	555	599	668	776	871	968	965	960	955	952
Total Ammonia	mg/L	0.052	0.052	0.051	0.018	0.013	0.006	0.008	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	6.37	6.26	6.15	5.86	5.73	5.91	5.96	5.98	5.87	5.75	5.64	5.54
Nitrite	mg/L	0.124	0.123	0.123		0.004	0.002	0.002	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	54	54	54	51	50	51	51	52	51	51	51	51
OrthoPhosphate-P	mg/L	0.2152	0.2143	0.2134	0.1933	0.1855	0.1895	0.1891	0.1890	0.1884	0.1874	0.1865	0.1859
Phosphate-P	mg/L	0.2181	0.2173	0.2163	0.1981	0.1910	0.1953	0.1953	0.1953	0.1947	0.1936	0.1927	0.1921
Org. Carbon	mg/L	3.2	3.2	3.2	3.3	3.5	3.6	3.7	3.7	3.7	3.7	3.7	3.7
Hardness CaCO3	mg/L	106	106	105	98	96	98	99	99	98	98	97	97
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Antimony Sb	mg/L	0.0195	0.0195	0.0194	0.0176	0.0169	0.0172	0.0172	0.0172	0.0172	0.0171	0.0170	0.0169
Arsenic As	mg/L	0.0030	0.0029	0.0029	0.0027	0.0027	0.0028	0.0028	0.0028	0.0028	0.0028	0.0027	0.0027
Barium Ba	mg/L	0.0107	0.0107	0.0106	0.0098	0.0094	0.0097	0.0097	0.0097	0.0097	0.0096	0.0096	0.0095
Beryllium Be	mg/L	0.00072	0.00072	0.00071	0.00067	0.00066	0.00067	0.00067	0.00067	0.00067	0.00067	0.00066	0.00066
Bismuth Bi	mg/L	0.01891	0.01883	0.01875	0.01698	0.01630	0.01664	0.01661	0.01661	0.01655	0.01646	0.01639	0.01634
Boron B	mg/L	0.032	0.032	0.031	0.032	0.033	0.035	0.035	0.036	0.036	0.035	0.035	0.035
Cadmium Cd	mg/L	0.0000589	0.0000586	0.0000584	0.0000557	0.0000551	0.0000570	0.0000577	0.0000580	0.0000578	0.0000575	0.0000572	0.0000571
Calcium Ca	mg/L	243	242	241	227	227	241	250	259	258	257	256	255
Chromium Cr	mg/L	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0105	0.0104	0.0104	0.0094	0.0091	0.0093	0.0092	0.0092	0.0092	0.0092	0.0091	0.0091
Copper Cu	mg/L	0.0093	0.0093	0.0092	0.0085	0.0082	0.0084	0.0085	0.0085	0.0084	0.0084	0.0083	0.0083
Iron Fe	mg/L	0.06	0.05	0.05	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Lead Pb	mg/L	0.00048	0.00048	0.00048	0.00045	0.00044	0.00045	0.00045	0.00046	0.00045	0.00045	0.00045	0.00045
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0051	0.0051	0.0053	0.0054	0.0054	0.0054	0.0053	0.0053	0.0053
Magnesium Mg	mg/L	9.8	9.8	9.7	9.4	9.4	9.7	9.8	9.8	9.8	9.7	9.7	9.7
Manganese Mn	mg/L	0.029	0.029	0.029	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Mercury Hg	mg/L	0.0000061	0.0000061	0.0000060	0.0000073	0.0000080	0.0000085	0.0000088	0.0000090	0.0000089	0.0000089	0.0000088	0.0000088
Molybdenum Mo	mg/L	0.00882	0.00878	0.00875	0.00795	0.00765	0.00781	0.00780	0.00780	0.00778	0.00773	0.00770	0.00767
Nickel Ni	mg/L	0.0089	0.0088	0.0088	0.0080	0.0077	0.0079	0.0079	0.0079	0.0079	0.0078	0.0078	0.0078
Phosphorus P	mg/L	0.314	0.313	0.312	0.284	0.274	0.280	0.280	0.280	0.279	0.277	0.276	0.275
Potassium K	mg/L	40.3	40.1	40.0	36.5	35.2	36.0	36.0	36.0	35.9	35.7	35.5	35.4
Selenium Se	mg/L	0.00048	0.00047	0.00047	0.00055	0.00059	0.00062	0.00065	0.00065	0.00065	0.00065	0.00064	0.00064
Silicon SiO2	mg/L	3.95	3.93	3.92	3.69	3.61	3.71	3.73	3.74	3.73	3.71	3.69	3.68
Silver Ag	mg/L	0.0001226	0.0001221	0.0001215	0.0001214	0.0001223	0.0001257	0.0001266	0.0001269	0.0001265	0.0001258	0.0001253	0.0001249
Sodium Na	mg/L	46	46	46	94	141	195	248	301	300	298	297	296
Strontium Sr	mg/L	0.089	0.088	0.088	0.083	0.081	0.083	0.084	0.084	0.084	0.083	0.083	0.083
Tellurium Te	mg/L	0.026	0.026	0.026	0.028	0.029	0.030	0.030	0.031	0.031	0.030	0.030	0.030
Thallium Tl	mg/L	0.000043	0.000043	0.000043	0.000042	0.000042	0.000043	0.000044	0.000044	0.000044	0.000044	0.000044	0.000044
Thorium Th	mg/L	0.000028	0.000028	0.000027	0.000035	0.000039	0.000041	0.000044	0.000045	0.000045	0.000044	0.000044	0.000044
Tin Sn	mg/L	0.00295	0.00294	0.00292	0.00266	0.00257	0.00264	0.00264	0.00264	0.00263	0.00262	0.00260	0.00260
Titanium Ti	mg/L	0.0044	0.0043	0.0043	0.0056	0.0062	0.0066	0.0069	0.0070	0.0070	0.0069	0.0069	0.0069
Uranium U	mg/L	0.000055	0.000055	0.000054	0.000061	0.000065	0.000068	0.000070	0.000071	0.000071	0.000070	0.000070	0.000070
Vanadium V	mg/L	0.0042	0.0042	0.0042	0.0040	0.0040	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041
Zinc Zn	mg/L	0.0236	0.0235	0.0234	0.0214	0.0207	0.0212	0.0213	0.0213	0.0213	0.0211	0.0211	0.0210
Zirconium Zr	mg/L	0.0032	0.0032	0.0031	0.0033	0.0034	0.0036	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1399	1394	1387	1256	1206	1233	1232	1232	1228	1221	1215	1211
TSS	mg/L	3.2	3.2	3.1	3.3	3.4	3.6	3.7	3.7	3.7	3.7	3.7	3.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.083	0.083	0.082	0.074	0.071	0.072	0.072	0.072	0.072	0.071	0.071	0.071
Sulphate	mg/L	84.4	84.1	83.7	75.4	72.3	73.9	73.7	73.7	73.5	73.1	72.7	72.5
Chloride	mg/L	949	945	941	855	823	842	842	842	839	834	830	828
Total Ammonia	mg/L	0.003	0.003	0.003	0.024	0.014	0.006	0.009	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	5.43	5.32	5.21	4.87	4.78	4.94	5.00	5.02	4.91	4.79	4.68	4.57
Nitrite	mg/L	0.001	0.001	0.001	0.005	0.005	0.003	0.002	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	51	50	50	47	46	48	48	48	48	48	48	47
OrthoPhosphate-P	mg/L	0.1853	0.1846	0.1837	0.1653	0.1581	0.1615	0.1611	0.1610	0.1605	0.1596	0.1588	0.1583
Phosphate-P	mg/L	0.1915	0.1907	0.1898	0.1731	0.1664	0.1704	0.1703	0.1703	0.1698	0.1688	0.1680	0.1675
Org. Carbon	mg/L	3.6	3.6	3.6	3.8	3.9	4.1	4.1	4.2	4.1	4.1	4.1	4.1
Hardness CaCO3	mg/L	97	96	96	89	87	89	90	90	90	89	89	88
Total Metals													
Aluminum Al	mg/L	0.09	0.09	0.09	0.11	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13
Antimony Sb	mg/L	0.0169	0.0168	0.0167	0.0151	0.0144	0.0147	0.0147	0.0147	0.0147	0.0146	0.0145	0.0145
Arsenic As	mg/L	0.0027	0.0027	0.0027	0.0025	0.0025	0.0025	0.0026	0.0026	0.0026	0.0025	0.0025	0.0025
Barium Ba	mg/L	0.0095	0.0095	0.0094	0.0086	0.0083	0.0085	0.0086	0.0086	0.0085	0.0085	0.0085	0.0084
Beryllium Be	mg/L	0.00066	0.00066	0.00065	0.00061	0.00060	0.00061	0.00062	0.00062	0.00061	0.00061	0.00061	0.00061
Bismuth Bi	mg/L	0.01628	0.01622	0.01614	0.01452	0.01388	0.01419	0.01415	0.01415	0.01410	0.01402	0.01395	0.01391
Boron B	mg/L	0.035	0.035	0.035	0.035	0.036	0.038	0.039	0.039	0.039	0.038	0.038	0.038
Cadmium Cd	mg/L	0.0000569	0.0000566	0.0000564	0.0000537	0.0000532	0.0000550	0.0000558	0.0000561	0.0000559	0.0000556	0.0000554	0.0000552
Calcium Ca	mg/L	254	253	252	227	217	222	222	222	221	220	219	218
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0091	0.0090	0.0090	0.0081	0.0078	0.0079	0.0079	0.0079	0.0079	0.0078	0.0078	0.0078
Copper Cu	mg/L	0.0083	0.0083	0.0082	0.0075	0.0073	0.0075	0.0075	0.0075	0.0075	0.0074	0.0074	0.0074
Iron Fe	mg/L	0.09	0.09	0.09	0.11	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00045	0.00044	0.00044	0.00041	0.00041	0.00042	0.00042	0.00042	0.00042	0.00042	0.00042	0.00041
Lithium Li	mg/L	0.0053	0.0053	0.0052	0.0052	0.0052	0.0054	0.0055	0.0055	0.0055	0.0055	0.0055	0.0054
Magnesium Mg	mg/L	9.6	9.6	9.5	9.2	9.2	9.5	9.6	9.6	9.6	9.6	9.5	9.5
Manganese Mn	mg/L	0.026	0.026	0.026	0.024	0.023	0.024	0.024	0.024	0.024	0.023	0.023	0.023
Mercury Hg	mg/L	0.0000088	0.0000087	0.0000087	0.0000099	0.0000104	0.0000110	0.0000114	0.0000115	0.0000115	0.0000114	0.0000114	0.0000113
Molybdenum Mo	mg/L	0.00765	0.00762	0.00758	0.00685	0.00657	0.00671	0.00670	0.00670	0.00668	0.00664	0.00661	0.00659
Nickel Ni	mg/L	0.0078	0.0077	0.0077	0.0070	0.0067	0.0069	0.0069	0.0069	0.0068	0.0068	0.0068	0.0068
Phosphorus P	mg/L	0.274	0.273	0.272	0.246	0.236	0.242	0.242	0.242	0.241	0.239	0.238	0.238
Potassium K	mg/L	35.3	35.2	35.0	31.8	30.6	31.3	31.3	31.3	31.2	31.0	30.9	30.8
Selenium Se	mg/L	0.00064	0.00064	0.00063	0.00071	0.00074	0.00078	0.00080	0.00081	0.00081	0.00080	0.00080	0.00080
Silicon SiO2	mg/L	3.67	3.65	3.63	3.42	3.34	3.44	3.47	3.48	3.46	3.44	3.43	3.42
Silver Ag	mg/L	0.0001245	0.0001239	0.0001234	0.0001231	0.0001240	0.0001275	0.0001284	0.0001288	0.0001284	0.0001276	0.0001270	0.0001266
Sodium Na	mg/L	295	294	292	268	259	266	266	266	266	264	263	262
Strontium Sr	mg/L	0.082	0.082	0.082	0.077	0.075	0.077	0.078	0.078	0.078	0.078	0.077	0.077
Tellurium Te	mg/L	0.030	0.030	0.030	0.031	0.032	0.033	0.034	0.034	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000043	0.000043	0.000043	0.000042	0.000042	0.000044	0.000045	0.000045	0.000045	0.000044	0.000044	0.000044
Thorium Th	mg/L	0.000044	0.000044	0.000043	0.000050	0.000053	0.000056	0.000059	0.000060	0.000060	0.000059	0.000059	0.000059
Tin Sn	mg/L	0.00259	0.00258	0.00257	0.00233	0.00224	0.00230	0.00230	0.00230	0.00229	0.00228	0.00227	0.00226
Titanium Ti	mg/L	0.0068	0.0068	0.0068	0.0079	0.0084	0.0089	0.0092	0.0093	0.0093	0.0093	0.0092	0.0092
Uranium U	mg/L	0.000069	0.000069	0.000069	0.000074	0.000078	0.000081	0.000084	0.000084	0.000084	0.000084	0.000083	0.000083
Vanadium V	mg/L	0.0040	0.0040	0.0040	0.0038	0.0038	0.0039	0.0039	0.0040	0.0039	0.0039	0.0039	0.0039
Zinc Zn	mg/L	0.0209	0.0208	0.0207	0.0189	0.0182	0.0186	0.0187	0.0188	0.0187	0.0186	0.0185	0.0185
Zirconium Zr	mg/L	0.0036	0.0036	0.0036	0.0038	0.0039	0.0040	0.0041	0.0042	0.0042	0.0041	0.0041	0.0041

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	1207	1202	1196	1076	1030	1054	1052	1053	1049	1043	1038	1034
TSS	mg/L	3.6	3.6	3.6	3.8	3.9	4.0	4.1	4.2	4.2	4.1	4.1	4.1
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.071	0.070	0.070	0.062	0.059	0.061	0.060	0.060	0.060	0.060	0.059	0.059
Sulphate	mg/L	72.2	71.9	71.6	64.0	61.1	62.5	62.4	62.4	62.2	61.8	61.5	61.3
Chloride	mg/L	825	821	817	739	709	726	726	726	724	719	716	713
Total Ammonia	mg/L	0.003	0.003	0.003	0.026	0.015	0.007	0.010	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	4.47	4.36	4.24	3.99	3.93	4.07	4.14	4.16	4.05	3.93	3.82	3.71
Nitrite	mg/L	0.001	0.001	0.001	0.005	0.005	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	47	47	47	44	43	45	45	45	45	45	44	44
OrthoPhosphate-P	mg/L	0.1578	0.1571	0.1563	0.1395	0.1329	0.1359	0.1354	0.1354	0.1349	0.1341	0.1334	0.1330
Phosphate-P	mg/L	0.1669	0.1662	0.1654	0.1501	0.1439	0.1475	0.1474	0.1474	0.1470	0.1461	0.1453	0.1449
Org. Carbon	mg/L	4.1	4.1	4.0	4.2	4.3	4.5	4.5	4.6	4.5	4.5	4.5	4.5
Hardness CaCO3	mg/L	88	88	87	81	79	81	82	82	81	81	81	80
Total Metals													
Aluminum Al	mg/L	0.13	0.13	0.13	0.14	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Antimony Sb	mg/L	0.0144	0.0143	0.0143	0.0128	0.0122	0.0124	0.0124	0.0124	0.0124	0.0123	0.0122	0.0122
Arsenic As	mg/L	0.0025	0.0025	0.0025	0.0023	0.0023	0.0023	0.0024	0.0024	0.0024	0.0023	0.0023	0.0023
Barium Ba	mg/L	0.0084	0.0084	0.0083	0.0076	0.0073	0.0075	0.0075	0.0075	0.0075	0.0075	0.0074	0.0074
Beryllium Be	mg/L	0.00060	0.00060	0.00060	0.00056	0.00055	0.00056	0.00056	0.00057	0.00056	0.00056	0.00056	0.00056
Bismuth Bi	mg/L	0.01386	0.01380	0.01373	0.01225	0.01167	0.01193	0.01189	0.01189	0.01185	0.01178	0.01172	0.01168
Boron B	mg/L	0.038	0.038	0.038	0.038	0.039	0.040	0.041	0.042	0.041	0.041	0.041	0.041
Cadmium Cd	mg/L	0.0000550	0.0000548	0.0000545	0.0000519	0.0000513	0.0000532	0.0000541	0.0000544	0.0000542	0.0000539	0.0000536	0.0000534
Calcium Ca	mg/L	217	216	215	193	184	188	188	188	187	186	185	184
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0078	0.0077	0.0077	0.0069	0.0066	0.0067	0.0067	0.0067	0.0067	0.0066	0.0066	0.0066
Copper Cu	mg/L	0.0073	0.0073	0.0073	0.0067	0.0064	0.0066	0.0066	0.0066	0.0066	0.0065	0.0065	0.0065
Iron Fe	mg/L	0.13	0.13	0.13	0.14	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Lead Pb	mg/L	0.00041	0.00041	0.00041	0.00038	0.00037	0.00039	0.00039	0.00039	0.00039	0.00039	0.00039	0.00038
Lithium Li	mg/L	0.0054	0.0054	0.0054	0.0053	0.0053	0.0055	0.0056	0.0057	0.0057	0.0056	0.0056	0.0056
Magnesium Mg	mg/L	9.4	9.4	9.4	9.1	9.0	9.3	9.4	9.5	9.5	9.4	9.4	9.3
Manganese Mn	mg/L	0.023	0.023	0.023	0.021	0.020	0.021	0.021	0.021	0.021	0.021	0.021	0.021
Mercury Hg	mg/L	0.0000113	0.0000112	0.0000112	0.0000122	0.0000127	0.0000133	0.0000137	0.0000139	0.0000138	0.0000137	0.0000137	0.0000136
Molybdenum Mo	mg/L	0.00657	0.00654	0.00651	0.00584	0.00558	0.00571	0.00570	0.00570	0.00568	0.00564	0.00561	0.00560
Nickel Ni	mg/L	0.0067	0.0067	0.0067	0.0060	0.0058	0.0059	0.0059	0.0059	0.0059	0.0059	0.0058	0.0058
Phosphorus P	mg/L	0.237	0.236	0.235	0.211	0.202	0.207	0.207	0.207	0.206	0.205	0.204	0.203
Potassium K	mg/L	30.7	30.6	30.4	27.5	26.4	27.0	27.0	27.0	27.0	26.8	26.7	26.6
Selenium Se	mg/L	0.00079	0.00079	0.00079	0.00085	0.00088	0.00092	0.00095	0.00095	0.00095	0.00094	0.00094	0.00094
Silicon SiO2	mg/L	3.40	3.39	3.37	3.17	3.10	3.20	3.22	3.23	3.22	3.20	3.19	3.18
Silver Ag	mg/L	0.0001262	0.0001256	0.0001250	0.0001246	0.0001254	0.0001291	0.0001300	0.0001304	0.0001300	0.0001292	0.0001286	0.0001281
Sodium Na	mg/L	261	260	259	237	228	234	235	235	234	233	232	231
Strontium Sr	mg/L	0.077	0.076	0.076	0.071	0.070	0.072	0.073	0.073	0.073	0.072	0.072	0.072
Tellurium Te	mg/L	0.034	0.033	0.033	0.034	0.035	0.036	0.037	0.037	0.037	0.037	0.037	0.037
Thallium Tl	mg/L	0.000044	0.000044	0.000044	0.000043	0.000043	0.000044	0.000045	0.000045	0.000045	0.000045	0.000045	0.000044
Thorium Th	mg/L	0.000059	0.000059	0.000058	0.000063	0.000066	0.000070	0.000073	0.000074	0.000074	0.000073	0.000073	0.000073
Tin Sn	mg/L	0.00225	0.00225	0.00223	0.00201	0.00194	0.00199	0.00199	0.00199	0.00198	0.00197	0.00196	0.00196
Titanium Ti	mg/L	0.0092	0.0091	0.0091	0.0100	0.0105	0.0110	0.0114	0.0115	0.0115	0.0114	0.0113	0.0113
Uranium U	mg/L	0.000083	0.000082	0.000082	0.000087	0.000090	0.000094	0.000096	0.000097	0.000096	0.000096	0.000095	0.000095
Vanadium V	mg/L	0.0039	0.0039	0.0038	0.0037	0.0036	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0037
Zinc Zn	mg/L	0.0184	0.0183	0.0182	0.0165	0.0158	0.0163	0.0164	0.0164	0.0164	0.0163	0.0162	0.0162
Zirconium Zr	mg/L	0.0041	0.0041	0.0041	0.0042	0.0043	0.0044	0.0046	0.0046	0.0046	0.0046	0.0045	0.0045

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	1030	1026	1021	912	870	891	889	890	887	881	877	874
TSS	mg/L	4.1	4.1	4.0	4.2	4.3	4.5	4.6	4.6	4.6	4.5	4.5	4.5
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.059	0.059	0.059	0.052	0.049	0.050	0.050	0.050	0.050	0.049	0.049	0.049
Sulphate	mg/L	61.1	60.8	60.5	53.6	50.9	52.1	51.9	51.9	51.7	51.4	51.1	50.9
Chloride	mg/L	711	708	704	633	605	621	620	621	619	615	612	610
Total Ammonia	mg/L	0.003	0.003	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	3.60	3.49	3.38	2.98	2.83	2.89	2.88	2.88	2.77	2.65	2.53	2.42
Nitrite	mg/L	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	44	44	44	41	40	42	42	42	42	42	42	41
OrthoPhosphate-P	mg/L	0.1325	0.1319	0.1313	0.1161	0.1101	0.1126	0.1121	0.1121	0.1117	0.1110	0.1104	0.1100
Phosphate-P	mg/L	0.1443	0.1437	0.1430	0.1292	0.1235	0.1267	0.1266	0.1267	0.1263	0.1254	0.1248	0.1244
Org. Carbon	mg/L	4.5	4.4	4.4	4.5	4.6	4.8	4.9	4.9	4.9	4.9	4.8	4.8
Hardness CaCO3	mg/L	80	80	79	73	72	74	74	74	74	74	73	73
Total Metals													
Aluminum Al	mg/L	0.16	0.16	0.16	0.17	0.17	0.18	0.19	0.19	0.19	0.19	0.18	0.18
Antimony Sb	mg/L	0.0122	0.0121	0.0120	0.0106	0.0101	0.0103	0.0103	0.0103	0.0103	0.0102	0.0102	0.0101
Arsenic As	mg/L	0.0023	0.0023	0.0023	0.0021	0.0020	0.0021	0.0021	0.0021	0.0021	0.0021	0.0020	0.0020
Barium Ba	mg/L	0.0074	0.0073	0.0073	0.0066	0.0064	0.0066	0.0066	0.0066	0.0066	0.0065	0.0065	0.0065
Beryllium Be	mg/L	0.00055	0.00055	0.00055	0.00050	0.00049	0.00050	0.00050	0.00050	0.00049	0.00049	0.00049	0.00049
Bismuth Bi	mg/L	0.01164	0.01158	0.01153	0.01018	0.00965	0.00986	0.00982	0.00982	0.00978	0.00972	0.00967	0.00964
Boron B	mg/L	0.041	0.041	0.040	0.040	0.040	0.042	0.043	0.043	0.043	0.043	0.042	0.042
Cadmium Cd	mg/L	0.0000532	0.0000530	0.0000527	0.0000478	0.0000459	0.0000472	0.0000472	0.0000472	0.0000471	0.0000468	0.0000466	0.0000464
Calcium Ca	mg/L	184	183	182	161	153	157	156	156	156	155	154	154
Chromium Cr	mg/L	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0066	0.0065	0.0065	0.0058	0.0055	0.0056	0.0056	0.0056	0.0056	0.0055	0.0055	0.0055
Copper Cu	mg/L	0.0065	0.0064	0.0064	0.0058	0.0056	0.0058	0.0058	0.0058	0.0058	0.0057	0.0057	0.0057
Iron Fe	mg/L	0.16	0.16	0.16	0.17	0.17	0.18	0.19	0.19	0.19	0.19	0.19	0.19
Lead Pb	mg/L	0.00038	0.00038	0.00038	0.00034	0.00033	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00033
Lithium Li	mg/L	0.0055	0.0055	0.0055	0.0054	0.0054	0.0056	0.0057	0.0058	0.0058	0.0057	0.0057	0.0057
Magnesium Mg	mg/L	9.3	9.2	9.2	8.9	8.8	9.2	9.3	9.3	9.3	9.2	9.2	9.1
Manganese Mn	mg/L	0.021	0.021	0.020	0.019	0.018	0.019	0.019	0.019	0.019	0.019	0.019	0.018
Mercury Hg	mg/L	0.0000136	0.0000135	0.0000134	0.0000141	0.0000144	0.0000150	0.0000154	0.0000155	0.0000155	0.0000154	0.0000153	0.0000153
Molybdenum Mo	mg/L	0.00558	0.00555	0.00552	0.00492	0.00468	0.00479	0.00478	0.00478	0.00477	0.00474	0.00471	0.00469
Nickel Ni	mg/L	0.0058	0.0058	0.0057	0.0051	0.0049	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0049
Phosphorus P	mg/L	0.203	0.202	0.201	0.178	0.169	0.173	0.172	0.172	0.171	0.170	0.169	0.169
Potassium K	mg/L	26.5	26.4	26.2	23.6	22.6	23.1	23.1	23.1	23.1	22.9	22.8	22.7
Selenium Se	mg/L	0.00093	0.00093	0.00092	0.00096	0.00099	0.00103	0.00105	0.00106	0.00106	0.00105	0.00105	0.00104
Silicon SiO2	mg/L	3.16	3.15	3.13	2.92	2.84	2.93	2.95	2.96	2.95	2.93	2.92	2.90
Silver Ag	mg/L	0.0001277	0.0001271	0.0001265	0.0001229	0.0001218	0.0001247	0.0001244	0.0001244	0.0001240	0.0001232	0.0001226	0.0001222
Sodium Na	mg/L	230	229	228	208	200	206	206	206	206	204	203	203
Strontium Sr	mg/L	0.071	0.071	0.071	0.066	0.065	0.067	0.068	0.068	0.068	0.067	0.067	0.067
Tellurium Te	mg/L	0.037	0.037	0.036	0.037	0.038	0.039	0.040	0.040	0.040	0.040	0.040	0.040
Thallium Tl	mg/L	0.000044	0.000044	0.000044	0.000042	0.000041	0.000043	0.000043	0.000043	0.000043	0.000043	0.000043	0.000043
Thorium Th	mg/L	0.000072	0.000072	0.000072	0.000071	0.000071	0.000074	0.000075	0.000075	0.000075	0.000075	0.000074	0.000074
Tin Sn	mg/L	0.00195	0.00194	0.00193	0.00172	0.00164	0.00169	0.00169	0.00169	0.00168	0.00167	0.00166	0.00166
Titanium Ti	mg/L	0.0113	0.0112	0.0112	0.0120	0.0124	0.0130	0.0133	0.0135	0.0134	0.0133	0.0133	0.0132
Uranium U	mg/L	0.000095	0.000094	0.000094	0.000093	0.000093	0.000096	0.000097	0.000097	0.000096	0.000096	0.000095	0.000095
Vanadium V	mg/L	0.0037	0.0037	0.0037	0.0035	0.0035	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036
Zinc Zn	mg/L	0.0161	0.0160	0.0159	0.0143	0.0137	0.0140	0.0142	0.0142	0.0142	0.0141	0.0140	0.0140
Zirconium Zr	mg/L	0.0045	0.0045	0.0045	0.0044	0.0045	0.0046	0.0047	0.0048	0.0047	0.0047	0.0047	0.0047

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	870	866	862	765	727	745	743	744	742	737	733	730
TSS	mg/L	4.5	4.5	4.4	4.5	4.6	4.8	4.9	5.0	4.9	4.9	4.9	4.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.049	0.048	0.048	0.042	0.040	0.041	0.040	0.040	0.040	0.040	0.040	0.040
Sulphate	mg/L	50.7	50.5	50.2	44.1	41.7	42.7	42.5	42.5	42.3	42.1	41.8	41.7
Chloride	mg/L	607	604	601	538	513	526	526	526	525	521	519	517
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	2.32	2.20	2.09	1.83	1.72	1.76	1.75	1.75	1.64	1.52	1.41	1.30
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	41	41	41	39	38	39	40	40	40	39	39	39
OrthoPhosphate-P	mg/L	0.1096	0.1091	0.1085	0.0950	0.0896	0.0917	0.0912	0.0911	0.0909	0.0903	0.0898	0.0894
Phosphate-P	mg/L	0.1239	0.1233	0.1227	0.1103	0.1052	0.1080	0.1079	0.1080	0.1077	0.1070	0.1064	0.1060
Org. Carbon	mg/L	4.8	4.8	4.8	4.8	4.9	5.1	5.2	5.2	5.2	5.2	5.2	5.1
Hardness CaCO3	mg/L	73	72	72	67	65	67	68	68	68	67	67	67
Total Metals													
Aluminum Al	mg/L	0.18	0.18	0.18	0.19	0.19	0.20	0.21	0.21	0.21	0.21	0.21	0.21
Antimony Sb	mg/L	0.0101	0.0100	0.0100	0.0087	0.0082	0.0084	0.0084	0.0084	0.0084	0.0083	0.0083	0.0083
Arsenic As	mg/L	0.0020	0.0020	0.0020	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Barium Ba	mg/L	0.0064	0.0064	0.0064	0.0057	0.0055	0.0057	0.0057	0.0057	0.0057	0.0057	0.0056	0.0056
Beryllium Be	mg/L	0.00048	0.00048	0.00048	0.00044	0.00043	0.00044	0.00043	0.00043	0.00043	0.00043	0.00043	0.00043
Bismuth Bi	mg/L	0.00960	0.00956	0.00951	0.00831	0.00783	0.00801	0.00796	0.00796	0.00793	0.00788	0.00784	0.00781
Boron B	mg/L	0.042	0.042	0.042	0.041	0.041	0.043	0.044	0.044	0.044	0.044	0.044	0.044
Cadmium Cd	mg/L	0.0000462	0.0000460	0.0000458	0.0000414	0.0000396	0.0000407	0.0000408	0.0000408	0.0000407	0.0000404	0.0000402	0.0000401
Calcium Ca	mg/L	153	152	151	133	126	129	128	128	128	127	126	126
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.004	0.004	0.003	0.003	0.003
Cobalt Co	mg/L	0.0054	0.0054	0.0054	0.0047	0.0045	0.0046	0.0046	0.0046	0.0045	0.0045	0.0045	0.0045
Copper Cu	mg/L	0.0057	0.0056	0.0056	0.0051	0.0049	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0049
Iron Fe	mg/L	0.19	0.19	0.19	0.19	0.20	0.21	0.22	0.22	0.22	0.22	0.21	0.21
Lead Pb	mg/L	0.00033	0.00033	0.00033	0.00030	0.00029	0.00030	0.00030	0.00030	0.00029	0.00029	0.00029	0.00029
Lithium Li	mg/L	0.0056	0.0056	0.0056	0.0055	0.0055	0.0057	0.0058	0.0059	0.0059	0.0058	0.0058	0.0058
Magnesium Mg	mg/L	9.1	9.1	9.0	8.7	8.6	9.0	9.1	9.2	9.1	9.1	9.0	9.0
Manganese Mn	mg/L	0.018	0.018	0.018	0.017	0.016	0.017	0.017	0.017	0.017	0.017	0.016	0.016
Mercury Hg	mg/L	0.0000152	0.0000151	0.0000150	0.0000155	0.0000158	0.0000165	0.0000169	0.0000170	0.0000170	0.0000169	0.0000168	0.0000167
Molybdenum Mo	mg/L	0.00468	0.00466	0.00463	0.00409	0.00388	0.00397	0.00396	0.00396	0.00395	0.00392	0.00390	0.00389
Nickel Ni	mg/L	0.0049	0.0049	0.0049	0.0043	0.0041	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0041
Phosphorus P	mg/L	0.168	0.167	0.167	0.147	0.138	0.141	0.141	0.141	0.140	0.139	0.139	0.138
Potassium K	mg/L	22.6	22.5	22.4	20.1	19.1	19.6	19.6	19.6	19.6	19.5	19.3	19.3
Selenium Se	mg/L	0.00104	0.00103	0.00103	0.00106	0.00108	0.00113	0.00115	0.00116	0.00115	0.00115	0.00114	0.00114
Silicon SiO2	mg/L	2.89	2.88	2.87	2.67	2.60	2.69	2.70	2.71	2.70	2.69	2.67	2.66
Silver Ag	mg/L	0.0001217	0.0001211	0.0001205	0.0001175	0.0001165	0.0001194	0.0001190	0.0001190	0.0001187	0.0001179	0.0001172	0.0001168
Sodium Na	mg/L	202	201	200	182	175	180	180	181	180	179	178	177
Strontium Sr	mg/L	0.067	0.066	0.066	0.062	0.061	0.063	0.063	0.064	0.064	0.063	0.063	0.063
Tellurium Te	mg/L	0.040	0.039	0.039	0.040	0.040	0.042	0.043	0.043	0.043	0.043	0.042	0.042
Thallium Tl	mg/L	0.000042	0.000042	0.000042	0.000040	0.000040	0.000041	0.000042	0.000042	0.000042	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000074	0.000073	0.000073	0.000072	0.000072	0.000075	0.000076	0.000077	0.000076	0.000076	0.000076	0.000075
Tin Sn	mg/L	0.00165	0.00164	0.00163	0.00144	0.00138	0.00141	0.00141	0.00142	0.00141	0.00140	0.00139	0.00139
Titanium Ti	mg/L	0.0132	0.0131	0.0130	0.0137	0.0140	0.0147	0.0151	0.0152	0.0152	0.0151	0.0150	0.0149
Uranium U	mg/L	0.000095	0.000094	0.000094	0.000093	0.000093	0.000096	0.000097	0.000097	0.000096	0.000096	0.000095	0.000095
Vanadium V	mg/L	0.0036	0.0035	0.0035	0.0034	0.0033	0.0034	0.0035	0.0035	0.0035	0.0034	0.0034	0.0034
Zinc Zn	mg/L	0.0139	0.0138	0.0138	0.0123	0.0117	0.0120	0.0122	0.0122	0.0122	0.0121	0.0120	0.0120
Zirconium Zr	mg/L	0.0047	0.0046	0.0046	0.0046	0.0046	0.0048	0.0049	0.0049	0.0049	0.0048	0.0048	0.0048

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	727	723	719	634	600	616	591	565	563	560	556	554
TSS	mg/L	4.8	4.8	4.8	4.9	4.9	5.1	5.1	4.9	4.8	4.8	4.8	4.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.039	0.039	0.039	0.034	0.031	0.032	0.031	0.029	0.029	0.029	0.029	0.029
Sulphate	mg/L	41.5	41.3	41.1	35.7	33.5	34.3	32.9	31.4	31.3	31.1	30.9	30.8
Chloride	mg/L	515	512	509	453	431	443	426	407	406	403	401	400
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.19	1.08	0.97	0.84	0.78	0.80	0.77	0.73	0.62	0.51	0.40	0.30
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	39	39	38	36	36	37	36	34	34	34	34	34
OrthoPhosphate-P	mg/L	0.0891	0.0886	0.0882	0.0763	0.0715	0.0732	0.0700	0.0668	0.0666	0.0661	0.0658	0.0655
Phosphate-P	mg/L	0.1056	0.1050	0.1045	0.0936	0.0890	0.0915	0.0880	0.0841	0.0839	0.0833	0.0828	0.0825
Org. Carbon	mg/L	5.1	5.1	5.1	5.1	5.2	5.4	5.3	5.1	5.1	5.0	5.0	5.0
Hardness CaCO3	mg/L	66	66	66	61	59	61	59	57	57	56	56	56
Total Metals													
Aluminum Al	mg/L	0.20	0.20	0.20	0.21	0.21	0.22	0.22	0.21	0.21	0.21	0.21	0.21
Antimony Sb	mg/L	0.0082	0.0082	0.0081	0.0070	0.0066	0.0068	0.0065	0.0062	0.0062	0.0061	0.0061	0.0061
Arsenic As	mg/L	0.0018	0.0018	0.0018	0.0016	0.0015	0.0016	0.0015	0.0015	0.0015	0.0014	0.0014	0.0014
Barium Ba	mg/L	0.0056	0.0056	0.0055	0.0050	0.0048	0.0049	0.0048	0.0046	0.0045	0.0045	0.0045	0.0045
Beryllium Be	mg/L	0.00042	0.00042	0.00042	0.00039	0.00037	0.00038	0.00036	0.00035	0.00035	0.00034	0.00034	0.00034
Bismuth Bi	mg/L	0.00778	0.00774	0.00769	0.00664	0.00621	0.00636	0.00608	0.00580	0.00578	0.00574	0.00571	0.00569
Boron B	mg/L	0.043	0.043	0.043	0.042	0.042	0.044	0.044	0.042	0.042	0.041	0.041	0.041
Cadmium Cd	mg/L	0.0000399	0.0000397	0.0000395	0.0000356	0.0000340	0.0000351	0.0000338	0.0000323	0.0000322	0.0000320	0.0000318	0.0000317
Calcium Ca	mg/L	125	125	124	108	101	104	100	95	95	94	94	93
Chromium Cr	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0045	0.0044	0.0044	0.0038	0.0036	0.0037	0.0035	0.0034	0.0034	0.0033	0.0033	0.0033
Copper Cu	mg/L	0.0049	0.0049	0.0049	0.0044	0.0042	0.0044	0.0042	0.0040	0.0040	0.0040	0.0040	0.0039
Iron Fe	mg/L	0.21	0.21	0.21	0.22	0.22	0.23	0.23	0.22	0.22	0.22	0.22	0.22
Lead Pb	mg/L	0.00029	0.00029	0.00029	0.00026	0.00025	0.00026	0.00025	0.00023	0.00023	0.00023	0.00023	0.00023
Lithium Li	mg/L	0.0057	0.0057	0.0057	0.0056	0.0056	0.0058	0.0057	0.0055	0.0055	0.0054	0.0054	0.0054
Magnesium Mg	mg/L	9.0	8.9	8.9	8.6	8.5	8.9	8.7	8.3	8.3	8.2	8.2	8.2
Manganese Mn	mg/L	0.016	0.016	0.016	0.015	0.014	0.015	0.014	0.014	0.014	0.014	0.013	0.013
Mercury Hg	mg/L	0.0000167	0.0000166	0.0000165	0.0000169	0.0000170	0.0000178	0.0000176	0.0000169	0.0000169	0.0000167	0.0000166	0.0000166
Molybdenum Mo	mg/L	0.00387	0.00385	0.00383	0.00336	0.00317	0.00325	0.00311	0.00297	0.00296	0.00294	0.00293	0.00292
Nickel Ni	mg/L	0.0041	0.0041	0.0041	0.0036	0.0034	0.0035	0.0034	0.0032	0.0032	0.0032	0.0032	0.0032
Phosphorus P	mg/L	0.137	0.137	0.136	0.118	0.111	0.114	0.109	0.104	0.104	0.103	0.102	0.102
Potassium K	mg/L	19.2	19.1	19.0	16.9	16.1	16.5	15.9	15.2	15.2	15.1	15.0	14.9
Selenium Se	mg/L	0.00113	0.00113	0.00112	0.00114	0.00116	0.00121	0.00119	0.00114	0.00114	0.00113	0.00113	0.00112
Silicon SiO2	mg/L	2.65	2.64	2.62	2.45	2.38	2.47	2.39	2.29	2.29	2.27	2.26	2.25
Silver Ag	mg/L	0.0001163	0.0001158	0.0001151	0.0001127	0.0001119	0.0001147	0.0001100	0.0001050	0.0001047	0.0001040	0.0001034	0.0001030
Sodium Na	mg/L	176	176	175	158	152	157	152	145	145	144	143	142
Strontium Sr	mg/L	0.062	0.062	0.062	0.058	0.057	0.059	0.057	0.055	0.055	0.054	0.054	0.054
Tellurium Te	mg/L	0.042	0.042	0.042	0.042	0.042	0.044	0.043	0.042	0.042	0.041	0.041	0.041
Thallium Tl	mg/L	0.000041	0.000041	0.000040	0.000039	0.000038	0.000040	0.000039	0.000037	0.000037	0.000037	0.000037	0.000036
Thorium Th	mg/L	0.000075	0.000075	0.000074	0.000073	0.000073	0.000076	0.000075	0.000072	0.000071	0.000071	0.000070	0.000070
Tin Sn	mg/L	0.00138	0.00138	0.00137	0.00120	0.00114	0.00117	0.00113	0.00108	0.00108	0.00107	0.00106	0.00106
Titanium Ti	mg/L	0.0149	0.0148	0.0147	0.0152	0.0154	0.0162	0.0160	0.0154	0.0153	0.0152	0.0152	0.0151
Uranium U	mg/L	0.000095	0.000094	0.000094	0.000093	0.000093	0.000096	0.000093	0.000089	0.000089	0.000088	0.000088	0.000087
Vanadium V	mg/L	0.0034	0.0034	0.0034	0.0032	0.0032	0.0033	0.0032	0.0031	0.0031	0.0030	0.0030	0.0030
Zinc Zn	mg/L	0.0119	0.0119	0.0118	0.0105	0.0099	0.0102	0.0100	0.0096	0.0096	0.0095	0.0094	0.0094
Zirconium Zr	mg/L	0.0048	0.0048	0.0047	0.0047	0.0047	0.0049	0.0048	0.0046	0.0046	0.0046	0.0045	0.0045

Appendix I

Table I-1-c-A.2
Low Flow Scenario 3

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	
Parameter													
TDS	mg/L	552	549	546	484	460	472	454	434	433	430	427	
TSS	mg/L	4.7	4.7	4.7	4.8	4.8	5.1	5.0	4.8	4.8	4.7	4.7	
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.029	0.029	0.028	0.024	0.023	0.023	0.022	0.021	0.021	0.021	0.021	
Sulphate	mg/L	30.7	30.5	30.4	26.4	24.8	25.4	24.4	23.3	23.2	23.0	22.9	
Chloride	mg/L	398	396	394	353	337	347	335	320	319	317	315	
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	
Nitrate	mg/L	0.19	0.08		0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Alkalinity	mg/L	34	34	33	32	32	33	32	31	31	30	30	
OrthoPhosphate-P	mg/L	0.0653	0.0649	0.0646	0.0559	0.0524	0.0536	0.0513	0.0489	0.0488	0.0484	0.0482	
Phosphate-P	mg/L	0.0822	0.0818	0.0813	0.0736	0.0702	0.0724	0.0697	0.0666	0.0664	0.0659	0.0656	
Org. Carbon	mg/L	5.0	4.9	4.9	5.0	5.1	5.3	5.2	5.0	5.0	4.9	4.9	
Hardness CaCO3	mg/L	56	55	55	52	51	53	51	49	49	49	48	
Total Metals													
Aluminum Al	mg/L	0.21	0.20	0.20	0.21	0.21	0.22	0.22	0.21	0.21	0.21	0.21	
Antimony Sb	mg/L	0.0061	0.0060	0.0060	0.0052	0.0049	0.0050	0.0048	0.0046	0.0046	0.0045	0.0045	
Arsenic As	mg/L	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	
Barium Ba	mg/L	0.0045	0.0044	0.0044	0.0040	0.0039	0.0040	0.0039	0.0037	0.0037	0.0037	0.0037	
Beryllium Be	mg/L	0.00034	0.00034	0.00034	0.00031	0.00031	0.00031	0.00030	0.00029	0.00028	0.00028	0.00028	
Bismuth Bi	mg/L	0.00567	0.00564	0.00561	0.00484	0.00452	0.00463	0.00443	0.00422	0.00421	0.00418	0.00416	
Boron B	mg/L	0.041	0.041	0.040	0.040	0.041	0.042	0.042	0.040	0.040	0.040	0.039	
Cadmium Cd	mg/L	0.0000316	0.0000314	0.0000313	0.0000285	0.0000273	0.0000282	0.0000273	0.0000261	0.0000260	0.0000258	0.0000257	
Calcium Ca	mg/L	93	93	92	80	75	77	74	71	71	70	70	
Chromium Cr	mg/L	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
Cobalt Co	mg/L	0.0033	0.0033	0.0033	0.0028	0.0027	0.0027	0.0026	0.0025	0.0025	0.0025	0.0025	
Copper Cu	mg/L	0.0039	0.0039	0.0039	0.0036	0.0034	0.0035	0.0034	0.0033	0.0033	0.0032	0.0032	
Iron Fe	mg/L	0.22	0.21	0.21	0.22	0.22	0.23	0.23	0.22	0.22	0.22	0.22	
Lead Pb	mg/L	0.00023	0.00023	0.00023	0.00021	0.00020	0.00021	0.00020	0.00019	0.00019	0.00019	0.00019	
Lithium Li	mg/L	0.0053	0.0053	0.0053	0.0053	0.0053	0.0055	0.0054	0.0052	0.0052	0.0051	0.0051	
Magnesium Mg	mg/L	8.1	8.1	8.0	7.8	7.8	8.2	8.0	7.7	7.7	7.6	7.6	
Manganese Mn	mg/L	0.013	0.013	0.013	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	
Mercury Hg	mg/L	0.0000165	0.0000164	0.0000163	0.0000167	0.0000169	0.0000177	0.0000175	0.0000168	0.0000167	0.0000166	0.0000165	
Molybdenum Mo	mg/L	0.00291	0.00289	0.00288	0.00253	0.00239	0.00246	0.00236	0.00225	0.00224	0.00223	0.00222	
Nickel Ni	mg/L	0.0032	0.0031	0.0031	0.0028	0.0027	0.0027	0.0026	0.0025	0.0025	0.0025	0.0025	
Phosphorus P	mg/L	0.101	0.101	0.100	0.088	0.082	0.084	0.081	0.077	0.077	0.076	0.076	
Potassium K	mg/L	14.9	14.8	14.7	13.2	12.6	13.0	12.5	12.0	11.9	11.8	11.8	
Selenium Se	mg/L	0.00112	0.00111	0.00111	0.00113	0.00114	0.00120	0.00118	0.00113	0.00113	0.00112	0.00112	
Silicon SiO2	mg/L	2.24	2.23	2.22	2.10	2.05	2.13	2.07	1.99	1.98	1.97	1.96	
Silver Ag	mg/L	0.0001026	0.0001021	0.0001016	0.0001010	0.0001009	0.0001035	0.0000992	0.0000947	0.0000944	0.0000938	0.0000933	
Sodium Na	mg/L	142	141	140	129	124	129	124	119	119	118	117	
Strontium Sr	mg/L	0.054	0.054	0.053	0.051	0.050	0.052	0.051	0.049	0.049	0.048	0.048	
Tellurium Te	mg/L	0.041	0.041	0.040	0.041	0.041	0.043	0.042	0.041	0.041	0.040	0.040	
Thallium Tl	mg/L	0.000036	0.000036	0.000036	0.000035	0.000034	0.000036	0.000035	0.000034	0.000034	0.000033	0.000033	
Thorium Th	mg/L	0.000070	0.000070	0.000069	0.000069	0.000069	0.000072	0.000071	0.000068	0.000068	0.000067	0.000067	
Tin Sn	mg/L	0.00106	0.00105	0.00104	0.00092	0.00088	0.00090	0.00087	0.00083	0.00083	0.00083	0.00082	
Titanium Ti	mg/L	0.0150	0.0150	0.0149	0.0154	0.0156	0.0164	0.0162	0.0155	0.0155	0.0154	0.0153	
Uranium U	mg/L	0.000087	0.000086	0.000086	0.000086	0.000086	0.000090	0.000087	0.000083	0.000083	0.000082	0.000082	
Vanadium V	mg/L	0.0030	0.0030	0.0030	0.0029	0.0028	0.0030	0.0029	0.0028	0.0028	0.0027	0.0027	
Zinc Zn	mg/L	0.0094	0.0093	0.0093	0.0083	0.0079	0.0081	0.0080	0.0077	0.0077	0.0076	0.0076	
Zirconium Zr	mg/L	0.0045	0.0045	0.0045	0.0045	0.0045	0.0047	0.0046	0.0044	0.0044	0.0044	0.0043	

Appendix I

Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	102472	93472	84354	83350	82419	78530	81148	81148	73295
TSS	183	177	183	830	491	279	298	215	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18054	16910	15356	15223	14774	13840	14302	14302	12918
Chloride	49110	47526	49110	78414	68460	56622	57232	52370	47526	49110	49110	44357
Total Ammonia	149	145	149	287	238	186	193	166	145	149	149	135
Nitrate	758	733	758	1854	1453	1050	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	12146	10112	7793	7708	7193	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	23	22	21	21	21	21	21	21	19
Org. Carbon				1305.95	718.92	192.37	200.84	52.95				
Hardness CaCO3	14992	14508	14992	21691	19408	16178	16035	15394	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	17.06	11.33	8.33	8.27	5.77	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.65	3.42	2.21	2.42	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.67	0.57	0.46	0.47	0.42	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.06	1.88	1.70	1.67	1.61	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.21	0.14	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.54	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	8.67	6.42	4.18	4.38	3.34	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	41451	41793	41014	39826	40688	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.27	1.22	1.10	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.84	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.72	1.63	1.51	1.48	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	15.81	9.48	7.72	7.79	5.57	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.12	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.38	0.93	0.62	0.65	0.52	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2311	1789	1352	1353	1173	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.06	4.93	4.76	4.68	4.64	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.49	1.51	1.49	1.44	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.70	1.54	1.37	1.36	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	44	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	6904	6924	6764	6582	6726	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.16	0.10	0.06	0.06	0.04	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	841	715	613	610	578	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.05	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	9609	8311	6945	6894	6551	6148	6353	6353	5739
Strontium Sr	12	12	12	18	16	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	10.93	5.17	1.63	2.04	0.55	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.54	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	1.60	0.84	0.34	0.40	0.18	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.02	0.76	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.3	4.1	3.8	4.0	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				1.42	0.72	0.25	0.31	0.09				

Appendix I

Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	102015	93238	84291	83255	82393	78530	81148	81148	73295
TSS	183	177	183	818	486	278	295	214	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18046	16905	15355	15221	14774	13840	14302	14302	12918
Chloride	49110	47526	49110	78293	68382	56601	57203	52363	47526	49110	49110	44357
Total Ammonia	149	145	149	287	238	186	193	166	145	149	149	135
Nitrate	758	733	758	1854	1453	1050	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	12042	10051	7777	7689	7187	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	23	22	21	21	21	21	21	21	19
Org. Carbon				1281.01	705.28	188.63	196.87	51.90				
Hardness CaCO3	14992	14508	14992	21554	19324	16155	16004	15386	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	16.99	11.31	8.30	8.26	5.77	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.65	3.42	2.21	2.42	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.67	0.57	0.46	0.47	0.42	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.06	1.87	1.70	1.67	1.61	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.21	0.14	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.54	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	8.62	6.39	4.17	4.37	3.34	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	41430	41781	41009	39821	40686	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.26	1.22	1.10	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.84	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.71	1.63	1.51	1.48	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	15.64	9.41	7.68	7.74	5.55	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.12	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.37	0.93	0.62	0.65	0.52	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2294	1780	1349	1349	1172	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.06	4.92	4.76	4.68	4.64	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.49	1.51	1.49	1.44	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.70	1.54	1.37	1.36	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	44	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	6898	6920	6763	6581	6725	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.15	0.10	0.06	0.06	0.04	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	837	713	612	609	578	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.05	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	9544	8275	6934	6880	6547	6148	6353	6353	5739
Strontium Sr	12	12	12	18	16	13	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	10.73	5.08	1.60	2.00	0.54	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.54	0.33	0.36	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	1.57	0.83	0.34	0.40	0.18	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.02	0.76	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.3	4.1	3.8	4.0	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				1.40	0.71	0.24	0.31	0.09				

Appendix I

Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	72279	62639	53777	53712	51898	49028	50662	50662	45759
TSS				634	299	93	117	31				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5348	3827	2316	2593	1749	1247	1289	1289	1164
Chloride	49110	47526	49110	78232	68345	56591	57191	52360	47526	49110	49110	44357
Total Ammonia	25	24	25	152	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1035	653	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				5285	3094	841	976	257				
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	22	22	21	21	21	21	21	21	19
Org. Carbon				1268.28	698.70	186.93	195.19	51.49				
Hardness CaCO3				6976	4292	1153	1483	391				
Total Metals												
Aluminum Al	0.81	0.78	0.81	10.46	5.81	3.85	3.72	1.76	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.53	3.30	2.10	2.31	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.24	0.16	0.08	0.09	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.59	0.36	0.19	0.21	0.11	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.17	0.11	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.51	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	5.78	3.75	1.79	2.01	1.06	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	2322	1447	740	837	444	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.33	0.25	0.14	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.27	0.19	0.11	0.12	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.31	0.19	0.08	0.09	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	10.60	4.56	3.07	3.23	1.07	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	0.96	0.51	0.21	0.25	0.12	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1338	805	382	413	209	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.79	0.52	0.35	0.42	0.24	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.07	0.04	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.58	0.39	0.23	0.25	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	32	29	25	25	24	22	23	23	21
Potassium K	25	24	25	434	245	90	123	53	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.10	0.05	0.02	0.02	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	274	146	57	69	28	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	3370	1913	586	735	204	12	12	12	11
Strontium Sr	0	0	0	6	4	1	2	1	0	0	0	0
Tellurium Te				10.59	5.00	1.56	1.96	0.52				
Thallium Tl	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.71	0.53	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	1.51	0.77	0.30	0.35	0.14	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.81	0.56	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.0	0.7	0.5	0.8	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.25	0.62	0.21	0.26	0.07				

Appendix I

Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				401537	390232	381340	382918	379454				
TSS				1278	604	188	236	62				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				565	345	103	163	47				
Chloride				253931	242613	234021	235059	231624				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5301	3105	845	980	259				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				6	2	1	1	0				
Org. Carbon				1272.26	701.13	187.67	196.06	51.74				
Hardness CaCO3				6997	4307	1157	1490	393				
Total Metals												
Aluminum Al				63.41	30.09	10.75	12.59	3.44				
Antimony Sb				0.06	0.05	0.03	0.04	0.01				
Arsenic As				0.23	0.13	0.05	0.06	0.02				
Barium Ba				0.37	0.20	0.09	0.09	0.03				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				10.48	5.40	1.78	2.15	0.60				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				24152	23263	22643	22715	22398				
Chromium Cr				0.21	0.14	0.05	0.03	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.00				
Copper Cu				0.39	0.20	0.06	0.07	0.02				
Iron Fe				63.98	29.57	10.70	12.85	3.42				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				1.25	0.59	0.19	0.23	0.06				
Magnesium Mg				1629	827	283	321	85				
Manganese Mn				1.48	0.69	0.27	0.35	0.09				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.09	0.04	0.01	0.02	0.00				
Nickel Ni				0.19	0.09	0.03	0.03	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				921	451	133	183	48				
Selenium Se				0.33	0.16	0.05	0.06	0.02				
Silicon SiO2				374	184	61	76	21				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				139204	132308	127636	128170	126238				
Strontium Sr				8	4	1	2	0				
Tellurium Te				10.62	5.02	1.57	1.97	0.52				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.00	0.01	0.00				
Tin Sn				0.05	0.05	0.02	0.02	0.01				
Titanium Ti				4.45	2.10	0.66	0.83	0.22				
Uranium U				0.03	0.02	0.00	0.01	0.00				
Vanadium V				0.61	0.29	0.08	0.10	0.03				
Zinc Zn				0.6	0.3	0.1	0.4	0.1				
Zirconium Zr				1.27	0.63	0.21	0.27	0.08				

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Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				23474	12097	3149	4738	1251				
TSS				1286	607	190	238	63				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				567	347	103	164	47				
Chloride				23690	12300	3653	4699	1240				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5335	3125	850	987	261				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				6	2	1	1	0				
Org. Carbon				1280.43	705.67	188.94	197.42	52.11				
Hardness CaCO3				7042	4335	1165	1500	396				
Total Metals												
Aluminum Al				63.79	30.27	10.82	12.66	3.46				
Antimony Sb				0.06	0.05	0.03	0.04	0.01				
Arsenic As				0.23	0.13	0.05	0.06	0.02				
Barium Ba				0.37	0.20	0.09	0.10	0.03				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				10.54	5.43	1.79	2.17	0.60				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1888	993	370	443	124				
Chromium Cr				0.21	0.14	0.05	0.03	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.00				
Copper Cu				0.40	0.20	0.06	0.07	0.02				
Iron Fe				64.38	29.76	10.77	12.93	3.44				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				1.25	0.60	0.19	0.24	0.06				
Magnesium Mg				1639	832	285	323	86				
Manganese Mn				1.49	0.70	0.27	0.36	0.09				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.09	0.05	0.01	0.02	0.00				
Nickel Ni				0.19	0.09	0.03	0.03	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				927	454	134	184	49				
Selenium Se				0.33	0.16	0.05	0.06	0.02				
Silicon SiO2				376	185	61	77	22				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				13746	6807	2105	2643	698				
Strontium Sr				8	5	1	2	0				
Tellurium Te				10.69	5.05	1.58	1.98	0.52				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.05	0.05	0.02	0.02	0.01				
Titanium Ti				4.48	2.12	0.66	0.83	0.22				
Uranium U				0.03	0.02	0.00	0.01	0.00				
Vanadium V				0.61	0.29	0.09	0.10	0.03				
Zinc Zn				0.6	0.3	0.1	0.4	0.1				
Zirconium Zr				1.28	0.63	0.21	0.27	0.08				

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Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				23636	12181	3172	4773	1260				
TSS				1295	612	191	240	63				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				570	349	103	165	48				
Chloride				23852	12385	3679	4734	1250				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5372	3147	856	994	263				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				6	3	1	1	0				
Org. Carbon				1289.22	710.55	190.30	198.89	52.50				
Hardness CaCO3				7091	4365	1174	1512	399				
Total Metals												
Aluminum Al				64.20	30.46	10.89	12.75	3.49				
Antimony Sb				0.06	0.05	0.03	0.04	0.01				
Arsenic As				0.24	0.13	0.05	0.06	0.02				
Barium Ba				0.37	0.20	0.09	0.10	0.03				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				10.61	5.46	1.80	2.18	0.60				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1899	999	372	445	125				
Chromium Cr				0.21	0.14	0.05	0.03	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.00				
Copper Cu				0.40	0.20	0.06	0.07	0.02				
Iron Fe				64.82	29.96	10.84	13.03	3.47				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				1.26	0.60	0.19	0.24	0.06				
Magnesium Mg				1650	838	287	326	87				
Manganese Mn				1.50	0.70	0.27	0.36	0.10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.09	0.05	0.01	0.02	0.00				
Nickel Ni				0.19	0.10	0.03	0.03	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				933	457	135	185	49				
Selenium Se				0.33	0.16	0.05	0.06	0.02				
Silicon SiO2				378	186	61	77	22				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				13841	6854	2120	2663	703				
Strontium Sr				9	5	1	2	1				
Tellurium Te				10.77	5.09	1.59	2.00	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.05	0.05	0.02	0.02	0.01				
Titanium Ti				4.51	2.13	0.67	0.84	0.22				
Uranium U				0.03	0.02	0.00	0.01	0.00				
Vanadium V				0.61	0.29	0.09	0.10	0.03				
Zinc Zn				0.6	0.3	0.1	0.4	0.1				
Zirconium Zr				1.29	0.64	0.21	0.27	0.08				

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Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				23809	12271	3196	4811	1270				
TSS				1304	616	193	242	64				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				426	260	66	117	31				
Chloride				24028	12476	3708	4771	1260				
Total Ammonia				1	1	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				5411	3170	863	1002	265				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				6	3	1	1	0				
Org. Carbon				1298.69	715.81	191.77	200.46	52.92				
Hardness CaCO3				7143	4397	1183	1524	402				
Total Metals												
Aluminum Al				60.35	28.01	9.84	11.40	3.01				
Antimony Sb				0.04	0.03	0.02	0.03	0.01				
Arsenic As				0.14	0.07	0.02	0.03	0.01				
Barium Ba				0.36	0.20	0.09	0.09	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				9.68	4.88	1.55	1.86	0.49				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1660	850	309	364	96				
Chromium Cr				0.19	0.13	0.04	0.03	0.01				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.37	0.19	0.05	0.06	0.02				
Iron Fe				64.29	29.55	10.66	12.79	3.38				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.25	0.59	0.18	0.23	0.06				
Magnesium Mg				1637	828	283	320	84				
Manganese Mn				1.49	0.69	0.27	0.35	0.09				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.09	0.05	0.01	0.02	0.00				
Nickel Ni				0.17	0.08	0.02	0.03	0.01				
Phosphorus P				2	1	0	0	0				
Potassium K				933	456	134	185	49				
Selenium Se				0.32	0.15	0.04	0.06	0.01				
Silicon SiO2				333	157	49	62	16				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				13936	6901	2135	2682	708				
Strontium Sr				8	5	1	2	0				
Tellurium Te				10.82	5.11	1.60	2.01	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.03	0.03	0.01	0.01	0.00				
Titanium Ti				4.52	2.14	0.67	0.84	0.22				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.58	0.27	0.08	0.09	0.02				
Zinc Zn				0.5	0.2	0.1	0.4	0.1				
Zirconium Zr				1.10	0.52	0.16	0.20	0.05				

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Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				23997	12368	3222	4852	1281				
TSS				1315	621	194	244	64				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				430	262	66	118	31				
Chloride				24217	12575	3738	4812	1270				
Total Ammonia				1	1	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				5454	3195	870	1011	267				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				6	3	1	1	0				
Org. Carbon				1308.90	721.46	193.34	202.16	53.38				
Hardness CaCO3				7199	4432	1192	1536	406				
Total Metals												
Aluminum Al				60.82	28.23	9.93	11.50	3.04				
Antimony Sb				0.04	0.03	0.02	0.03	0.01				
Arsenic As				0.14	0.07	0.02	0.03	0.01				
Barium Ba				0.36	0.20	0.09	0.09	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				9.76	4.92	1.56	1.88	0.50				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1673	856	311	367	97				
Chromium Cr				0.19	0.13	0.04	0.03	0.01				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.38	0.19	0.05	0.06	0.02				
Iron Fe				64.79	29.79	10.75	12.90	3.41				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.26	0.60	0.19	0.23	0.06				
Magnesium Mg				1650	835	285	322	85				
Manganese Mn				1.50	0.70	0.27	0.36	0.09				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.10	0.05	0.01	0.02	0.00				
Nickel Ni				0.17	0.08	0.02	0.03	0.01				
Phosphorus P				2	1	0	0	0				
Potassium K				941	460	135	186	49				
Selenium Se				0.32	0.15	0.05	0.06	0.01				
Silicon SiO2				336	159	50	62	16				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				14046	6955	2152	2704	714				
Strontium Sr				9	5	1	2	0				
Tellurium Te				10.91	5.15	1.61	2.02	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.03	0.04	0.01	0.01	0.00				
Titanium Ti				4.56	2.15	0.67	0.84	0.22				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.58	0.27	0.08	0.09	0.02				
Zinc Zn				0.5	0.2	0.1	0.4	0.1				
Zirconium Zr				1.11	0.52	0.16	0.21	0.05				

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Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				24198	12472	3251	4877	1282				
TSS				1326	626	196	245	64				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				433	264	67	118	31				
Chloride				24420	12681	3771	4837	1271				
Total Ammonia				1	1	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				5500	3222	878	1016	267				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				6	3	1	1	0				
Org. Carbon				1319.90	727.54	195.03	203.22	53.41				
Hardness CaCO3				7259	4469	1203	1544	406				
Total Metals												
Aluminum Al				61.34	28.47	10.01	11.56	3.04				
Antimony Sb				0.04	0.03	0.02	0.03	0.01				
Arsenic As				0.14	0.07	0.02	0.03	0.01				
Barium Ba				0.37	0.20	0.09	0.09	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				9.84	4.96	1.58	1.89	0.50				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1687	864	314	369	97				
Chromium Cr				0.20	0.13	0.04	0.03	0.01				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.38	0.19	0.05	0.06	0.02				
Iron Fe				65.34	30.04	10.84	12.97	3.41				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.27	0.60	0.19	0.24	0.06				
Magnesium Mg				1663	842	288	324	85				
Manganese Mn				1.51	0.71	0.27	0.36	0.09				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.10	0.05	0.01	0.02	0.00				
Nickel Ni				0.17	0.08	0.02	0.03	0.01				
Phosphorus P				2	1	0	0	0				
Potassium K				949	464	136	187	49				
Selenium Se				0.32	0.15	0.05	0.06	0.01				
Silicon SiO2				339	160	50	63	16				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				14164	7014	2171	2718	715				
Strontium Sr				9	5	1	2	0				
Tellurium Te				11.00	5.20	1.63	2.03	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.03	0.04	0.01	0.01	0.00				
Titanium Ti				4.59	2.17	0.68	0.85	0.22				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.59	0.28	0.08	0.09	0.02				
Zinc Zn				0.5	0.2	0.1	0.4	0.1				
Zirconium Zr				1.12	0.53	0.17	0.21	0.05				

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Table I-1-c-A.3
Low Flow Scenario 3

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				24215	12481	3253	4881	1283				
TSS				1326	627	196	245	64				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				434	264	67	118	31				
Chloride				24437	12690	3774	4840	1272				
Total Ammonia				1	1	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				5503	3224	878	1017	267				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				6	3	1	1	0				
Org. Carbon				1320.80	728.03	195.17	203.36	53.45				
Hardness CaCO3				7264	4472	1204	1546	406				
Total Metals												
Aluminum Al				61.38	28.49	10.02	11.57	3.04				
Antimony Sb				0.04	0.03	0.02	0.03	0.01				
Arsenic As				0.14	0.07	0.02	0.03	0.01				
Barium Ba				0.37	0.20	0.09	0.09	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				9.84	4.96	1.58	1.89	0.50				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1688	864	314	369	97				
Chromium Cr				0.20	0.13	0.04	0.03	0.01				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.38	0.19	0.05	0.06	0.02				
Iron Fe				65.38	30.06	10.85	12.98	3.41				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.27	0.60	0.19	0.24	0.06				
Magnesium Mg				1664	843	288	324	85				
Manganese Mn				1.52	0.71	0.27	0.36	0.09				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.10	0.05	0.01	0.02	0.00				
Nickel Ni				0.17	0.08	0.02	0.03	0.01				
Phosphorus P				2	1	0	0	0				
Potassium K				949	464	136	187	49				
Selenium Se				0.32	0.15	0.05	0.06	0.01				
Silicon SiO2				339	160	50	63	16				
Silver Ag				0.02	0.01	0.00	0.00	0.00				
Sodium Na				14173	7019	2172	2720	715				
Strontium Sr				9	5	1	2	0				
Tellurium Te				11.01	5.20	1.63	2.03	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.03	0.04	0.01	0.01	0.00				
Titanium Ti				4.60	2.17	0.68	0.85	0.22				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.59	0.28	0.08	0.09	0.02				
Zinc Zn				0.5	0.2	0.1	0.4	0.1				
Zirconium Zr				1.12	0.53	0.17	0.21	0.05				

Appendix I

Table I-1-c-B.1
Low Flow Scenario 3

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		550000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		14			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1427	203	193	
TSS	mg/L			5.1	6.9	8.1	
Free CN	mg/L		0.005	0.0033	0.00017	0.00009	3%
Total CN	mg/L	1.0		0.032	0.004	0.003	
WAD CN	mg/L			0.0044	0.0002	0.0001	
CNO	mg/L			3.7	0.19	0.10	
SCN	mg/L			0.119	0.006	0.003	
Sulphate	mg/L			109	8.1	7.2	
Chloride	mg/L			968	105	88	
Total Ammonia	mg/L		0.97	1.26	0.077	0.041	8%
Nitrate	mg/L		2.9	7.0	0.40	0.21	14%
Nitrite	mg/L		0.018	0.49	0.028	0.015	152%
Alkalinity	mg/L			62	29	26	
OrthoPhosphate-P	mg/L			0.2166	0.0115	0.0065	
Phosphate-P	mg/L			0.2195	0.0324	0.0296	
Org. Carbon	mg/L			5.4	7.4	7.1	
Hardness CaCO3	mg/L			124	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.22	0.09	0.25	87%
Antimony Sb	mg/L			0.0197	0.0036	0.0022	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0124	0.0036	0.0054	
Beryllium Be	mg/L			0.00073	0.00005	0.00003	
Bismuth Bi	mg/L			0.01903	0.00098	0.00059	
Boron B	mg/L			0.044	0.035	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000069	0.0000167	18%
Calcium Ca	mg/L			296	23	15	
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	100%
Cobalt Co	mg/L			0.0124	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0020	0.0021	98%
Iron Fe	mg/L		0.3	0.24	0.13	0.28	43%
Lead Pb	mg/L	0.2	0.002	0.00049	0.00009	0.00027	4%
Lithium Li	mg/L			0.0059	0.0030	0.0029	
Magnesium Mg	mg/L			10.3	7.4	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000178	0.0000015	0.0000011	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00067	0.00047	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.317	0.037	0.033	
Potassium K	mg/L			49	5.1	3.9	
Selenium Se	mg/L		0.001	0.00121	0.00091	0.00085	91%
Silicon SiO2	mg/L			4.6	0.71	0.62	
Silver Ag	mg/L		0.0001	0.00013	0.0000089	0.0000073	9%
Sodium Na	mg/L			301	52	45	
Strontium Sr	mg/L			0.102	0.045	0.048	
Tellurium Te	mg/L			0.044	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000046	0.000031	0.002001	4%
Thorium Th	mg/L			0.000077	0.0000056	0.0000029	
Tin Sn	mg/L			0.00297	0.00053	0.00008	
Titanium Ti	mg/L			0.0167	0.0065	0.0064	
Uranium U	mg/L			0.000097	0.000042	0.000046	
Vanadium V	mg/L			0.0042	0.0007	0.0006	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0049	0.0050	0.0051	

Appendix I

Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	150	152				
TSS	mg/L				3.9	5.7	5.8	6.7	6.8				
Free CN	mg/L				0.00007	0.00002	0.00002	0.00002	0.00002				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.08	0.02	0.03	0.03	0.03				
SCN	mg/L				0.001	0.001	0.002	0.002	0.002				
Sulphate	mg/L				3.7	3.8	4.3	4.8	5.1				
Chloride	mg/L				61	62	62	67	68				
Total Ammonia	mg/L				0.020	0.044	0.027	0.030	0.031				
Nitrate	mg/L				0.09	0.12	0.15	0.18	0.20				
Nitrite	mg/L				0.010	0.013	0.013	0.014	0.014				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0021	0.0024	0.0028	0.0033	0.0037				
Phosphate-P	mg/L				0.0173	0.0188	0.0250	0.0213	0.0217				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	44	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0007	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi	mg/L				0.00011	0.00020	0.00026	0.00031	0.00036				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000042	0.0000045	0.0000042	0.0000044	0.0000047				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00025	0.00026	0.00032	0.00033	0.00036				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.021	0.027	0.024	0.025				
Potassium K	mg/L				3.2	2.9	3.0	3.1	3.2				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.55	0.57	0.58	0.59				
Silver Ag	mg/L				0.0000053	0.0000060	0.0000061	0.0000064	0.0000066				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0050				

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Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				157	138	143	164	165				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00017	0.00000	0.00002	0.00002	0.00002				
Total CN	mg/L				0.004	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0002	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.19	0.01	0.02	0.02	0.02				
SCN	mg/L				0.004	0.004	0.004	0.005	0.005				
Sulphate	mg/L				6.7	6.5	6.8	7.3	7.6				
Chloride	mg/L				72	72	71	76	77				
Total Ammonia	mg/L				0.040	0.077	0.021	0.029	0.029				
Nitrate	mg/L				0.27	0.29	0.31	0.35	0.37				
Nitrite	mg/L				0.028	0.013	0.013	0.005	0.014				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0064	0.0062	0.0063	0.0068	0.0072				
Phosphate-P	mg/L				0.0215	0.0226	0.0286	0.0248	0.0252				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0008	0.0013	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0033	0.0034	0.0035				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00004				
Bismuth Bi	mg/L				0.00050	0.00053	0.00057	0.00062	0.00066				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000060	0.0000061	0.0000057	0.0000059	0.0000061				
Calcium Ca	mg/L				19	18	18	19	19				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00055	0.00053	0.00056	0.00058	0.00060				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.026	0.027	0.033	0.030	0.030				
Potassium K	mg/L				4.5	4.0	4.1	4.2	4.3				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.66	0.66	0.66	0.68	0.69				
Silver Ag	mg/L				0.0000070	0.0000075	0.0000075	0.0000078	0.0000080				
Sodium Na	mg/L				39	33	35	33	33				
Strontium Sr	mg/L				0.042	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00046	0.00046	0.00047	0.00048	0.00048				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0019	0.0040	0.0037	0.0027	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

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Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS mg/L				167	147	151	171	172				
TSS mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN mg/L				0.00010								
Total CN mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0001								
CNO mg/L				0.11								
SCN mg/L				0.006	0.005	0.005	0.005	0.005				
Sulphate mg/L				8.1	7.6	7.6	7.9	7.9				
Chloride mg/L				80	79	78	83	84				
Total Ammonia mg/L				0.032	0.050	0.018	0.019	0.019				
Nitrate mg/L				0.37	0.37	0.37	0.39	0.40				
Nitrite mg/L				0.024	0.011	0.012	0.004	0.004				
Alkalinity mg/L				29	27	28	28	28				
OrthoPhosphate-P mg/L				0.0094	0.0090	0.0090	0.0096	0.0100				
Phosphate-P mg/L				0.0245	0.0254	0.0313	0.0275	0.0279				
Org. Carbon mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3 mg/L				49	46	46	47	47				
Total Metals												
Aluminum Al mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0011	0.0016	0.0035	0.0013	0.0013				
Arsenic As mg/L				0.0006	0.0006	0.0005	0.0005	0.0005				
Barium Ba mg/L				0.0033	0.0036	0.0034	0.0035	0.0035				
Beryllium Be mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi mg/L				0.00076	0.00078	0.00081	0.00086	0.00090				
Boron B mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd mg/L				0.0000069	0.0000067	0.0000062	0.0000062	0.0000063				
Calcium Ca mg/L				23	21	20	20	20				
Chromium Cr mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co mg/L				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu mg/L				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb mg/L				0.00005	0.00009	0.00006	0.00006	0.00006				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.4	6.7	6.8	6.7	6.7				
Manganese Mn mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg mg/L				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo mg/L				0.00067	0.00062	0.00063	0.00062	0.00062				
Nickel Ni mg/L				0.0009	0.0010	0.0009	0.0009	0.0009				
Phosphorus P mg/L				0.030	0.031	0.037	0.033	0.034				
Potassium K mg/L				5.1	4.5	4.4	4.4	4.3				
Selenium Se mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.71	0.69	0.69	0.69	0.69				
Silver Ag mg/L				0.0000081	0.0000084	0.0000082	0.0000084	0.0000085				
Sodium Na mg/L				40	34	35	33	33				
Strontium Sr mg/L				0.044	0.045	0.039	0.043	0.043				
Tellurium Te mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn mg/L				0.00050	0.00050	0.00051	0.00051	0.00052				
Titanium Ti mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U mg/L				0.000029	0.000033	0.000041	0.000035	0.000035				
Vanadium V mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn mg/L				0.0022	0.0042	0.0039	0.0028	0.0029				
Zirconium Zr mg/L				0.0049	0.0049	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				170	157	166	194	202				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.005	0.004	0.004	0.004	0.004				
Sulphate	mg/L				7.6	7.1	7.0	7.2	7.2				
Chloride	mg/L				86	88	89	99	103				
Total Ammonia	mg/L				0.012	0.014	0.019	0.018	0.018				
Nitrate	mg/L				0.36	0.34	0.34	0.34	0.35				
Nitrite	mg/L				0.009	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0115	0.0105	0.0101	0.0103	0.0103				
Phosphate-P	mg/L				0.0266	0.0270	0.0324	0.0284	0.0284				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				49	46	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0013	0.0017	0.0036	0.0013	0.0013				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0035	0.0033	0.0034	0.0034				
Beryllium Be	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00098	0.00089	0.00086	0.00088	0.00087				
Boron B	mg/L				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000066	0.0000065	0.0000060	0.0000061	0.0000061				
Calcium Ca	mg/L				20	19	19	19	20				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0006	0.0006	0.0013	0.0005	0.0005				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00009	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.8	6.6	6.7				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000010	0.0000010	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00059	0.00055	0.00056	0.00055	0.00055				
Nickel Ni	mg/L				0.0008	0.0010	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.032	0.037	0.033	0.033				
Potassium K	mg/L				4.7	4.1	4.1	4.0	4.0				
Selenium Se	mg/L				0.00088	0.00058	0.00062	0.00056	0.00057				
Silicon SiO2	mg/L				0.69	0.67	0.67	0.67	0.68				
Silver Ag	mg/L				0.0000086	0.0000088	0.0000085	0.0000087	0.0000087				
Sodium Na	mg/L				40	36	40	40	43				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000005	0.000005	0.000005				
Tin Sn	mg/L				0.00053	0.00052	0.00052	0.00052	0.00052				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0060	0.0061				
Uranium U	mg/L				0.000029	0.000034	0.000042	0.000036	0.000036				
Vanadium V	mg/L				0.0007	0.0003	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0021	0.0041	0.0038	0.0027	0.0027				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				203	179	180	200	200				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.004	0.004	0.004	0.004	0.004				
Sulphate	mg/L				6.9	6.4	6.4	6.6	6.6				
Chloride	mg/L				105	101	97	102	102				
Total Ammonia	mg/L				0.010	0.014	0.019	0.018	0.018				
Nitrate	mg/L				0.31	0.29	0.29	0.30	0.30				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0100	0.0091	0.0087	0.0089	0.0089				
Phosphate-P	mg/L				0.0253	0.0257	0.0312	0.0271	0.0271				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	45	46	46				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0012	0.0016	0.0034	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0033	0.0034	0.0034				
Beryllium Be	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00085	0.00077	0.00074	0.00075	0.00075				
Boron B	mg/L				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000065	0.0000064	0.0000059	0.0000060	0.0000060				
Calcium Ca	mg/L				21	19	18	18	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0005	0.0005				
Copper Cu	mg/L				0.0016	0.0018	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.8	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000011	0.0000012	0.0000012	0.0000012	0.0000012				
Molybdenum Mo	mg/L				0.00053	0.00049	0.00050	0.00049	0.00049				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.030	0.030	0.036	0.032	0.031				
Potassium K	mg/L				4.4	3.9	3.8	3.8	3.8				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.67	0.66	0.66	0.66	0.66				
Silver Ag	mg/L				0.0000087	0.0000089	0.0000086	0.0000088	0.0000088				
Sodium Na	mg/L				52	45	46	44	44				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000005	0.000005	0.000005	0.000005	0.000005				
Tin Sn	mg/L				0.00051	0.00050	0.00050	0.00050	0.00050				
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0062	0.0062				
Uranium U	mg/L				0.000030	0.000035	0.000042	0.000036	0.000036				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0019	0.0040	0.0036	0.0026	0.0026				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				193	170	171	191	191				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.004	0.003	0.003	0.003	0.003				
Sulphate	mg/L				6.3	5.8	5.8	6.0	6.0				
Chloride	mg/L				99	95	91	96	96				
Total Ammonia	mg/L				0.005	0.009	0.014	0.013	0.013				
Nitrate	mg/L				0.22	0.21	0.20	0.21	0.21				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0086	0.0078	0.0074	0.0076	0.0076				
Phosphate-P	mg/L				0.0240	0.0246	0.0301	0.0260	0.0260				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0011	0.0014	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0031	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00072	0.00065	0.00062	0.00063	0.00063				
Boron B	mg/L				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000051	0.0000050	0.0000045	0.0000046	0.0000046				
Calcium Ca	mg/L				19	17	17	16	16				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000011	0.0000012	0.0000012	0.0000012	0.0000013				
Molybdenum Mo	mg/L				0.00048	0.00044	0.00045	0.00044	0.00044				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.028	0.028	0.033	0.029	0.029				
Potassium K	mg/L				4.2	3.7	3.6	3.6	3.6				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00058				
Silicon SiO2	mg/L				0.65	0.64	0.63	0.64	0.64				
Silver Ag	mg/L				0.0000071	0.0000072	0.0000070	0.0000072	0.0000072				
Sodium Na	mg/L				50	43	44	42	42				
Strontium Sr	mg/L				0.042	0.043	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000004	0.000004				
Tin Sn	mg/L				0.00049	0.00048	0.00048	0.00048	0.00048				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0063	0.0063				
Uranium U	mg/L				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0018	0.0038	0.0035	0.0024	0.0024				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				185	161	163	183	183				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.003	0.002	0.003	0.003				
Sulphate	mg/L				5.7	5.3	5.3	5.5	5.5				
Chloride	mg/L				93	89	86	91	91				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.18	0.16	0.15	0.15	0.15				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0073	0.0066	0.0063	0.0064	0.0064				
Phosphate-P	mg/L				0.0229	0.0235	0.0290	0.0249	0.0249				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.04	0.07	0.09	0.08	0.08				
Antimony Sb	mg/L				0.0010	0.0013	0.0032	0.0010	0.0010				
Arsenic As	mg/L				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0031	0.0033	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00061	0.00054	0.00052	0.00053	0.00052				
Boron B	mg/L				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000050	0.0000048	0.0000042	0.0000043	0.0000043				
Calcium Ca	mg/L				17	16	15	15	15				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0017	0.0015	0.0017	0.0017				
Iron Fe	mg/L				0.06	0.13	0.09	0.10	0.10				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000012	0.0000013	0.0000013	0.0000013	0.0000013				
Molybdenum Mo	mg/L				0.00043	0.00039	0.00041	0.00039	0.00039				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.026	0.031	0.027	0.027				
Potassium K	mg/L				4.0	3.5	3.4	3.4	3.4				
Selenium Se	mg/L				0.00090	0.00059	0.00064	0.00058	0.00058				
Silicon SiO2	mg/L				0.63	0.62	0.62	0.62	0.62				
Silver Ag	mg/L				0.0000072	0.0000071	0.0000068	0.0000069	0.0000069				
Sodium Na	mg/L				49	42	43	41	41				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00048	0.00047	0.00046	0.00047	0.00047				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0064	0.0064				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0037	0.0034	0.0023	0.0023				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				177	154	155	175	175				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.2	4.8	4.8	5.0	5.0				
Chloride	mg/L				88	85	81	86	86				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.11	0.10	0.09	0.09	0.09				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0062	0.0055	0.0052	0.0053	0.0053				
Phosphate-P	mg/L				0.0219	0.0226	0.0281	0.0240	0.0240				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.07	0.09	0.08	0.08				
Antimony Sb	mg/L				0.0008	0.0012	0.0031	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00003	0.00003	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00051	0.00045	0.00042	0.00043	0.00043				
Boron B	mg/L				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000047	0.0000045	0.0000039	0.0000040	0.0000040				
Calcium Ca	mg/L				16	14	14	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0017	0.0014	0.0017	0.0017				
Iron Fe	mg/L				0.06	0.13	0.09	0.10	0.10				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0030				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000013	0.0000014	0.0000014	0.0000014	0.0000014				
Molybdenum Mo	mg/L				0.00038	0.00035	0.00037	0.00035	0.00035				
Nickel Ni	mg/L				0.0006	0.0008	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.024	0.030	0.026	0.026				
Potassium K	mg/L				3.8	3.3	3.3	3.2	3.2				
Selenium Se	mg/L				0.00090	0.00060	0.00064	0.00058	0.00059				
Silicon SiO2	mg/L				0.62	0.61	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000069	0.0000069	0.0000065	0.0000067	0.0000066				
Sodium Na	mg/L				47	41	41	40	40				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000030	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00046	0.00045	0.00045	0.00045	0.00045				
Titanium Ti	mg/L				0.0064	0.0064	0.0064	0.0064	0.0065				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0016	0.0036	0.0033	0.0022	0.0022				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS mg/L				169	147	149	169	168				
TSS mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate mg/L				4.7	4.4	4.4	4.6	4.5				
Chloride mg/L				83	80	77	82	81				
Total Ammonia mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate mg/L				0.05	0.05	0.05	0.05	0.04				
Nitrite mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity mg/L				28	26	27	27	27				
OrthoPhosphate-P mg/L				0.0052	0.0046	0.0043	0.0044	0.0043				
Phosphate-P mg/L				0.0209	0.0217	0.0273	0.0231	0.0230				
Org. Carbon mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3 mg/L				47	44	43	45	45				
Total Metals												
Aluminum Al mg/L				0.04	0.07	0.09	0.08	0.08				
Antimony Sb mg/L				0.0008	0.0011	0.0030	0.0008	0.0008				
Arsenic As mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi mg/L				0.00042	0.00036	0.00034	0.00035	0.00034				
Boron B mg/L				0.035	0.024	0.024	0.023	0.023				
Cadmium Cd mg/L				0.0000044	0.0000042	0.0000036	0.0000037	0.0000036				
Calcium Ca mg/L				14	13	12	12	12				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0003	0.0003	0.0010	0.0003	0.0002				
Copper Cu mg/L				0.0014	0.0017	0.0014	0.0016	0.0016				
Iron Fe mg/L				0.06	0.13	0.09	0.10	0.10				
Lead Pb mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0030	0.0029				
Magnesium Mg mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000014	0.0000014	0.0000014	0.0000015	0.0000015				
Molybdenum Mo mg/L				0.00034	0.00032	0.00033	0.00032	0.00031				
Nickel Ni mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P mg/L				0.023	0.023	0.028	0.024	0.024				
Potassium K mg/L				3.6	3.2	3.1	3.1	3.0				
Selenium Se mg/L				0.00091	0.00060	0.00065	0.00059	0.00059				
Silicon SiO2 mg/L				0.61	0.60	0.60	0.60	0.60				
Silver Ag mg/L				0.0000066	0.0000066	0.0000063	0.0000064	0.0000062				
Sodium Na mg/L				46	39	40	38	38				
Strontium Sr mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000031	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn mg/L				0.00045	0.00044	0.00044	0.00044	0.00044				
Titanium Ti mg/L				0.0064	0.0065	0.0065	0.0065	0.0065				
Uranium U mg/L				0.000028	0.000033	0.000041	0.000034	0.000034				
Vanadium V mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn mg/L				0.0015	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-1-c-B.2

Low Flow Scenario 3

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				161	140	142	162	161			
TSS	mg/L				4.0	5.8	5.9	6.9	6.9			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.001	0.001	0.001	0.001	0.001			
Sulphate	mg/L				4.2	3.9	4.0	4.1	4.1			
Chloride	mg/L				77	75	73	77	76			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				28	26	27	27	27			
OrthoPhosphate-P	mg/L				0.0040	0.0035	0.0034	0.0034	0.0033			
Phosphate-P	mg/L				0.0198	0.0207	0.0263	0.0222	0.0220			
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0			
Hardness CaCO3	mg/L				46	43	43	44	44			
Total Metals												
Aluminum Al	mg/L				0.04	0.07	0.09	0.08	0.08			
Antimony Sb	mg/L				0.0006	0.0010	0.0029	0.0007	0.0007			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031			
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002			
Bismuth Bi	mg/L				0.00031	0.00027	0.00026	0.00026	0.00025			
Boron B	mg/L				0.035	0.023	0.024	0.023	0.023			
Cadmium Cd	mg/L				0.0000040	0.0000038	0.0000033	0.0000033	0.0000033			
Calcium Ca	mg/L				13	11	11	11	11			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002			
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0016			
Iron Fe	mg/L				0.06	0.13	0.09	0.10	0.10			
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00004	0.00004			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.3	6.6	6.7	6.6	6.6			
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000014	0.0000014	0.0000014	0.0000015	0.0000015			
Molybdenum Mo	mg/L				0.00029	0.00027	0.00029	0.00028	0.00027			
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0005	0.0005			
Phosphorus P	mg/L				0.021	0.021	0.027	0.023	0.023			
Potassium K	mg/L				3.4	3.0	2.9	2.9	2.9			
Selenium Se	mg/L				0.00091	0.00060	0.00064	0.00059	0.00059			
Silicon SiO2	mg/L				0.59	0.58	0.58	0.58	0.58			
Silver Ag	mg/L				0.0000059	0.0000060	0.0000057	0.0000059	0.0000056			
Sodium Na	mg/L				44	38	39	37	37			
Strontium Sr	mg/L				0.041	0.042	0.037	0.041	0.041			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000004	0.000004			
Tin Sn	mg/L				0.00043	0.00043	0.00042	0.00043	0.00042			
Titanium Ti	mg/L				0.0064	0.0065	0.0065	0.0065	0.0065			
Uranium U	mg/L				0.000028	0.000033	0.000040	0.000034	0.000034			
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003			
Zinc Zn	mg/L				0.0013	0.0034	0.0031	0.0020	0.0020			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				656446	359057	157466	234311	82724				
TSS				18095	16391	7057	10526	3676				
Free CN				0.33	0.04	0.03	0.04	0.01				
Total CN				12	6	3	3	1				
WAD CN				0.44	0.06	0.04	0.05	0.02				
CNO				366	49	30	41	14				
SCN				5	4	2	3	1				
Sulphate				17133	11126	5202	7430	2771				
Chloride				285868	180703	75281	104376	37089				
Total Ammonia				92	126	33	47	17				
Nitrate				404	350	183	277	111				
Nitrite				48	38	16	22	8				
Alkalinity				126598	73045	32843	41595	14601				
OrthoPhosphate-P				10	7	3	5	2				
Phosphate-P				80	54	30	33	12				
Org. Carbon				25012	14510	8870	7661	2675				
Hardness CaCO3				209601	123133	51967	69346	24381				
Total Metals												
Aluminum Al				155	170	96	111	39				
Antimony Sb				2.0	2.8	3.6	1.1	0.4				
Arsenic As				2.3	1.3	0.5	0.7	0.2				
Barium Ba				13	9	4	5	2				
Beryllium Be				0.09	0.06	0.03	0.04	0.01				
Bismuth Bi				0.53	0.58	0.32	0.49	0.20				
Boron B				156	64	28	35	12				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				50604	31112	13741	18672	6982				
Chromium Cr				3	1	1	1	0				
Cobalt Co				0.74	0.78	1.24	0.44	0.17				
Copper Cu				6	5	2	3	1				
Iron Fe				233	348	100	137	48				
Lead Pb				0.12	0.20	0.06	0.08	0.03				
Lithium Li				13	8	3	4	2				
Magnesium Mg				33124	18593	7937	9999	3504				
Manganese Mn				31	58	16	16	6				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.15	0.76	0.39	0.52	0.20				
Nickel Ni				2.25	1.92	0.72	0.93	0.34				
Phosphorus P				88	60	33	37	13				
Potassium K				14689	8263	3608	4771	1742				
Selenium Se				4.05	1.62	0.74	0.86	0.30				
Silicon SiO2				2538	1605	690	906	323				
Silver Ag				0.02	0.02	0.01	0.01	0.00				
Sodium Na				177636	93451	41037	49432	17328				
Strontium Sr				186	120	44	63	22				
Tellurium Te				227	141	59	76	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				1.86	1.19	0.52	0.67	0.24				
Titanium Ti				27	17	7	9	3				
Uranium U				0.13	0.09	0.05	0.05	0.02				
Vanadium V				2.65	0.30	0.36	0.34	0.13				
Zinc Zn				5.25	9.64	3.78	3.28	1.19				
Zirconium Zr				23	14	6	8	3				

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				732661	400426	173891	255348	89909				
TSS				18256	16476	7091	10569	3691				
Free CN				0.79	0.01	0.03	0.03	0.01				
Total CN				16	6	3	3	1				
WAD CN				1.05	0.02	0.03	0.05	0.02				
CNO				864	15	29	37	13				
SCN				21	12	5	7	3				
Sulphate				31346	18834	8260	11348	4109				
Chloride				336896	208308	86220	118384	41871				
Total Ammonia				188	222	26	46	16				
Nitrate				1251	846	379	540	199				
Nitrite				130	38	16	8	8				
Alkalinity				133090	76558	34235	43377	15209				
OrthoPhosphate-P				30	18	8	11	4				
Phosphate-P				100	65	35	39	14				
Org. Carbon				24992	14495	8863	7652	2672				
Hardness CaCO3				223730	130794	55005	73236	25710				
Total Metals												
Aluminum Al				161	173	97	112	39				
Antimony Sb				3.9	3.8	4.0	1.7	0.6				
Arsenic As				2.8	1.5	0.6	0.8	0.3				
Barium Ba				15	10	4	5	2				
Beryllium Be				0.15	0.09	0.04	0.05	0.02				
Bismuth Bi				2.33	1.54	0.70	0.97	0.36				
Boron B				159	66	29	36	12				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				89009	51987	22034	29296	10611				
Chromium Cr				4	2	1	1	0				
Cobalt Co				2.36	1.66	1.59	0.89	0.33				
Copper Cu				7	5	2	3	1				
Iron Fe				238	351	101	138	48				
Lead Pb				0.18	0.23	0.07	0.09	0.03				
Lithium Li				13	8	4	5	2				
Magnesium Mg				34210	19178	8169	10295	3605				
Manganese Mn				35	61	17	17	6				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.55	1.52	0.69	0.90	0.33				
Nickel Ni				3.51	2.60	0.99	1.27	0.46				
Phosphorus P				121	78	40	46	17				
Potassium K				21018	11703	4975	6522	2340				
Selenium Se				4.09	1.64	0.75	0.87	0.30				
Silicon SiO2				3079	1898	807	1055	374				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				183619	96694	42323	51079	17890				
Strontium Sr				198	126	46	66	23				
Tellurium Te				227	141	59	76	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				2.13	1.34	0.57	0.75	0.26				
Titanium Ti				27	17	7	9	3				
Uranium U				0.13	0.10	0.05	0.05	0.02				
Vanadium V				3.09	0.54	0.46	0.46	0.17				
Zinc Zn				8.74	11.53	4.53	4.24	1.52				
Zirconium Zr				23	14	6	8	3				

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				777994	425550	183429	266884	93618				
TSS				18332	16514	7103	10579	3692				
Free CN				0.46								
Total CN				13	5	2	3	1				
WAD CN				0.62								
CNO				508								
SCN				27	15	6	8	3				
Sulphate				37826	22000	9254	12252	4289				
Chloride				372322	228924	94589	129304	45675				
Total Ammonia				149	145	22	29	10				
Nitrate				1721	1072	450	608	216				
Nitrite				113	31	15	6	2				
Alkalinity				135895	77895	34625	43679	15245				
OrthoPhosphate-P				44	26	11	15	5				
Phosphate-P				114	73	38	43	15				
Org. Carbon				25003	14507	8868	7659	2674				
Hardness CaCO3				229770	133651	55834	73868	25777				
Total Metals												
Aluminum Al				164	175	98	113	39				
Antimony Sb				5.2	4.5	4.3	2.0	0.7				
Arsenic As				3.0	1.6	0.6	0.8	0.3				
Barium Ba				15	10	4	5	2				
Beryllium Be				0.19	0.11	0.05	0.06	0.02				
Bismuth Bi				3.56	2.25	0.98	1.34	0.49				
Boron B				161	67	29	36	13				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				105217	59581	24221	30935	10767				
Chromium Cr				5	2	1	1	0				
Cobalt Co				3.06	1.99	1.68	0.97	0.34				
Copper Cu				8	6	2	3	1				
Iron Fe				240	352	102	139	48				
Lead Pb				0.21	0.25	0.08	0.10	0.03				
Lithium Li				14	8	4	5	2				
Magnesium Mg				34730	19439	8253	10376	3624				
Manganese Mn				37	62	17	17	6				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.14	1.80	0.77	0.96	0.34				
Nickel Ni				4.08	2.88	1.08	1.35	0.47				
Phosphorus P				141	89	45	52	18				
Potassium K				23680	12950	5333	6788	2364				
Selenium Se				4.11	1.65	0.75	0.87	0.30				
Silicon SiO2				3316	2010	839	1082	378				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				186186	97910	42677	51351	17920				
Strontium Sr				203	129	47	66	23				
Tellurium Te				227	141	59	76	27				
Thallium Tl				0.15	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				2.33	1.45	0.62	0.80	0.28				
Titanium Ti				27	17	7	9	3				
Uranium U				0.13	0.10	0.05	0.05	0.02				
Vanadium V				3.36	0.68	0.51	0.53	0.19				
Zinc Zn				10.30	12.28	4.76	4.44	1.55				
Zirconium Zr				23	14	6	8	3				

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				794453	453184	202476	302433	109841				
TSS				18325	16548	7124	10610	3705				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				23	13	5	7	2				
Sulphate				35427	20404	8539	11281	3934				
Chloride				398694	253620	108802	153716	56278				
Total Ammonia				58	39	23	28	10				
Nitrate				1664	990	409	537	189				
Nitrite				42	8	4	5	2				
Alkalinity				134412	77076	34303	43276	15110				
OrthoPhosphate-P				54	30	12	16	6				
Phosphate-P				124	78	40	44	15				
Org. Carbon				25092	14559	8890	7689	2685				
Hardness CaCO3				226254	131699	55059	72892	25448				
Total Metals												
Aluminum Al				165	178	100	115	40				
Antimony Sb				6.2	4.9	4.3	2.0	0.7				
Arsenic As				2.9	1.6	0.6	0.8	0.3				
Barium Ba				15	10	4	5	2				
Beryllium Be				0.22	0.12	0.05	0.07	0.02				
Bismuth Bi				4.58	2.58	1.05	1.36	0.48				
Boron B				161	67	29	36	13				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				94621	54862	22857	29927	10689				
Chromium Cr				4	2	1	1	0				
Cobalt Co				2.68	1.76	1.59	0.85	0.30				
Copper Cu				8	5	2	3	1				
Iron Fe				240	355	103	141	49				
Lead Pb				0.21	0.25	0.08	0.10	0.03				
Lithium Li				14	8	4	5	2				
Magnesium Mg				34639	19407	8243	10363	3619				
Manganese Mn				36	61	17	17	6				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.76	1.58	0.68	0.85	0.30				
Nickel Ni				3.89	2.75	1.02	1.27	0.44				
Phosphorus P				150	93	46	52	18				
Potassium K				21913	11989	4954	6307	2201				
Selenium Se				4.11	1.66	0.76	0.88	0.31				
Silicon SiO2				3194	1947	816	1052	368				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				184730	104621	48485	62986	23430				
Strontium Sr				201	127	46	66	23				
Tellurium Te				228	141	60	76	27				
Thallium Tl				0.15	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				2.48	1.50	0.63	0.81	0.28				
Titanium Ti				28	17	7	9	3				
Uranium U				0.13	0.10	0.05	0.06	0.02				
Vanadium V				3.47	0.74	0.53	0.54	0.19				
Zinc Zn				9.63	11.89	4.59	4.22	1.48				
Zirconium Zr				23	14	6	8	3				

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				946824	516564	218887	311947	108820				
TSS				18447	16618	7153	10649	3719				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				19	11	4	6	2				
Sulphate				32330	18590	7790	10305	3592				
Chloride				489687	291153	118352	158937	55455				
Total Ammonia				47	40	23	28	10				
Nitrate				1443	845	351	461	163				
Nitrite				13	9	4	5	2				
Alkalinity				133556	76571	34094	43007	15016				
OrthoPhosphate-P				47	26	11	14	5				
Phosphate-P				118	74	38	42	15				
Org. Carbon				25199	14621	8916	7723	2697				
Hardness CaCO3				224032	130391	54519	72193	25204				
Total Metals												
Aluminum Al				174	183	102	118	41				
Antimony Sb				5.6	4.5	4.2	1.8	0.6				
Arsenic As				2.8	1.5	0.6	0.8	0.3				
Barium Ba				15	10	4	5	2				
Beryllium Be				0.20	0.11	0.05	0.06	0.02				
Bismuth Bi				3.96	2.22	0.90	1.17	0.41				
Boron B				162	68	29	36	13				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				97168	54829	22268	28461	9920				
Chromium Cr				4	2	1	1	0				
Cobalt Co				2.35	1.57	1.51	0.74	0.26				
Copper Cu				7	5	2	3	1				
Iron Fe				249	360	105	144	50				
Lead Pb				0.21	0.24	0.07	0.09	0.03				
Lithium Li				14	8	4	5	2				
Magnesium Mg				34594	19380	8231	10349	3614				
Manganese Mn				35	61	17	17	6				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.48	1.42	0.62	0.77	0.27				
Nickel Ni				3.63	2.60	0.95	1.19	0.42				
Phosphorus P				141	87	43	49	17				
Potassium K				20744	11303	4670	5938	2072				
Selenium Se				4.15	1.69	0.77	0.89	0.31				
Silicon SiO2				3127	1908	799	1031	360				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				242914	130113	55771	68542	23930				
Strontium Sr				199	127	46	65	23				
Tellurium Te				228	142	60	77	27				
Thallium Tl				0.15	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				2.40	1.45	0.61	0.78	0.27				
Titanium Ti				28	18	7	10	3				
Uranium U				0.14	0.10	0.05	0.06	0.02				
Vanadium V				3.43	0.71	0.52	0.53	0.19				
Zinc Zn				8.99	11.51	4.44	4.02	1.41				
Zirconium Zr				23	14	6	8	3				

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				901703	490258	208045	297821	103883				
TSS				18559	16683	7179	10684	3731				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				16	9	4	5	2				
Sulphate				29294	16813	7057	9350	3259				
Chloride				460514	274138	111338	149805	52265				
Total Ammonia				23	26	17	20	7				
Nitrate				1027	600	249	330	117				
Nitrite				9	6	3	3	1				
Alkalinity				132765	76106	33902	42761	14930				
OrthoPhosphate-P				40	22	9	12	4				
Phosphate-P				112	71	37	41	14				
Org. Carbon				25298	14678	8939	7755	2708				
Hardness CaCO3				221981	129189	54023	71551	24980				
Total Metals												
Aluminum Al				177	184	102	119	42				
Antimony Sb				5.0	4.1	4.0	1.7	0.6				
Arsenic As				2.7	1.4	0.6	0.7	0.3				
Barium Ba				15	10	4	5	2				
Beryllium Be				0.17	0.09	0.04	0.05	0.02				
Bismuth Bi				3.37	1.87	0.75	0.99	0.34				
Boron B				161	67	29	36	13				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				88273	49633	20125	25669	8944				
Chromium Cr				4	1	1	1	0				
Cobalt Co				2.02	1.38	1.43	0.64	0.22				
Copper Cu				7	5	2	3	1				
Iron Fe				256	364	107	146	51				
Lead Pb				0.17	0.22	0.07	0.08	0.03				
Lithium Li				14	8	4	5	2				
Magnesium Mg				34522	19335	8212	10326	3607				
Manganese Mn				35	60	17	17	6				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.23	1.27	0.55	0.69	0.24				
Nickel Ni				3.36	2.44	0.89	1.11	0.39				
Phosphorus P				128	80	40	45	16				
Potassium K				19655	10668	4408	5597	1953				
Selenium Se				4.16	1.69	0.77	0.90	0.31				
Silicon SiO2				3009	1836	769	993	347				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				234953	125466	53853	66051	23060				
Strontium Sr				198	126	46	65	23				
Tellurium Te				229	142	60	77	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				2.30	1.39	0.58	0.75	0.26				
Titanium Ti				29	18	8	10	3				
Uranium U				0.13	0.09	0.05	0.05	0.02				
Vanadium V				3.34	0.66	0.49	0.50	0.18				
Zinc Zn				8.28	11.09	4.26	3.79	1.33				
Zirconium Zr				23	14	6	8	3				

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				860386	466314	198205	284990	99401				
TSS				18661	16742	7203	10716	3742				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				14	8	3	4	1				
Sulphate				26675	15285	6426	8526	2970				
Chloride				433800	258651	104972	141510	49368				
Total Ammonia				23	22	16	19	7				
Nitrate				823	453	181	237	82				
Nitrite				9	6	2	3	1				
Alkalinity				132041	75682	33727	42536	14852				
OrthoPhosphate-P				34	19	8	10	3				
Phosphate-P				107	68	35	39	14				
Org. Carbon				25388	14730	8960	7783	2718				
Hardness CaCO3				220103	128093	53573	70968	24777				
Total Metals												
Aluminum Al				184	188	104	121	42				
Antimony Sb				4.4	3.8	3.9	1.5	0.5				
Arsenic As				2.6	1.4	0.5	0.7	0.2				
Barium Ba				14	10	4	5	2				
Beryllium Be				0.15	0.08	0.03	0.04	0.02				
Bismuth Bi				2.85	1.57	0.63	0.82	0.29				
Boron B				162	68	29	36	13				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				80405	45056	18240	23208	8083				
Chromium Cr				4	1	1	1	0				
Cobalt Co				1.74	1.21	1.36	0.55	0.19				
Copper Cu				7	5	2	3	1				
Iron Fe				263	368	109	148	52				
Lead Pb				0.17	0.22	0.06	0.08	0.03				
Lithium Li				14	8	4	5	2				
Magnesium Mg				34484	19310	8201	10312	3602				
Manganese Mn				34	60	17	16	6				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.00	1.14	0.50	0.62	0.21				
Nickel Ni				3.14	2.31	0.84	1.04	0.36				
Phosphorus P				120	75	38	43	15				
Potassium K				18666	10094	4172	5290	1845				
Selenium Se				4.19	1.71	0.78	0.90	0.32				
Silicon SiO2				2952	1800	754	972	340				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				227669	121239	52113	63789	22271				
Strontium Sr				196	125	45	64	23				
Tellurium Te				230	143	60	77	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				2.23	1.35	0.56	0.73	0.25				
Titanium Ti				29	18	8	10	3				
Uranium U				0.13	0.10	0.05	0.05	0.02				
Vanadium V				3.31	0.64	0.48	0.49	0.17				
Zinc Zn				7.74	10.77	4.13	3.62	1.27				
Zirconium Zr				23	14	6	8	3				

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				822929	444759	189375	273469	95379				
TSS				18754	16795	7224	10745	3752				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				11	6	2	3	1				
Sulphate				24263	13897	5858	7784	2711				
Chloride				409582	244707	99258	134061	46768				
Total Ammonia				22	22	16	19	7				
Nitrate				520	284	113	148	51				
Nitrite				9	6	2	3	1				
Alkalinity				131384	75299	33570	42335	14782				
OrthoPhosphate-P				29	16	6	8	3				
Phosphate-P				102	65	34	37	13				
Org. Carbon				25470	14776	8979	7808	2727				
Hardness CaCO3				218400	127106	53168	70444	24595				
Total Metals												
Aluminum Al				190	192	105	123	43				
Antimony Sb				3.9	3.5	3.8	1.3	0.5				
Arsenic As				2.6	1.4	0.5	0.7	0.2				
Barium Ba				14	9	4	5	2				
Beryllium Be				0.14	0.07	0.03	0.04	0.01				
Bismuth Bi				2.37	1.30	0.52	0.68	0.23				
Boron B				162	68	29	36	13				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				73207	40916	16545	20994	7310				
Chromium Cr				4	1	1	1	0				
Cobalt Co				1.48	1.06	1.30	0.47	0.16				
Copper Cu				7	5	2	3	1				
Iron Fe				269	372	110	150	53				
Lead Pb				0.16	0.21	0.06	0.08	0.03				
Lithium Li				14	8	4	5	2				
Magnesium Mg				34443	19286	8190	10299	3598				
Manganese Mn				34	60	16	16	6				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.79	1.02	0.45	0.55	0.19				
Nickel Ni				2.94	2.19	0.79	0.98	0.34				
Phosphorus P				112	71	36	40	14				
Potassium K				17768	9577	3960	5013	1749				
Selenium Se				4.22	1.72	0.78	0.91	0.32				
Silicon SiO2				2889	1764	739	952	333				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				221063	117433	50551	61758	21563				
Strontium Sr				195	124	45	64	22				
Tellurium Te				231	143	60	77	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				2.16	1.31	0.55	0.70	0.25				
Titanium Ti				30	18	8	10	4				
Uranium U				0.13	0.10	0.05	0.05	0.02				
Vanadium V				3.26	0.61	0.47	0.48	0.17				
Zinc Zn				7.23	10.47	4.00	3.46	1.21				
Zirconium Zr				23	14	6	8	3				

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				789368	425605	181561	263265	91199				
TSS				18837	16841	7243	10770	3756				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				9	5	2	3	1				
Sulphate				22102	12664	5356	7127	2447				
Chloride				387883	232316	94199	127465	44020				
Total Ammonia				22	22	16	19	7				
Nitrate				255	139	55	72	24				
Nitrite				9	6	2	3	1				
Alkalinity				130796	74959	33430	42157	14683				
OrthoPhosphate-P				24	13	5	7	2				
Phosphate-P				98	63	33	36	12				
Org. Carbon				25543	14817	8995	7831	2729				
Hardness CaCO3				216874	126227	52808	69981	24371				
Total Metals												
Aluminum Al				195	194	106	124	43				
Antimony Sb				3.5	3.3	3.7	1.2	0.4				
Arsenic As				2.5	1.3	0.5	0.7	0.2				
Barium Ba				14	9	4	5	2				
Beryllium Be				0.12	0.06	0.03	0.03	0.01				
Bismuth Bi				1.95	1.05	0.42	0.55	0.18				
Boron B				162	68	29	37	13				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				66758	37237	15044	19033	6521				
Chromium Cr				4	1	1	1	0				
Cobalt Co				1.24	0.93	1.25	0.40	0.14				
Copper Cu				6	5	2	3	1				
Iron Fe				275	375	112	152	53				
Lead Pb				0.14	0.20	0.06	0.07	0.03				
Lithium Li				14	9	4	5	2				
Magnesium Mg				34406	19263	8181	10288	3585				
Manganese Mn				33	59	16	16	6				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.60	0.91	0.41	0.49	0.17				
Nickel Ni				2.75	2.09	0.74	0.92	0.32				
Phosphorus P				105	66	35	38	13				
Potassium K				16962	9117	3773	4769	1647				
Selenium Se				4.24	1.74	0.79	0.92	0.32				
Silicon SiO2				2832	1731	725	935	324				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				215144	114050	49167	59958	20776				
Strontium Sr				194	124	45	64	22				
Tellurium Te				231	143	60	78	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				2.09	1.27	0.53	0.68	0.24				
Titanium Ti				30	19	8	10	4				
Uranium U				0.13	0.10	0.05	0.05	0.02				
Vanadium V				3.23	0.59	0.47	0.46	0.16				
Zinc Zn				6.77	10.20	3.90	3.31	1.15				
Zirconium Zr				23	14	6	8	3				

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Table I-1-c-B.3

Low Flow Scenario 3

Solute Loadings in DORISolute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				748576	403720	172925	251956	87422				
TSS				18815	16830	7238	10764	3754				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				7	4	1	2	1				
Sulphate				19575	11308	4821	6426	2213				
Chloride				360679	217722	88441	119924	41502				
Total Ammonia				22	22	16	19	7				
Nitrate				27	17	7	9	3				
Nitrite				9	6	2	3	1				
Alkalinity				129595	74315	33176	41825	14572				
OrthoPhosphate-P				19	10	4	5	2				
Phosphate-P				92	60	32	35	12				
Org. Carbon				25507	14798	8988	7821	2726				
Hardness CaCO3				214402	124901	52286	69296	24142				
Total Metals												
Aluminum Al				195	195	106	124	43				
Antimony Sb				3.0	3.0	3.6	1.1	0.4				
Arsenic As				2.4	1.3	0.5	0.6	0.2				
Barium Ba				14	9	4	5	2				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				1.46	0.79	0.31	0.41	0.14				
Boron B				162	68	29	36	13				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				59186	33173	13441	16933	5820				
Chromium Cr				3	1	1	1	0				
Cobalt Co				0.97	0.78	1.19	0.33	0.11				
Copper Cu				6	5	2	2	1				
Iron Fe				276	375	112	152	53				
Lead Pb				0.13	0.20	0.05	0.07	0.02				
Lithium Li				14	8	4	5	2				
Magnesium Mg				34209	19158	8139	10234	3567				
Manganese Mn				32	59	16	16	6				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.37	0.79	0.36	0.43	0.15				
Nickel Ni				2.53	1.97	0.70	0.86	0.30				
Phosphorus P				97	62	33	36	12				
Potassium K				15951	8575	3558	4488	1553				
Selenium Se				4.24	1.73	0.79	0.92	0.32				
Silicon SiO2				2737	1680	705	908	315				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				207052	109709	47454	57716	20028				
Strontium Sr				192	123	44	63	22				
Tellurium Te				231	143	60	77	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				2.02	1.23	0.52	0.66	0.23				
Titanium Ti				30	19	8	10	4				
Uranium U				0.13	0.09	0.05	0.05	0.02				
Vanadium V				3.13	0.54	0.45	0.44	0.15				
Zinc Zn				6.17	9.88	3.77	3.15	1.10				
Zirconium Zr				23	14	6	8	3				

Table I-1-c-C.1
Low Flow Scenario 3

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate		550000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		14			
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1427	203	193	
TSS	mg/L			5.1	6.9	8.1	
Free CN	mg/L		0.005	0.0033	0.00017	0.00009	3%
Total CN	mg/L	1.0		0.032	0.004	0.003	
WAD CN	mg/L			0.0044	0.0002	0.0001	
CNO	mg/L			3.7	0.19	0.10	
SCN	mg/L			0.119	0.006	0.003	
Sulphate	mg/L			109	8.1	7.2	
Chloride	mg/L			968	105	88	
Total Ammonia	mg/L		0.97	1.26	0.077	0.041	8%
Nitrate	mg/L		2.9	7.0	0.40	0.21	14%
Nitrite	mg/L		0.018	0.49	0.028	0.015	152%
Alkalinity	mg/L			62	29	26	
OrthoPhosphate-P	mg/L			0.2166	0.0115	0.0065	
Phosphate-P	mg/L			0.2195	0.0324	0.0296	
Org. Carbon	mg/L			5.4	7.4	7.1	
Hardness CaCO3	mg/L			124	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.22	0.09	0.25	87%
Antimony Sb	mg/L			0.0197	0.0036	0.0022	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0124	0.0036	0.0054	
Beryllium Be	mg/L			0.00073	0.00005	0.00003	
Bismuth Bi	mg/L			0.01903	0.00098	0.00059	
Boron B	mg/L			0.044	0.035	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000069	0.0000167	18%
Calcium Ca	mg/L			296	23	15	
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	100%
Cobalt Co	mg/L			0.0124	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0020	0.0021	98%
Iron Fe	mg/L		0.3	0.24	0.13	0.28	43%
Lead Pb	mg/L	0.2	0.002	0.00049	0.00009	0.00027	4%
Lithium Li	mg/L			0.0059	0.0030	0.0029	
Magnesium Mg	mg/L			10.3	7.4	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000178	0.0000015	0.0000011	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00067	0.00047	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.317	0.037	0.033	
Potassium K	mg/L			49	5.1	3.9	
Selenium Se	mg/L		0.001	0.00121	0.00091	0.00085	91%
Silicon SiO2	mg/L			4.6	0.71	0.62	
Silver Ag	mg/L		0.0001	0.00013	0.0000089	0.0000073	9%
Sodium Na	mg/L			301	52	45	
Strontium Sr	mg/L			0.102	0.045	0.048	
Tellurium Te	mg/L			0.044	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000046	0.000031	0.002001	4%
Thorium Th	mg/L			0.000077	0.0000056	0.0000029	
Tin Sn	mg/L			0.00297	0.00053	0.00008	
Titanium Ti	mg/L			0.0167	0.0065	0.0064	
Uranium U	mg/L			0.000097	0.000042	0.000046	
Vanadium V	mg/L			0.0042	0.0007	0.0006	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0049	0.0050	0.0051	

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				154	155	145	166	167				
TSS	mg/L				7.0	8.0	4.0	5.1	5.1				
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.04	0.01	0.01	0.01	0.01				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.3	5.5	5.4	5.6				
Chloride	mg/L				63	61	60	69	70				
Total Ammonia	mg/L				0.013	0.024	0.007	0.016	0.016				
Nitrate	mg/L				0.05	0.07	0.07	0.09	0.11				
Nitrite	mg/L				0.006	0.008	0.006	0.008	0.008				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0019	0.0021	0.0023	0.0025				
Phosphate-P	mg/L				0.0248	0.0170	0.0081	0.0204	0.0206				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0004	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00002				
Bismuth Bi	mg/L				0.00014	0.00019	0.00022	0.00025	0.00027				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000034	0.0000050	0.0000157	0.0000033	0.0000034				
Calcium Ca	mg/L				9	8	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0028	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00023	0.00022	0.00031	0.00029	0.00030				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.018	0.009	0.022	0.022				
Potassium K	mg/L				2.9	2.5	2.5	2.9	3.0				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.55	0.55	0.56				
Silver Ag	mg/L				0.0000055	0.0000031	0.0000057	0.0000042	0.0000043				
Sodium Na	mg/L				38	31	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000045				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				162	162	152	173	174				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00009	0.00000	0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.10	0.00	0.01	0.01	0.01				
SCN	mg/L				0.002	0.002	0.002	0.002	0.003				
Sulphate	mg/L				5.9	5.7	6.8	6.7	6.9				
Chloride	mg/L				69	66	65	74	74				
Total Ammonia	mg/L				0.023	0.041	0.004	0.016	0.016				
Nitrate	mg/L				0.14	0.15	0.16	0.18	0.19				
Nitrite	mg/L				0.015	0.008	0.006	0.004	0.008				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0039	0.0038	0.0039	0.0041	0.0043				
Phosphate-P	mg/L				0.0270	0.0189	0.0100	0.0222	0.0224				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0020	0.0015	0.0009	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00034	0.00036	0.00038	0.00041	0.00043				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000043	0.0000059	0.0000165	0.0000041	0.0000042				
Calcium Ca	mg/L				13	12	12	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00038	0.00036	0.00044	0.00042	0.00043				
Nickel Ni	mg/L				0.0008	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.029	0.021	0.012	0.025	0.025				
Potassium K	mg/L				3.6	3.1	3.1	3.5	3.5				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00061	0.00061				
Silicon SiO2	mg/L				0.60	0.59	0.60	0.60	0.61				
Silver Ag	mg/L				0.0000064	0.0000039	0.0000064	0.0000049	0.0000050				
Sodium Na	mg/L				38	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00004	0.00004	0.00005	0.00005	0.00005				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0040	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				167	166	156	177	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00005								
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.06								
SCN	mg/L				0.003	0.003	0.003	0.003	0.003				
Sulphate	mg/L				6.6	6.3	7.2	7.0	7.0				
Chloride	mg/L				73	69	68	77	78				
Total Ammonia	mg/L				0.019	0.027	0.003	0.010	0.010				
Nitrate	mg/L				0.19	0.19	0.19	0.20	0.21				
Nitrite	mg/L				0.014	0.006	0.005	0.003	0.003				
Alkalinity	mg/L				25	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0055	0.0052	0.0053	0.0056	0.0058				
Phosphate-P	mg/L				0.0285	0.0203	0.0114	0.0236	0.0238				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0021	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00048	0.00049	0.00050	0.00053	0.00055				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000048	0.0000062	0.0000167	0.0000042	0.0000042				
Calcium Ca	mg/L				15	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0016	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.3	5.4	7.3	7.4				
Manganese Mn	mg/L				0.025	0.009	0.013	0.009	0.009				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00045	0.00041	0.00047	0.00044	0.00043				
Nickel Ni	mg/L				0.0009	0.0007	0.0009	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.023	0.014	0.027	0.027				
Potassium K	mg/L				3.9	3.3	3.2	3.6	3.6				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.62	0.61	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000070	0.0000043	0.0000068	0.0000053	0.0000053				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00006	0.00006	0.00007	0.00007				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0042	0.0023	0.0022	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				169	171	164	189	193				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.3	6.0	6.9	6.7	6.7				
Chloride	mg/L				75	74	74	85	88				
Total Ammonia	mg/L				0.009	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.19	0.18	0.17	0.18	0.18				
Nitrite	mg/L				0.006	0.002	0.001	0.003	0.003				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0065	0.0060	0.0058	0.0059	0.0059				
Phosphate-P	mg/L				0.0296	0.0212	0.0120	0.0241	0.0241				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	42	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0022	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00059	0.00054	0.00053	0.00054	0.00053				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000046	0.0000061	0.0000166	0.0000041	0.0000042				
Calcium Ca	mg/L				14	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00041	0.00037	0.00043	0.00040	0.00040				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.033	0.024	0.015	0.027	0.027				
Potassium K	mg/L				3.7	3.1	3.1	3.4	3.4				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.60	0.60	0.60	0.60				
Silver Ag	mg/L				0.0000073	0.0000045	0.0000070	0.0000054	0.0000054				
Sodium Na	mg/L				39	33	37	41	42				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00008	0.00007	0.00007	0.00007	0.00007				
Titanium Ti	mg/L				0.0061	0.0061	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				186	183	171	192	192				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.7	6.6	6.4	6.4				
Chloride	mg/L				85	80	78	87	87				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.16	0.15	0.14	0.16	0.16				
Nitrite	mg/L				0.003	0.003	0.001	0.003	0.003				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0058	0.0053	0.0051	0.0052	0.0052				
Phosphate-P	mg/L				0.0289	0.0205	0.0113	0.0234	0.0234				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00052	0.00048	0.00046	0.00047	0.00047				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000046	0.0000060	0.0000165	0.0000041	0.0000041				
Calcium Ca	mg/L				14	13	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00038	0.00034	0.00041	0.00037	0.00037				
Nickel Ni	mg/L				0.0008	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.031	0.023	0.014	0.026	0.026				
Potassium K	mg/L				3.6	3.0	3.0	3.3	3.3				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00062				
Silicon SiO2	mg/L				0.60	0.60	0.59	0.60	0.60				
Silver Ag	mg/L				0.0000073	0.0000046	0.0000070	0.0000054	0.0000055				
Sodium Na	mg/L				45	38	40	43	43				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00007	0.00006	0.00006	0.00006	0.00006				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000046	0.000046				
Vanadium V	mg/L				0.0005	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0040	0.0022	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				181	178	167	187	187				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.6	5.3	6.2	6.1	6.1				
Chloride	mg/L				82	77	75	84	84				
Total Ammonia	mg/L				0.005	0.006	0.000	0.007	0.007				
Nitrate	mg/L				0.12	0.11	0.10	0.11	0.11				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0051	0.0046	0.0045	0.0045	0.0045				
Phosphate-P	mg/L				0.0283	0.0199	0.0107	0.0228	0.0228				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.16	0.16				
Antimony Sb	mg/L				0.0008	0.0020	0.0015	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00046	0.00042	0.00040	0.00041	0.00041				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000038	0.0000053	0.0000158	0.0000034	0.0000034				
Calcium Ca	mg/L				13	12	11	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0003	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo	mg/L				0.00035	0.00032	0.00038	0.00034	0.00034				
Nickel Ni	mg/L				0.0008	0.0006	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.030	0.021	0.012	0.024	0.024				
Potassium K	mg/L				3.5	2.9	2.8	3.2	3.2				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00062	0.00062				
Silicon SiO2	mg/L				0.59	0.58	0.58	0.58	0.58				
Silver Ag	mg/L				0.0000065	0.0000037	0.0000062	0.0000046	0.0000046				
Sodium Na	mg/L				44	37	39	42	42				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0021	0.0019	0.0055	0.0055				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				177	174	163	183	183				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.3	5.1	6.0	5.8	5.8				
Chloride	mg/L				79	74	73	81	81				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.09	0.08	0.07	0.08	0.08				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0044	0.0040	0.0039	0.0039	0.0039				
Phosphate-P	mg/L				0.0277	0.0194	0.0102	0.0223	0.0223				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0007	0.0020	0.0014	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00040	0.00036	0.00035	0.00036	0.00036				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000038	0.0000052	0.0000157	0.0000032	0.0000032				
Calcium Ca	mg/L				12	11	11	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0015	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00032	0.00029	0.00036	0.00032	0.00032				
Nickel Ni	mg/L				0.0008	0.0006	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.029	0.021	0.011	0.023	0.023				
Potassium K	mg/L				3.4	2.8	2.7	3.1	3.1				
Selenium Se	mg/L				0.00066	0.00039	0.00085	0.00062	0.00062				
Silicon SiO2	mg/L				0.58	0.58	0.57	0.58	0.58				
Silver Ag	mg/L				0.0000065	0.0000037	0.0000061	0.0000045	0.0000045				
Sodium Na	mg/L				43	36	39	41	41				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0020	0.0019	0.0055	0.0055				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				172	170	159	179	179				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.1	4.8	5.7	5.5	5.5				
Chloride	mg/L				77	72	70	79	79				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.06	0.05	0.04	0.05	0.05				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0038	0.0035	0.0033	0.0034	0.0034				
Phosphate-P	mg/L				0.0272	0.0189	0.0097	0.0218	0.0218				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0007	0.0019	0.0014	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00001	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00035	0.00032	0.00030	0.00031	0.00031				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000036	0.0000050	0.0000155	0.0000031	0.0000031				
Calcium Ca	mg/L				12	10	10	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00030	0.00027	0.00034	0.00030	0.00030				
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.028	0.020	0.011	0.023	0.023				
Potassium K	mg/L				3.3	2.7	2.7	3.0	3.0				
Selenium Se	mg/L				0.00067	0.00039	0.00085	0.00062	0.00062				
Silicon SiO2	mg/L				0.57	0.57	0.57	0.57	0.57				
Silver Ag	mg/L				0.0000063	0.0000036	0.0000059	0.0000044	0.0000043				
Sodium Na	mg/L				43	36	38	41	41				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Titanium Ti	mg/L				0.0063	0.0064	0.0064	0.0064	0.0064				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0038	0.0020	0.0018	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				169	166	156	176	175				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.8	4.6	5.5	5.3	5.3				
Chloride	mg/L				74	70	68	77	76				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0033	0.0030	0.0029	0.0029	0.0028				
Phosphate-P	mg/L				0.0267	0.0184	0.0093	0.0214	0.0213				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00030	0.00027	0.00026	0.00027	0.00026				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000035	0.0000049	0.0000154	0.0000029	0.0000029				
Calcium Ca	mg/L				11	9	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000010	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00028	0.00025	0.00032	0.00028	0.00028				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.028	0.019	0.010	0.022	0.022				
Potassium K	mg/L				3.2	2.6	2.6	2.9	2.9				
Selenium Se	mg/L				0.00067	0.00039	0.00085	0.00062	0.00062				
Silicon SiO2	mg/L				0.57	0.56	0.56	0.56	0.56				
Silver Ag	mg/L				0.0000062	0.0000034	0.0000058	0.0000042	0.0000041				
Sodium Na	mg/L				42	35	37	40	40				
Strontium Sr	mg/L				0.046	0.038	0.040	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Titanium Ti	mg/L				0.0064	0.0064	0.0064	0.0064	0.0064				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0038	0.0019	0.0018	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-1-c-C.2
Low Flow Scenario 3

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter	mg/L				164	163	152	172	172			
TDS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.001	0.001	0.001	0.001	0.001			
Sulphate	mg/L				4.6	4.4	5.3	5.1	5.1			
Chloride	mg/L				71	67	66	74	74			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0027	0.0025	0.0024	0.0024	0.0023			
Phosphate-P	mg/L				0.0261	0.0179	0.0088	0.0209	0.0208			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16			
Antimony Sb	mg/L				0.0006	0.0018	0.0013	0.0007	0.0007			
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043			
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00025	0.00023	0.00022	0.00022	0.00022			
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000032	0.0000047	0.0000152	0.0000027	0.0000027			
Calcium Ca	mg/L				10	9	9	9	9			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002			
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000010	0.0000010	0.0000010	0.0000011	0.0000011			
Molybdenum Mo	mg/L				0.00025	0.00023	0.00030	0.00026	0.00026			
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.027	0.018	0.009	0.021	0.021			
Potassium K	mg/L				3.1	2.5	2.5	2.8	2.8			
Selenium Se	mg/L				0.00067	0.00039	0.00085	0.00062	0.00062			
Silicon SiO2	mg/L				0.56	0.55	0.55	0.56	0.55			
Silver Ag	mg/L				0.0000059	0.0000031	0.0000055	0.0000039	0.0000038			
Sodium Na	mg/L				41	34	37	39	39			
Strontium Sr	mg/L				0.045	0.038	0.040	0.047	0.047			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002			
Tin Sn	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002			
Titanium Ti	mg/L				0.0064	0.0064	0.0064	0.0064	0.0064			
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044			
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004			
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Appendix I

Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	150	152				
TSS				3.9	5.7	5.8	6.7	6.8				
Free CN				0.00007	0.00002	0.00002	0.00002	0.00002				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.08	0.02	0.03	0.03	0.03				
SCN				0.001	0.001	0.002	0.002	0.002				
Sulphate				3.7	3.8	4.3	4.8	5.1				
Chloride				61	62	62	67	68				
Total Ammonia				0.020	0.044	0.027	0.030	0.031				
Nitrate				0.09	0.12	0.15	0.18	0.20				
Nitrite				0.010	0.013	0.013	0.014	0.014				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0021	0.0024	0.0028	0.0033	0.0037				
Phosphate-P				0.0173	0.0188	0.0250	0.0213	0.0217				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	44	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0007	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi				0.00011	0.00020	0.00026	0.00031	0.00036				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000042	0.0000045	0.0000042	0.0000044	0.0000047				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00025	0.00026	0.00032	0.00033	0.00036				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.021	0.027	0.024	0.025				
Potassium K				3.2	2.9	3.0	3.1	3.2				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.54	0.55	0.57	0.58	0.59				
Silver Ag				0.0000053	0.0000060	0.0000061	0.0000064	0.0000066				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000026	0.0000029	0.0000031	0.0000033	0.0000034				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0050				

Appendix I

Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				157	138	143	164	165				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00017	0.00000	0.00002	0.00002	0.00002				
Total CN				0.004	0.002	0.002	0.002	0.002				
WAD CN				0.0002	0.0000	0.0000	0.0000	0.0000				
CNO				0.19	0.01	0.02	0.02	0.02				
SCN				0.004	0.004	0.004	0.005	0.005				
Sulphate				6.7	6.5	6.8	7.3	7.6				
Chloride				72	72	71	76	77				
Total Ammonia				0.040	0.077	0.021	0.029	0.029				
Nitrate				0.27	0.29	0.31	0.35	0.37				
Nitrite				0.028	0.013	0.013	0.005	0.014				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0064	0.0062	0.0063	0.0068	0.0072				
Phosphate-P				0.0215	0.0226	0.0286	0.0248	0.0252				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0008	0.0013	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0033	0.0034	0.0035				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00004				
Bismuth Bi				0.00050	0.00053	0.00057	0.00062	0.00066				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000060	0.0000061	0.0000057	0.0000059	0.0000061				
Calcium Ca				19	18	18	19	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0005	0.0006	0.0013	0.0006	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000010	0.0000010				
Molybdenum Mo				0.00055	0.00053	0.00056	0.00058	0.00060				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P				0.026	0.027	0.033	0.030	0.030				
Potassium K				4.5	4.0	4.1	4.2	4.3				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.66	0.66	0.66	0.68	0.69				
Silver Ag				0.0000070	0.0000075	0.0000075	0.0000078	0.0000080				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.042	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000033	0.0000035	0.0000037	0.0000038	0.0000039				
Tin Sn				0.00046	0.00046	0.00047	0.00048	0.00048				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0019	0.0040	0.0037	0.0027	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Appendix I

Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				167	147	151	171	172				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00010								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001								
CNO				0.11								
SCN				0.006	0.005	0.005	0.005	0.005				
Sulphate				8.1	7.6	7.6	7.9	7.9				
Chloride				80	79	78	83	84				
Total Ammonia				0.032	0.050	0.018	0.019	0.019				
Nitrate				0.37	0.37	0.37	0.39	0.40				
Nitrite				0.024	0.011	0.012	0.004	0.004				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0094	0.0090	0.0090	0.0096	0.0100				
Phosphate-P				0.0245	0.0254	0.0313	0.0275	0.0279				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				49	46	46	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0011	0.0016	0.0035	0.0013	0.0013				
Arsenic As				0.0006	0.0006	0.0005	0.0005	0.0005				
Barium Ba				0.0033	0.0036	0.0034	0.0035	0.0035				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00076	0.00078	0.00081	0.00086	0.00090				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000069	0.0000067	0.0000062	0.0000062	0.0000063				
Calcium Ca				23	21	20	20	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00009	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.8	6.7	6.7				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00067	0.00062	0.00063	0.00062	0.00062				
Nickel Ni				0.0009	0.0010	0.0009	0.0009	0.0009				
Phosphorus P				0.030	0.031	0.037	0.033	0.034				
Potassium K				5.1	4.5	4.4	4.4	4.3				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.71	0.69	0.69	0.69	0.69				
Silver Ag				0.0000081	0.0000084	0.0000082	0.0000084	0.0000085				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.044	0.045	0.039	0.043	0.043				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000037	0.0000038	0.0000039	0.0000040	0.0000040				
Tin Sn				0.00050	0.00050	0.00051	0.00051	0.00052				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000029	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0022	0.0042	0.0039	0.0028	0.0029				
Zirconium Zr				0.0049	0.0049	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				170	157	166	194	202				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.005	0.004	0.004	0.004	0.004				
Sulphate				7.6	7.1	7.0	7.2	7.2				
Chloride				86	88	89	99	103				
Total Ammonia				0.012	0.014	0.019	0.018	0.018				
Nitrate				0.36	0.34	0.34	0.34	0.35				
Nitrite				0.009	0.003	0.003	0.003	0.003				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0115	0.0105	0.0101	0.0103	0.0103				
Phosphate-P				0.0266	0.0270	0.0324	0.0284	0.0284				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				49	46	45	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0013	0.0017	0.0036	0.0013	0.0013				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0035	0.0033	0.0034	0.0034				
Beryllium Be				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00098	0.00089	0.00086	0.00088	0.00087				
Boron B				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000066	0.0000065	0.0000060	0.0000061	0.0000061				
Calcium Ca				20	19	19	19	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0005	0.0005				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00009	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.8	6.6	6.7				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000010	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00059	0.00055	0.00056	0.00055	0.00055				
Nickel Ni				0.0008	0.0010	0.0008	0.0008	0.0008				
Phosphorus P				0.032	0.032	0.037	0.033	0.033				
Potassium K				4.7	4.1	4.1	4.0	4.0				
Selenium Se				0.00088	0.00058	0.00062	0.00056	0.00057				
Silicon SiO2				0.69	0.67	0.67	0.67	0.68				
Silver Ag				0.0000086	0.0000088	0.0000085	0.0000087	0.0000087				
Sodium Na				40	36	40	40	43				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000040	0.0000043	0.0000045	0.0000047	0.0000048				
Tin Sn				0.00053	0.00052	0.00052	0.00052	0.00052				
Titanium Ti				0.0059	0.0060	0.0060	0.0060	0.0061				
Uranium U				0.000029	0.000034	0.000042	0.000036	0.000036				
Vanadium V				0.0007	0.0003	0.0004	0.0003	0.0003				
Zinc Zn				0.0021	0.0041	0.0038	0.0027	0.0027				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				203	179	180	200	200				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.004	0.004	0.004	0.004	0.004				
Sulphate				6.9	6.4	6.4	6.6	6.6				
Chloride				105	101	97	102	102				
Total Ammonia				0.010	0.014	0.019	0.018	0.018				
Nitrate				0.31	0.29	0.29	0.30	0.30				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0100	0.0091	0.0087	0.0089	0.0089				
Phosphate-P				0.0253	0.0257	0.0312	0.0271	0.0271				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	45	46	46				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0012	0.0016	0.0034	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0033	0.0034	0.0034				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00085	0.00077	0.00074	0.00075	0.00075				
Boron B				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000065	0.0000064	0.0000059	0.0000060	0.0000060				
Calcium Ca				21	19	18	18	18				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0005	0.0005	0.0012	0.0005	0.0005				
Copper Cu				0.0016	0.0018	0.0016	0.0018	0.0018				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.8	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000011	0.0000012	0.0000012	0.0000012	0.0000012				
Molybdenum Mo				0.00053	0.00049	0.00050	0.00049	0.00049				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P				0.030	0.030	0.036	0.032	0.031				
Potassium K				4.4	3.9	3.8	3.8	3.8				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.67	0.66	0.66	0.66	0.66				
Silver Ag				0.0000087	0.0000089	0.0000086	0.0000088	0.0000088				
Sodium Na				52	45	46	44	44				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000048	0.0000051	0.0000053	0.0000054	0.0000056				
Tin Sn				0.00051	0.00050	0.00050	0.00050	0.00050				
Titanium Ti				0.0060	0.0061	0.0061	0.0062	0.0062				
Uranium U				0.000030	0.000035	0.000042	0.000036	0.000036				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0019	0.0040	0.0036	0.0026	0.0026				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				193	170	171	191	191				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.004	0.003	0.003	0.003	0.003				
Sulphate				6.3	5.8	5.8	6.0	6.0				
Chloride				99	95	91	96	96				
Total Ammonia				0.005	0.009	0.014	0.013	0.013				
Nitrate				0.22	0.21	0.20	0.21	0.21				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0086	0.0078	0.0074	0.0076	0.0076				
Phosphate-P				0.0240	0.0246	0.0301	0.0260	0.0260				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0011	0.0014	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0031	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00072	0.00065	0.00062	0.00063	0.00063				
Boron B				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000051	0.0000050	0.0000045	0.0000046	0.0000046				
Calcium Ca				19	17	17	16	16				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.13	0.09	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000011	0.0000012	0.0000012	0.0000012	0.0000013				
Molybdenum Mo				0.00048	0.00044	0.00045	0.00044	0.00044				
Nickel Ni				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P				0.028	0.028	0.033	0.029	0.029				
Potassium K				4.2	3.7	3.6	3.6	3.6				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00058				
Silicon SiO2				0.65	0.64	0.63	0.64	0.64				
Silver Ag				0.0000071	0.0000072	0.0000070	0.0000072	0.0000072				
Sodium Na				50	43	44	42	42				
Strontium Sr				0.042	0.043	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000029	0.0000032	0.0000034	0.0000036	0.0000037				
Tin Sn				0.00049	0.00048	0.00048	0.00048	0.00048				
Titanium Ti				0.0062	0.0062	0.0062	0.0063	0.0063				
Uranium U				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0018	0.0038	0.0035	0.0024	0.0024				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				185	161	163	183	183				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.003	0.002	0.003	0.003				
Sulphate				5.7	5.3	5.3	5.5	5.5				
Chloride				93	89	86	91	91				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.18	0.16	0.15	0.15	0.15				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0073	0.0066	0.0063	0.0064	0.0064				
Phosphate-P				0.0229	0.0235	0.0290	0.0249	0.0249				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	46	46				
Total Metals												
Aluminum Al				0.04	0.07	0.09	0.08	0.08				
Antimony Sb				0.0010	0.0013	0.0032	0.0010	0.0010				
Arsenic As				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0031	0.0033	0.0032	0.0033	0.0033				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00061	0.00054	0.00052	0.00053	0.00052				
Boron B				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000050	0.0000048	0.0000042	0.0000043	0.0000043				
Calcium Ca				17	16	15	15	15				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0004	0.0004				
Copper Cu				0.0015	0.0017	0.0015	0.0017	0.0017				
Iron Fe				0.06	0.13	0.09	0.10	0.10				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000012	0.0000013	0.0000013	0.0000013	0.0000013				
Molybdenum Mo				0.00043	0.00039	0.00041	0.00039	0.00039				
Nickel Ni				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P				0.026	0.026	0.031	0.027	0.027				
Potassium K				4.0	3.5	3.4	3.4	3.4				
Selenium Se				0.00090	0.00059	0.00064	0.00058	0.00058				
Silicon SiO2				0.63	0.62	0.62	0.62	0.62				
Silver Ag				0.0000072	0.0000071	0.0000068	0.0000069	0.0000069				
Sodium Na				49	42	43	41	41				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000036	0.0000036	0.0000036	0.0000037	0.0000038				
Tin Sn				0.00048	0.00047	0.00046	0.00047	0.00047				
Titanium Ti				0.0063	0.0063	0.0063	0.0064	0.0064				
Uranium U				0.000028	0.000033	0.000041	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0017	0.0037	0.0034	0.0023	0.0023				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				177	154	155	175	175				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				5.2	4.8	4.8	5.0	5.0				
Chloride				88	85	81	86	86				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.11	0.10	0.09	0.09	0.09				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0062	0.0055	0.0052	0.0053	0.0053				
Phosphate-P				0.0219	0.0226	0.0281	0.0240	0.0240				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.07	0.09	0.08	0.08				
Antimony Sb				0.0008	0.0012	0.0031	0.0009	0.0009				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00003	0.00003	0.00002	0.00002	0.00002				
Bismuth Bi				0.00051	0.00045	0.00042	0.00043	0.00043				
Boron B				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000047	0.0000045	0.0000039	0.0000040	0.0000040				
Calcium Ca				16	14	14	13	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0014	0.0017	0.0014	0.0017	0.0017				
Iron Fe				0.06	0.13	0.09	0.10	0.10				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0030				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000013	0.0000014	0.0000014	0.0000014	0.0000014				
Molybdenum Mo				0.00038	0.00035	0.00037	0.00035	0.00035				
Nickel Ni				0.0006	0.0008	0.0006	0.0006	0.0006				
Phosphorus P				0.024	0.024	0.030	0.026	0.026				
Potassium K				3.8	3.3	3.3	3.2	3.2				
Selenium Se				0.00090	0.00060	0.00064	0.00058	0.00059				
Silicon SiO2				0.62	0.61	0.61	0.61	0.61				
Silver Ag				0.0000069	0.0000069	0.0000065	0.0000067	0.0000066				
Sodium Na				47	41	41	40	40				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000030	0.000031	0.000031				
Thorium Th				0.0000037	0.0000036	0.0000036	0.0000038	0.0000039				
Tin Sn				0.00046	0.00045	0.00045	0.00045	0.00045				
Titanium Ti				0.0064	0.0064	0.0064	0.0064	0.0065				
Uranium U				0.000028	0.000033	0.000041	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0016	0.0036	0.0033	0.0022	0.0022				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				169	147	149	169	168				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				4.7	4.4	4.4	4.6	4.5				
Chloride				83	80	77	82	81				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.05	0.05	0.05	0.05	0.04				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0052	0.0046	0.0043	0.0044	0.0043				
Phosphate-P				0.0209	0.0217	0.0273	0.0231	0.0230				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	43	45	45				
Total Metals												
Aluminum Al				0.04	0.07	0.09	0.08	0.08				
Antimony Sb				0.0008	0.0011	0.0030	0.0008	0.0008				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00042	0.00036	0.00034	0.00035	0.00034				
Boron B				0.035	0.024	0.024	0.023	0.023				
Cadmium Cd				0.0000044	0.0000042	0.0000036	0.0000037	0.0000036				
Calcium Ca				14	13	12	12	12				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0003	0.0010	0.0003	0.0002				
Copper Cu				0.0014	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.06	0.13	0.09	0.10	0.10				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0030	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000014	0.0000014	0.0000014	0.0000015	0.0000015				
Molybdenum Mo				0.00034	0.00032	0.00033	0.00032	0.00031				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.023	0.023	0.028	0.024	0.024				
Potassium K				3.6	3.2	3.1	3.1	3.0				
Selenium Se				0.00091	0.00060	0.00065	0.00059	0.00059				
Silicon SiO2				0.61	0.60	0.60	0.60	0.60				
Silver Ag				0.0000066	0.0000066	0.0000063	0.0000064	0.0000062				
Sodium Na				46	39	40	38	38				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000038	0.0000037	0.0000037	0.0000038	0.0000038				
Tin Sn				0.00045	0.00044	0.00044	0.00044	0.00044				
Titanium Ti				0.0064	0.0065	0.0065	0.0065	0.0065				
Uranium U				0.000028	0.000033	0.000041	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0015	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

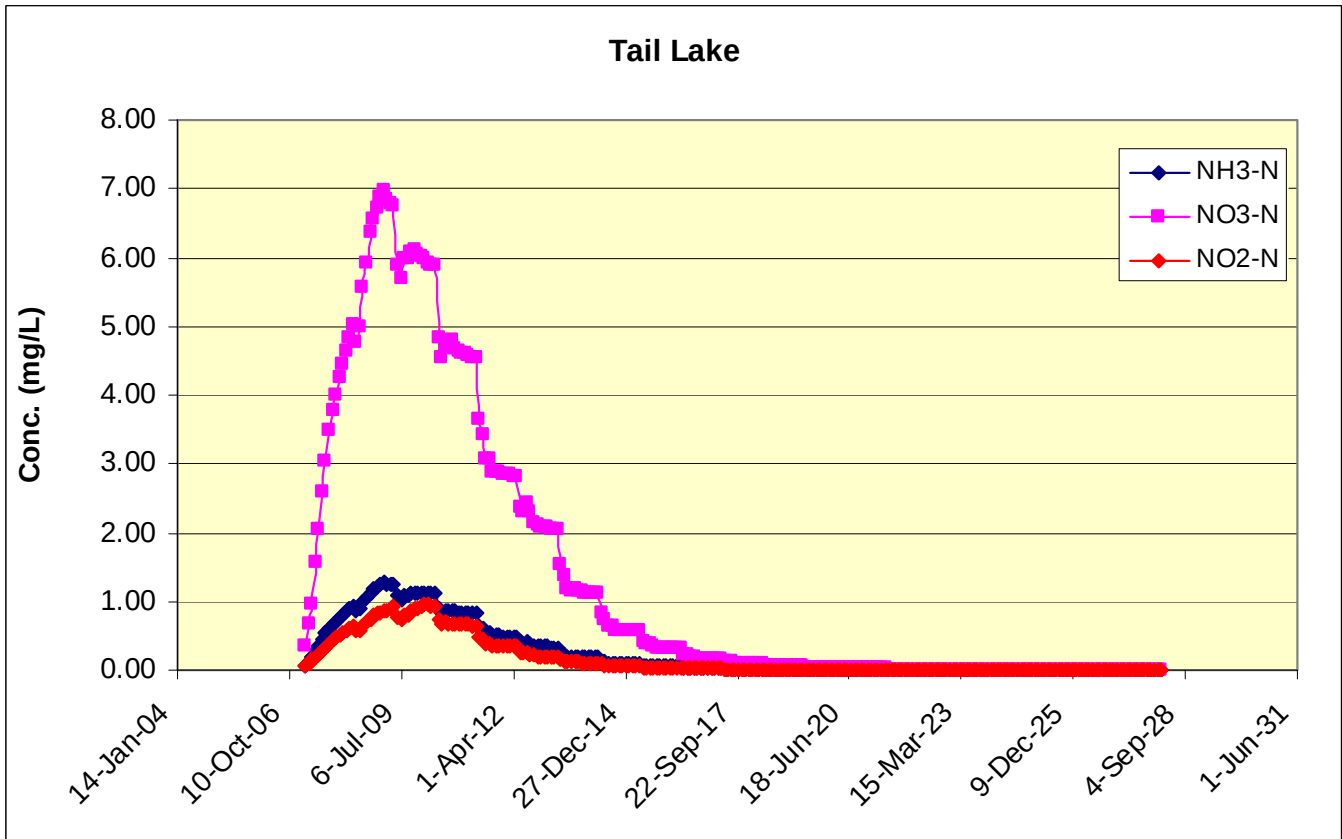
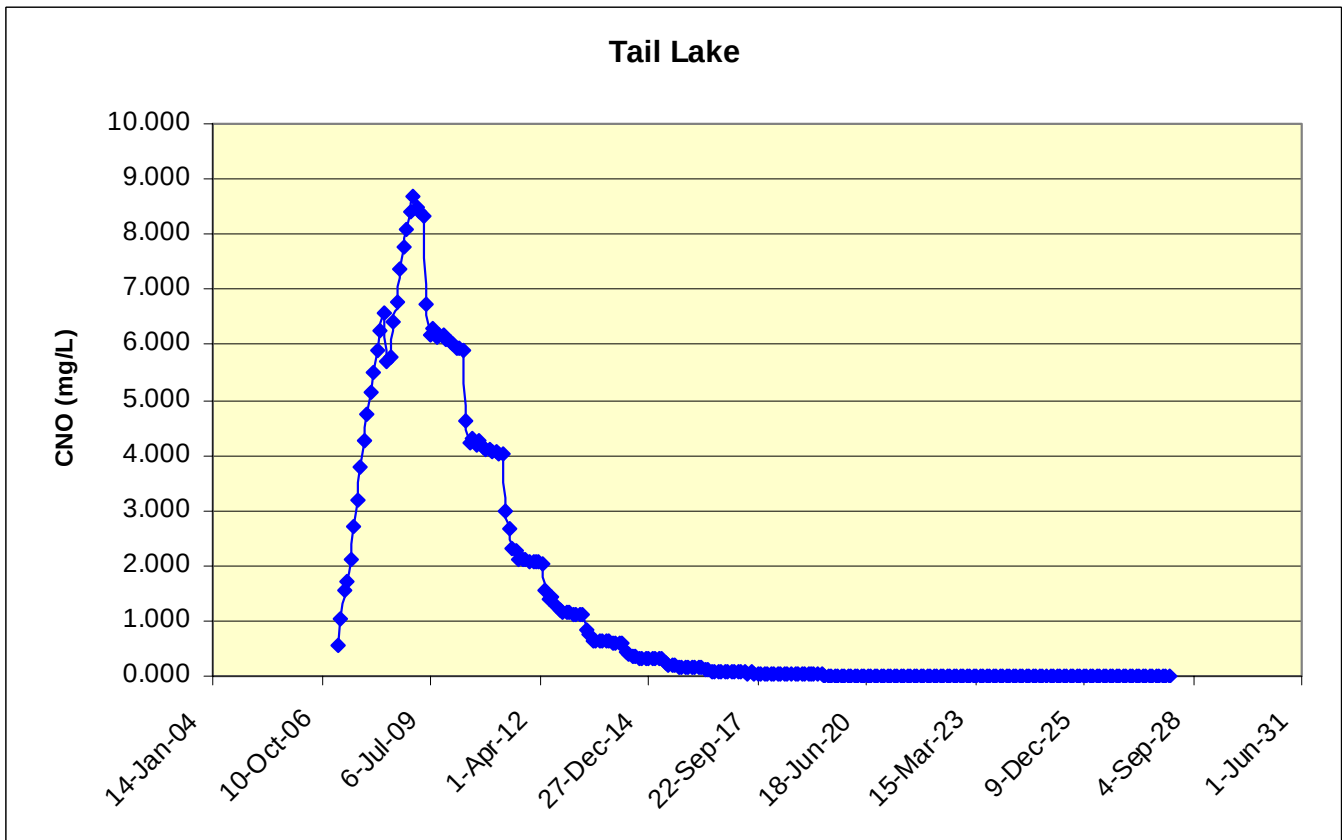
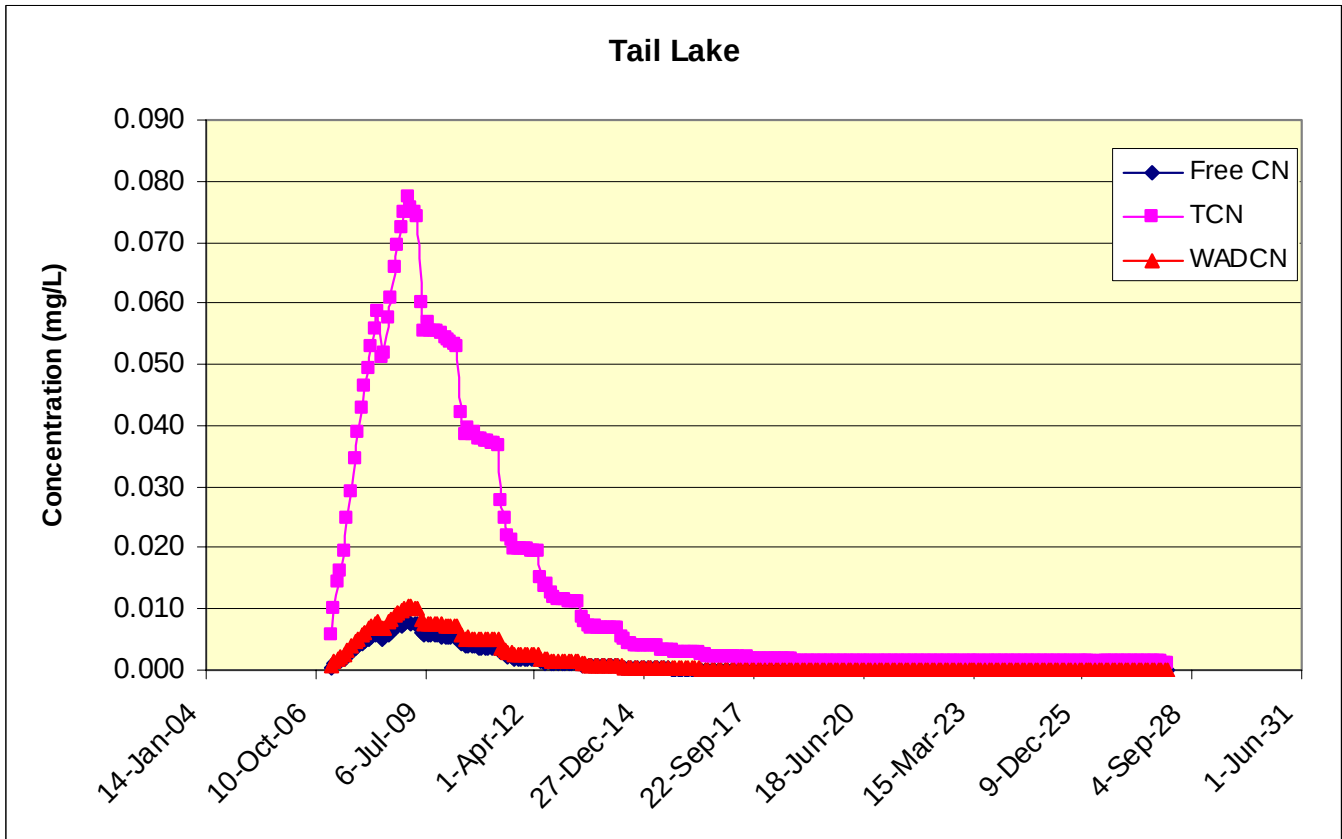
Table I-1-c-C.3

Low Flow Scenario 3

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				161	140	142	162	161				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				4.2	3.9	4.0	4.1	4.1				
Chloride				77	75	73	77	76				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0040	0.0035	0.0034	0.0034	0.0033				
Phosphate-P				0.0198	0.0207	0.0263	0.0222	0.0220				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.07	0.09	0.08	0.08				
Antimony Sb				0.0006	0.0010	0.0029	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00031	0.00027	0.00026	0.00026	0.00025				
Boron B				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000040	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				13	11	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0016				
Iron Fe				0.06	0.13	0.09	0.10	0.10				
Lead Pb				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.6	6.6				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000014	0.0000014	0.0000014	0.0000015	0.0000015				
Molybdenum Mo				0.00029	0.00027	0.00029	0.00028	0.00027				
Nickel Ni				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.021	0.021	0.027	0.023	0.023				
Potassium K				3.4	3.0	2.9	2.9	2.9				
Selenium Se				0.00091	0.00060	0.00064	0.00059	0.00059				
Silicon SiO2				0.59	0.58	0.58	0.58	0.58				
Silver Ag				0.0000059	0.0000060	0.0000057	0.0000059	0.0000056				
Sodium Na				44	38	39	37	37				
Strontium Sr				0.041	0.042	0.037	0.041	0.041				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000035	0.0000035	0.0000035	0.0000036	0.0000036				
Tin Sn				0.00043	0.00043	0.00042	0.00043	0.00042				
Titanium Ti				0.0064	0.0065	0.0065	0.0065	0.0065				
Uranium U				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0013	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Scenario 3 - no Degradation



Scenario 3 - No Degradation

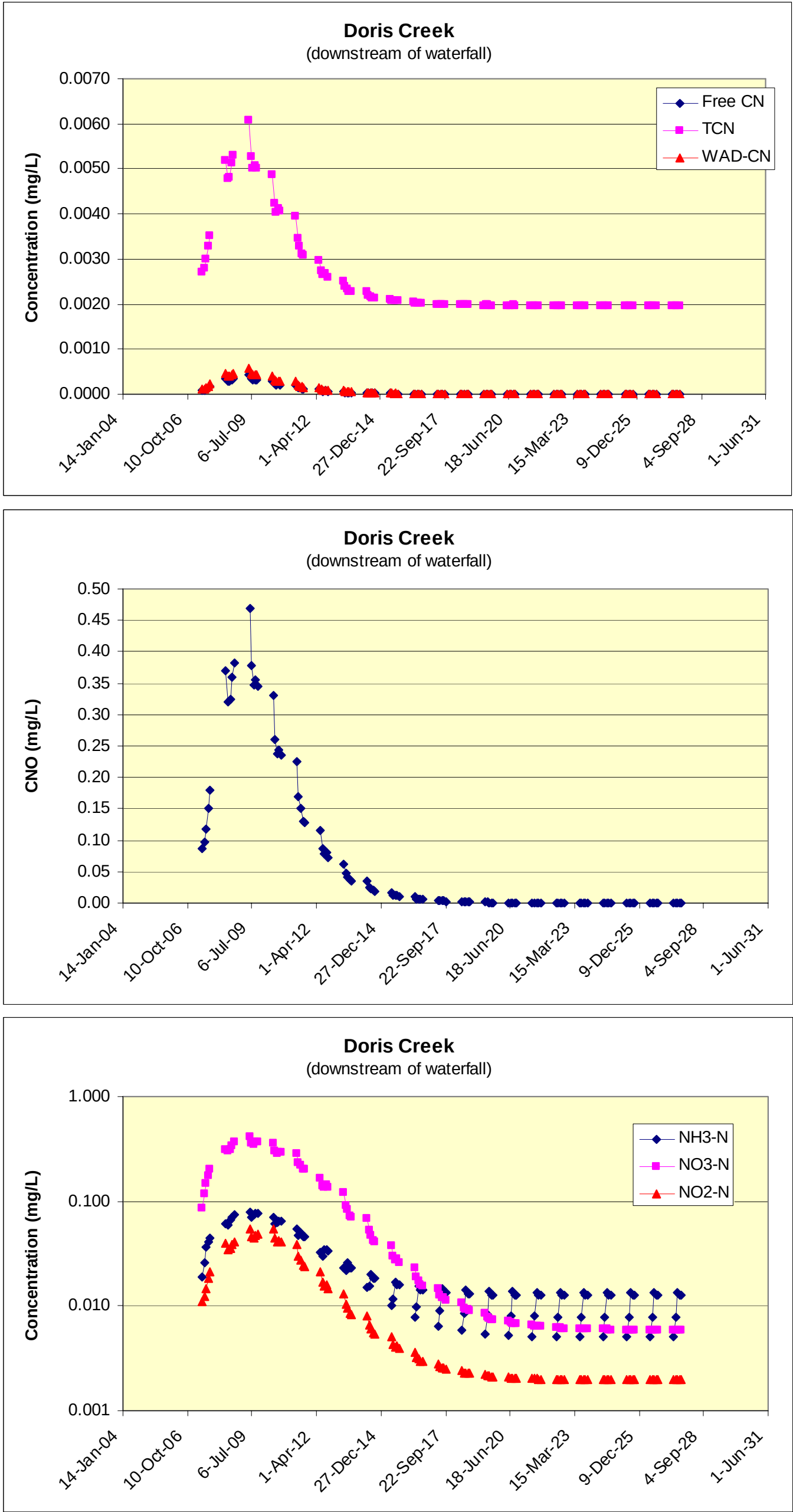


Table I-2-a-A.1
Scenario 3 - No Degradation

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation None		Tail Lk Cu < CME Year		8			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.7	6.8	8.1	
Free CN	mg/L		0.005	0.0079	0.00043	0.00022	9%
Total CN	mg/L	1.0		0.077	0.006	0.004	
WAD CN	mg/L			0.0105	0.0006	0.0003	
CNO	mg/L			8.7	0.47	0.24	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1051	113	91	
Total Ammonia	mg/L		0.97	1.27	0.078	0.043	8%
Nitrate	mg/L		2.9	7.0	0.41	0.22	14%
Nitrite	mg/L		0.018	0.95	0.055	0.030	302%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0315	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.14	0.08	0.25	83%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00071	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.034	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000067	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.00194	0.0021	97%
Iron Fe	mg/L		0.3	0.15	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000107	0.00000118	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.305	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00081	0.0009	0.00084	89%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000088	0.0000073	9%
Sodium Na	mg/L			386	58	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.0020	4%
Thorium Th	mg/L			0.000057	0.0000044	0.0000023	
Tin Sn	mg/L			0.00296	0.00054	0.00009	
Titanium Ti	mg/L			0.0115	0.0063	0.0063	
Uranium U	mg/L			0.000081	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0045	0.0050	0.0051	

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	173	202	245	280	321	353	381	407	429
TSS	mg/L	1.6	1.6	1.6	1.8	2.0	2.2	2.3	2.4	2.4	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00141	0.00156	0.00191	0.00245	0.00289	0.00344	0.00389	0.00430	0.00468	0.00500
Total CN	mg/L	0.006	0.010	0.015	0.016	0.020	0.025	0.029	0.034	0.039	0.043	0.046	0.049
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0021	0.0025	0.0033	0.0039	0.0046	0.0052	0.0057	0.0062	0.0067
CNO	mg/L	0.55	1.06	1.55	1.72	2.10	2.70	3.18	3.79	4.28	4.73	5.15	5.50
SCN	mg/L	0.008	0.014	0.021	0.023	0.029	0.037	0.043	0.052	0.058	0.064	0.070	0.075
Sulphate	mg/L	7.5	13.4	19.3	22.9	28.5	36.1	42.4	49.8	55.5	60.6	65.5	69.5
Chloride	mg/L	37	57	77	95	118	147	171	197	216	233	248	262
Total Ammonia	mg/L	0.070	0.133	0.194	0.275	0.355	0.448	0.528	0.611	0.669	0.719	0.767	0.807
Nitrate	mg/L	0.35	0.66	0.97	1.55	2.06	2.58	3.04	3.48	3.76	4.01	4.24	4.43
Nitrite	mg/L	0.054	0.102	0.150	0.177	0.220	0.280	0.331	0.390	0.437	0.479	0.519	0.552
Alkalinity	mg/L	16	18	21	23	26	30	34	37	40	42	44	45
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0313	0.0381	0.0486	0.0572	0.0678	0.0765	0.0842	0.0916	0.0978
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0349	0.0416	0.0522	0.0608	0.0714	0.0800	0.0877	0.0949	0.1010
Org. Carbon	mg/L	3.0	2.9	2.8	3.1	3.4	3.6	3.6	3.6	3.6	3.5	3.3	3.3
Hardness CaCO3	mg/L	23	29	35	38	45	53	60	68	74	78	83	87
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0034	0.0046	0.0057	0.0067	0.0076	0.0080	0.0084	0.0088	0.0090
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0019	0.0020	0.0021
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0032	0.0038	0.0046	0.0053	0.0062	0.0068	0.0073	0.0078	0.0082
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00022	0.00027	0.00031	0.00034	0.00037	0.00039	0.00040	0.00041	0.00042
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00318	0.00435	0.00540	0.00636	0.00716	0.00759	0.00794	0.00827	0.00854
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.016	0.018	0.020	0.021	0.021	0.022	0.022
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000152	0.0000196	0.0000244	0.0000286	0.0000328	0.0000356	0.0000381	0.0000404	0.0000423
Calcium Ca	mg/L	21	38	54	61	74	94	111	131	148	162	176	188
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0025	0.0031	0.0039	0.0046	0.0055	0.0062	0.0068	0.0074	0.0078
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0026	0.0031	0.0039	0.0045	0.0052	0.0058	0.0063	0.0068	0.0072
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00012	0.00016	0.00019	0.00022	0.00025	0.00027	0.00028	0.00029	0.00031
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037	0.0038	0.0039	0.0040	0.0041
Magnesium Mg	mg/L	2.5	2.9	3.3	3.8	4.4	5.2	5.7	6.3	6.7	7.0	7.3	7.5
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.020	0.022
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000017	0.0000021	0.0000026	0.0000030	0.0000035	0.0000037	0.0000040	0.0000042	0.0000044
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00217	0.00265	0.00338	0.00472	0.00532	0.00586	0.00638	0.00681	0.00719
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0022	0.0027	0.0034	0.0040	0.0046	0.0051	0.0056	0.0060	0.0063
Phosphorus P	mg/L	0.020	0.033	0.047	0.056	0.069	0.087	0.102	0.119	0.132	0.144	0.155	0.165
Potassium K	mg/L	3.8	6.6	9.3	10.4	12.6	15.9	18.7	22.0	24.7	27.2	29.5	31.4
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00027	0.00031	0.00034	0.00036	0.00038	0.00039	0.00040	0.00040	0.00041
Silicon SiO2	mg/L	0.70	0.92	1.14	1.30	1.53	1.85	2.10	2.39	2.60	2.79	2.96	3.11
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000682	0.0000773	0.0000833	0.0000866	0.0000906	0.0000915	0.0000915	0.0000916	0.0000915
Sodium Na	mg/L	11	13	16	17	20	24	26	30	32	34	36	38
Strontium Sr	mg/L	0.017	0.021	0.026	0.029	0.035	0.042	0.047	0.054	0.059	0.063	0.067	0.070
Tellurium Te	mg/L	0.025	0.024	0.024	0.026	0.028	0.029	0.030	0.030	0.030	0.029	0.028	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000022	0.000025	0.000028	0.000031	0.000033	0.000034	0.000035	0.000035	0.000036
Thorium Th	mg/L				0.000007	0.000011	0.000013	0.000016	0.000017	0.000016	0.000016	0.000015	0.000015
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00053	0.00073	0.00090	0.00106	0.00118	0.00124	0.00129	0.00133	0.00137
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0033	0.0036	0.0039	0.0040	0.0041	0.0041	0.0040	0.0039	0.0038
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000034	0.000039	0.000042	0.000044	0.000045	0.000044	0.000043	0.000042	0.000041
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0017	0.0020	0.0021	0.0022	0.0023	0.0024
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0057	0.0070	0.0089	0.0107	0.0125	0.0139	0.0152	0.0164	0.0174
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0027	0.0030	0.0032	0.0033	0.0033	0.0033	0.0032	0.0031	0.0030

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	454	475	497	443	450	496	523	564	589	609	628	643
TSS	mg/L	2.5	2.5	2.5	2.5	2.6	2.8	2.9	3.0	3.0	3.0	3.0	3.0
Free CN	mg/L	0.00536	0.00567	0.00598	0.00519	0.00524	0.00582	0.00616	0.00670	0.00707	0.00736	0.00765	0.00788
Total CN	mg/L	0.053	0.056	0.059	0.051	0.052	0.057	0.061	0.066	0.070	0.072	0.075	0.077
WAD CN	mg/L	0.0071	0.0076	0.0080	0.0069	0.0070	0.0078	0.0082	0.0089	0.0094	0.0098	0.0102	0.0105
CNO	mg/L	5.90	6.24	6.58	5.71	5.76	6.41	6.78	7.37	7.77	8.10	8.41	8.67
SCN	mg/L	0.080	0.085	0.090	0.078	0.079	0.087	0.092	0.100	0.106	0.110	0.115	0.118
Sulphate	mg/L	74.1	78.0	81.9	72.6	74.0	82.2	87.1	94.3	99.0	102.6	106.1	108.9
Chloride	mg/L	277	290	302	274	282	313	332	357	372	384	395	404
Total Ammonia	mg/L	0.853	0.891	0.930	0.857	0.890	0.989	1.053	1.134	1.179	1.212	1.244	1.270
Nitrate	mg/L	4.66	4.84	5.03	4.76	5.00	5.56	5.93	6.36	6.57	6.72	6.87	6.98
Nitrite	mg/L	0.589	0.622	0.654	0.576	0.586	0.652	0.691	0.749	0.787	0.817	0.845	0.869
Alkalinity	mg/L	47	49	50	46	48	52	55	58	60	62	63	64
OrthoPhosphate-P	mg/L	0.1047	0.1107	0.1167	0.1014	0.1024	0.1138	0.1204	0.1308	0.1379	0.1436	0.1490	0.1535
Phosphate-P	mg/L	0.1079	0.1138	0.1197	0.1048	0.1057	0.1172	0.1237	0.1341	0.1412	0.1467	0.1521	0.1565
Org. Carbon	mg/L	3.2	3.1	3.0	3.2	3.5	3.7	3.7	3.8	3.7	3.6	3.4	3.4
Hardness CaCO3	mg/L	91	95	99	89	91	101	106	113	118	121	124	127
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0094	0.0097	0.0100	0.0099	0.0105	0.0117	0.0125	0.0134	0.0137	0.0139	0.0141	0.0142
Arsenic As	mg/L	0.0022	0.0023	0.0024	0.0022	0.0023	0.0025	0.0027	0.0029	0.0030	0.0031	0.0032	0.0033
Barium Ba	mg/L	0.0087	0.0091	0.0095	0.0085	0.0087	0.0096	0.0102	0.0110	0.0114	0.0118	0.0122	0.0125
Beryllium Be	mg/L	0.00043	0.00044	0.00045	0.00045	0.00048	0.00052	0.00055	0.00058	0.00059	0.00059	0.00060	0.00060
Bismuth Bi	mg/L	0.00887	0.00913	0.00940	0.00934	0.01000	0.01113	0.01191	0.01269	0.01299	0.01316	0.01332	0.01345
Boron B	mg/L	0.023	0.024	0.024	0.023	0.025	0.027	0.029	0.030	0.031	0.031	0.032	0.032
Cadmium Cd	mg/L	0.0000445	0.0000464	0.0000483	0.0000451	0.0000470	0.0000522	0.0000555	0.0000596	0.0000618	0.0000634	0.0000649	0.0000661
Calcium Ca	mg/L	201	213	224	195	197	219	232	252	265	276	286	295
Chromium Cr	mg/L	0.005	0.006	0.006	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.008	0.008
Cobalt Co	mg/L	0.0084	0.0088	0.0093	0.0082	0.0083	0.0092	0.0097	0.0106	0.0111	0.0116	0.0120	0.0123
Copper Cu	mg/L	0.0077	0.0081	0.0085	0.0075	0.0076	0.0084	0.0089	0.0096	0.0101	0.0104	0.0108	0.0111
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00032	0.00033	0.00034	0.00033	0.00034	0.00038	0.00040	0.00043	0.00044	0.00045	0.00046	0.00047
Lithium Li	mg/L	0.0042	0.0043	0.0044	0.0042	0.0044	0.0047	0.0050	0.0052	0.0053	0.0054	0.0054	0.0055
Magnesium Mg	mg/L	7.8	8.0	8.3	7.7	8.0	8.8	9.2	9.8	10.1	10.3	10.5	10.6
Manganese Mn	mg/L	0.023	0.024	0.026	0.023	0.023	0.025	0.027	0.029	0.031	0.032	0.033	0.034
Mercury Hg	mg/L	0.0000046	0.0000048	0.0000050	0.0000047	0.0000049	0.0000054	0.0000057	0.0000061	0.0000063	0.0000065	0.0000067	0.0000068
Molybdenum Mo	mg/L	0.00729	0.00771	0.00812	0.00706	0.00714	0.00793	0.00839	0.00912	0.00961	0.01001	0.01038	0.01069
Nickel Ni	mg/L	0.0067	0.0071	0.0074	0.0066	0.0067	0.0075	0.0079	0.0085	0.0090	0.0093	0.0096	0.0098
Phosphorus P	mg/L	0.175	0.184	0.193	0.172	0.176	0.195	0.206	0.223	0.234	0.242	0.250	0.257
Potassium K	mg/L	33.6	35.4	37.3	32.5	32.9	36.5	38.6	41.9	44.1	45.9	47.6	49.0
Selenium Se	mg/L	0.00041	0.00042	0.00042	0.00042	0.00044	0.00048	0.00049	0.00052	0.00052	0.00052	0.00052	0.00052
Silicon SiO2	mg/L	3.27	3.41	3.56	3.22	3.29	3.63	3.82	4.11	4.28	4.41	4.53	4.63
Silver Ag	mg/L	0.0000918	0.0000918	0.0000918	0.0000972	0.0001037	0.0001103	0.0001128	0.0001168	0.0001170	0.0001162	0.0001154	0.0001147
Sodium Na	mg/L	40	41	43	39	40	44	46	49	51	52	54	55
Strontium Sr	mg/L	0.074	0.077	0.080	0.072	0.074	0.081	0.086	0.092	0.096	0.099	0.101	0.104
Tellurium Te	mg/L	0.026	0.026	0.025	0.027	0.028	0.030	0.031	0.031	0.030	0.029	0.029	0.028
Thallium Tl	mg/L	0.000037	0.000037	0.000038	0.000037	0.000039	0.000042	0.000044	0.000046	0.000047	0.000047	0.000048	0.000048
Thorium Th	mg/L	0.000014	0.000014	0.000014	0.000018	0.000021	0.000023	0.000025	0.000026	0.000026	0.000025	0.000024	0.000023
Tin Sn	mg/L	0.00141	0.00145	0.00149	0.00149	0.00161	0.00179	0.00191	0.00203	0.00207	0.00209	0.00211	0.00213
Titanium Ti	mg/L	0.0038	0.0037	0.0037	0.0039	0.0041	0.0044	0.0045	0.0046	0.0046	0.0045	0.0044	0.0043
Uranium U	mg/L	0.000040	0.000039	0.000038	0.000045	0.000049	0.000053	0.000054	0.000055	0.000054	0.000053	0.000051	0.000050
Vanadium V	mg/L	0.0025	0.0026	0.0027	0.0026	0.0027	0.0030	0.0031	0.0034	0.0034	0.0035	0.0036	0.0036
Zinc Zn	mg/L	0.0185	0.0194	0.0204	0.0180	0.0183	0.0203	0.0217	0.0236	0.0247	0.0256	0.0264	0.0271
Zirconium Zr	mg/L	0.0029	0.0028	0.0027	0.0030	0.0032	0.0034	0.0036	0.0036	0.0035	0.0034	0.0033	0.0032

Appendix 1

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	652	668	684	589	573	612	624	654	679	698	716	733
TSS	mg/L	2.9	2.9	2.9	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L	0.00771	0.00764	0.00758	0.00611	0.00562	0.00574	0.00559	0.00561	0.00561	0.00555	0.00550	0.00545
Total CN	mg/L	0.076	0.075	0.074	0.060	0.056	0.057	0.055	0.056	0.056	0.055	0.054	0.054
WAD CN	mg/L	0.0103	0.0102	0.0101	0.0081	0.0075	0.0077	0.0075	0.0075	0.0075	0.0074	0.0073	0.0073
CNO	mg/L	8.48	8.41	8.33	6.72	6.18	6.31	6.15	6.17	6.17	6.11	6.05	6.00
SCN	mg/L	0.116	0.115	0.114	0.092	0.084	0.086	0.084	0.084	0.084	0.083	0.082	0.082
Sulphate	mg/L	107.1	106.8	106.4	88.2	82.9	85.8	84.9	86.1	86.8	86.5	86.3	86.2
Chloride	mg/L	416	424	451	399	399	435	452	481	506	525	545	563
Total Ammonia	mg/L	1.253	1.253	1.253	1.075	1.036	1.086	1.092	1.117	1.129	1.129	1.131	1.133
Nitrate	mg/L	6.84	6.80	6.75	5.89	5.71	5.97	6.00	6.09	6.11	6.06	6.01	5.98
Nitrite	mg/L	0.878	0.898	0.918	0.777	0.751	0.800	0.814	0.852	0.884	0.907	0.931	0.952
Alkalinity	mg/L	63	62	62	53	51	53	53	53	53	52	52	52
OrthoPhosphate-P	mg/L	0.1595	0.1671	0.1749	0.1501	0.1478	0.1611	0.1673	0.1789	0.1895	0.1982	0.2070	0.2149
Phosphate-P	mg/L	0.1624	0.1700	0.1778	0.1535	0.1511	0.1645	0.1707	0.1823	0.1929	0.2016	0.2104	0.2183
Org. Carbon	mg/L	3.3	3.3	3.2	3.5	3.7	4.0	4.0	4.1	4.1	4.0	4.0	4.0
Hardness CaCO3	mg/L	124	123	122	103	98	101	100	101	101	100	99	98
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0144	0.0148	0.0152	0.0142	0.0146	0.0159	0.0166	0.0175	0.0181	0.0185	0.0190	0.0194
Arsenic As	mg/L	0.0032	0.0032	0.0032	0.0027	0.0026	0.0026	0.0026	0.0027	0.0027	0.0027	0.0026	0.0026
Barium Ba	mg/L	0.0122	0.0122	0.0121	0.0101	0.0095	0.0098	0.0097	0.0098	0.0098	0.0098	0.0097	0.0096
Beryllium Be	mg/L	0.00060	0.00061	0.00062	0.00058	0.00059	0.00063	0.00065	0.00067	0.00069	0.00070	0.00070	0.00071
Bismuth Bi	mg/L	0.01369	0.01408	0.01448	0.01361	0.01399	0.01528	0.01603	0.01691	0.01751	0.01794	0.01837	0.01877
Boron B	mg/L	0.031	0.031	0.031	0.029	0.028	0.030	0.030	0.031	0.031	0.031	0.031	0.031
Cadmium Cd	mg/L	0.0000647	0.0000642	0.0000637	0.0000538	0.0000511	0.0000529	0.0000525	0.0000531	0.0000531	0.0000526	0.0000522	0.0000518
Calcium Ca	mg/L	288	286	284	230	213	217	212	213	214	211	209	208
Chromium Cr	mg/L	0.008	0.008	0.008	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0121	0.0120	0.0119	0.0097	0.0090	0.0093	0.0091	0.0092	0.0092	0.0091	0.0091	0.0090
Copper Cu	mg/L	0.0109	0.0108	0.0107	0.0088	0.0082	0.0084	0.0083	0.0083	0.0083	0.0083	0.0082	0.0081
Iron Fe	mg/L	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00046	0.00046	0.00047	0.00041	0.00040	0.00042	0.00043	0.00044	0.00045	0.00045	0.00045	0.00045
Lithium Li	mg/L	0.0054	0.0053	0.0053	0.0049	0.0048	0.0051	0.0051	0.0052	0.0052	0.0052	0.0052	0.0052
Magnesium Mg	mg/L	10.5	10.4	10.4	9.2	9.0	9.4	9.4	9.6	9.6	9.6	9.5	9.5
Manganese Mn	mg/L	0.033	0.033	0.033	0.027	0.025	0.026	0.025	0.025	0.026	0.025	0.025	0.025
Mercury Hg	mg/L	0.0000066	0.0000066	0.0000065	0.0000056	0.0000053	0.0000055	0.0000055	0.0000055	0.0000056	0.0000055	0.0000055	0.0000054
Molybdenum Mo	mg/L	0.01047	0.01038	0.01030	0.00834	0.00770	0.00787	0.00768	0.00772	0.00772	0.00765	0.00758	0.00752
Nickel Ni	mg/L	0.0096	0.0096	0.0096	0.0080	0.0076	0.0078	0.0078	0.0079	0.0079	0.0079	0.0079	0.0079
Phosphorus P	mg/L	0.261	0.269	0.277	0.237	0.231	0.248	0.254	0.268	0.279	0.288	0.297	0.305
Potassium K	mg/L	47.9	47.5	47.1	38.3	35.4	36.2	35.3	35.5	35.5	35.2	34.8	34.5
Selenium Se	mg/L	0.00051	0.00051	0.00050	0.00047	0.00047	0.00049	0.00049	0.00050	0.00050	0.00049	0.00049	0.00049
Silicon SiO2	mg/L	4.53	4.50	4.46	3.77	3.56	3.67	3.62	3.65	3.66	3.62	3.59	3.57
Silver Ag	mg/L	0.0001133	0.0001133	0.0001134	0.0001130	0.0001161	0.0001214	0.0001218	0.0001243	0.0001255	0.0001254	0.0001254	0.0001254
Sodium Na	mg/L	54	53	53	45	43	44	43	44	44	43	43	43
Strontium Sr	mg/L	0.101	0.101	0.100	0.084	0.080	0.083	0.082	0.083	0.083	0.082	0.081	0.081
Tellurium Te	mg/L	0.027	0.027	0.027	0.029	0.030	0.032	0.033	0.034	0.034	0.033	0.033	0.033
Thallium Tl	mg/L	0.000047	0.000046	0.000046	0.000042	0.000042	0.000044	0.000044	0.000044	0.000044	0.000044	0.000044	0.000043
Thorium Th	mg/L	0.000023	0.000023	0.000022	0.000022	0.000023	0.000025	0.000026	0.000027	0.000027	0.000027	0.000026	0.000026
Tin Sn	mg/L	0.00216	0.00222	0.00228	0.00215	0.00222	0.00243	0.00255	0.00269	0.00278	0.00284	0.00290	0.00296
Titanium Ti	mg/L	0.0042	0.0042	0.0042	0.0044	0.0046	0.0048	0.0050	0.0051	0.0051	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000049	0.000049	0.000049	0.000051	0.000054	0.000056	0.000057	0.000058	0.000058	0.000058	0.000058	0.000057
Vanadium V	mg/L	0.0036	0.0037	0.0037	0.0034	0.0034	0.0036	0.0037	0.0038	0.0039	0.0040	0.0040	0.0041
Zinc Zn	mg/L	0.0266	0.0265	0.0263	0.0217	0.0203	0.0210	0.0209	0.0212	0.0213	0.0212	0.0211	0.0210
Zirconium Zr	mg/L	0.0031	0.0031	0.0031	0.0033	0.0035	0.0037	0.0038	0.0039	0.0039	0.0038	0.0038	0.0038

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	728	724	721	769	903	1140	1337	1583	1546	1535	1527	1521
TSS	mg/L	2.8	2.8	2.8	3.0	3.2	3.4	3.5	3.6	3.5	3.5	3.5	3.5
Free CN	mg/L	0.00541	0.00538	0.00536	0.00420	0.00383	0.00393	0.00382	0.00386	0.00377	0.00374	0.00372	0.00371
Total CN	mg/L	0.054	0.053	0.053	0.042	0.038	0.039	0.038	0.039	0.038	0.038	0.037	0.037
WAD CN	mg/L	0.0072	0.0072	0.0071	0.0056	0.0051	0.0052	0.0051	0.0051	0.0050	0.0050	0.0050	0.0049
CNO	mg/L	5.95	5.92	5.89	4.62	4.21	4.32	4.20	4.24	4.15	4.12	4.09	4.08
SCN	mg/L	0.081	0.081	0.080	0.063	0.057	0.059	0.057	0.058	0.057	0.056	0.056	0.056
Sulphate	mg/L	85.5	85.1	84.7	66.8	61.1	62.8	61.3	61.9	60.5	60.0	59.7	59.5
Chloride	mg/L	558	556	553	559	635	782	900	1051	1026	1019	1014	1010
Total Ammonia	mg/L	1.124	1.118	1.113	0.902	0.841	0.872	0.861	0.874	0.854	0.848	0.843	0.840
Nitrate	mg/L	5.93	5.90	5.87	4.83	4.55	4.74	4.70	4.78	4.67	4.64	4.62	4.60
Nitrite	mg/L	0.945	0.941	0.936	0.739	0.677	0.696	0.680	0.687	0.671	0.667	0.663	0.661
Alkalinity	mg/L	51	51	51	44	43	45	44	45	44	44	44	43
OrthoPhosphate-P	mg/L	0.2133	0.2123	0.2112	0.1659	0.1513	0.1553	0.1512	0.1528	0.1492	0.1482	0.1474	0.1468
Phosphate-P	mg/L	0.2166	0.2156	0.2144	0.1718	0.1579	0.1626	0.1588	0.1605	0.1568	0.1557	0.1548	0.1543
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.3	4.6	4.7	4.8	4.7	4.6	4.6	4.6
Hardness CaCO3	mg/L	97	97	96	81	77	81	80	81	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.07	0.08	0.09	0.10	0.10	0.10	0.10	0.10	0.10
Antimony Sb	mg/L	0.0192	0.0191	0.0190	0.0150	0.0137	0.0140	0.0137	0.0138	0.0135	0.0134	0.0133	0.0133
Arsenic As	mg/L	0.0026	0.0026	0.0026	0.0022	0.0020	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Barium Ba	mg/L	0.0096	0.0095	0.0095	0.0077	0.0072	0.0075	0.0074	0.0075	0.0073	0.0072	0.0072	0.0072
Beryllium Be	mg/L	0.00071	0.00070	0.00070	0.00059	0.00056	0.00058	0.00057	0.00058	0.00056	0.00056	0.00056	0.00055
Bismuth Bi	mg/L	0.01862	0.01853	0.01844	0.01447	0.01319	0.01354	0.01318	0.01332	0.01301	0.01292	0.01285	0.01280
Boron B	mg/L	0.031	0.031	0.031	0.030	0.031	0.033	0.033	0.034	0.033	0.033	0.033	0.033
Cadmium Cd	mg/L	0.0000514	0.0000511	0.0000509	0.0000438	0.0000422	0.0000442	0.0000443	0.0000452	0.0000442	0.0000439	0.0000436	0.0000435
Calcium Ca	mg/L	206	205	204	172	169	186	195	210	205	204	203	202
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.004	0.005	0.005	0.005	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0090	0.0089	0.0089	0.0070	0.0064	0.0066	0.0064	0.0065	0.0063	0.0063	0.0062	0.0062
Copper Cu	mg/L	0.0081	0.0080	0.0080	0.0065	0.0061	0.0063	0.0062	0.0062	0.0061	0.0061	0.0060	0.0060
Iron Fe	mg/L	0.06	0.06	0.06	0.08	0.09	0.10	0.10	0.11	0.11	0.10	0.10	0.10
Lead Pb	mg/L	0.00045	0.00045	0.00044	0.00037	0.00035	0.00037	0.00036	0.00037	0.00036	0.00036	0.00035	0.00035
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0048	0.0048	0.0051	0.0051	0.0053	0.0051	0.0051	0.0051	0.0050
Magnesium Mg	mg/L	9.4	9.4	9.4	8.4	8.3	8.7	8.7	8.9	8.7	8.6	8.6	8.5
Manganese Mn	mg/L	0.025	0.025	0.025	0.020	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Mercury Hg	mg/L	0.0000054	0.0000054	0.0000053	0.0000067	0.0000074	0.0000081	0.0000084	0.0000087	0.0000085	0.0000084	0.0000084	0.0000084
Molybdenum Mo	mg/L	0.00746	0.00743	0.00739	0.00585	0.00535	0.00550	0.00536	0.00542	0.00529	0.00526	0.00523	0.00521
Nickel Ni	mg/L	0.0078	0.0078	0.0078	0.0062	0.0057	0.0059	0.0058	0.0058	0.0057	0.0056	0.0056	0.0056
Phosphorus P	mg/L	0.302	0.301	0.299	0.238	0.218	0.224	0.219	0.221	0.216	0.215	0.214	0.213
Potassium K	mg/L	34.3	34.1	33.9	27.2	25.0	25.8	25.2	25.5	24.9	24.8	24.6	24.5
Selenium Se	mg/L	0.00048	0.00048	0.00048	0.00057	0.00061	0.00066	0.00068	0.00070	0.00069	0.00068	0.00068	0.00068
Silicon SiO2	mg/L	3.54	3.52	3.50	2.99	2.85	2.97	2.95	3.00	2.93	2.91	2.89	2.88
Silver Ag	mg/L	0.0001244	0.0001239	0.0001232	0.0001182	0.0001189	0.0001232	0.0001216	0.0001234	0.0001205	0.0001197	0.0001190	0.0001185
Sodium Na	mg/L	42	42	42	102	161	237	306	386	377	375	373	371
Strontium Sr	mg/L	0.080	0.080	0.079	0.068	0.065	0.068	0.068	0.069	0.067	0.067	0.066	0.066
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.037	0.038	0.039	0.038	0.038	0.038	0.038
Thallium Tl	mg/L	0.000043	0.000043	0.000042	0.000040	0.000039	0.000042	0.000042	0.000043	0.000042	0.000042	0.000041	0.000041
Thorium Th	mg/L	0.000026	0.000026	0.000026	0.000033	0.000037	0.000041	0.000044	0.000045	0.000044	0.000044	0.000044	0.000044
Tin Sn	mg/L	0.00294	0.00292	0.00291	0.00231	0.00214	0.00221	0.00217	0.00219	0.00214	0.00213	0.00211	0.00211
Titanium Ti	mg/L	0.0050	0.0050	0.0050	0.0065	0.0072	0.0079	0.0083	0.0085	0.0083	0.0083	0.0082	0.0082
Uranium U	mg/L	0.000057	0.000057	0.000056	0.000063	0.000067	0.000072	0.000073	0.000075	0.000073	0.000073	0.000072	0.000072
Vanadium V	mg/L	0.0040	0.0040	0.0040	0.0035	0.0033	0.0035	0.0034	0.0035	0.0034	0.0034	0.0034	0.0033
Zinc Zn	mg/L	0.0209	0.0208	0.0207	0.0165	0.0152	0.0158	0.0157	0.0160	0.0156	0.0155	0.0154	0.0153
Zirconium Zr	mg/L	0.0037	0.0037	0.0037	0.0039	0.0040	0.0043	0.0044	0.0045	0.0044	0.0044	0.0044	0.0044

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1515	1507	1499	1141	1028	900	880	817	822	816	812	809
TSS	mg/L	3.4	3.4	3.4	3.5	3.7	3.3	3.4	3.2	3.3	3.2	3.2	3.2
Free CN	mg/L	0.00369	0.00367	0.00365	0.00273	0.00243	0.00212	0.00206	0.00191	0.00192	0.00191	0.00190	0.00189
Total CN	mg/L	0.037	0.037	0.037	0.028	0.025	0.022	0.021	0.020	0.020	0.020	0.020	0.020
WAD CN	mg/L	0.0049	0.0049	0.0049	0.0036	0.0032	0.0028	0.0027	0.0025	0.0026	0.0025	0.0025	0.0025
CNO	mg/L	4.06	4.04	4.02	3.00	2.67	2.33	2.26	2.10	2.11	2.10	2.09	2.08
SCN	mg/L	0.055	0.055	0.055	0.041	0.036	0.032	0.031	0.029	0.029	0.029	0.028	0.028
Sulphate	mg/L	59.2	58.9	58.6	44.2	39.7	34.7	33.9	31.5	31.7	31.4	31.3	31.2
Chloride	mg/L	1006	1001	995	759	685	600	587	545	548	545	542	540
Total Ammonia	mg/L	0.837	0.832	0.828	0.653	0.604	0.535	0.534	0.499	0.502	0.499	0.496	0.494
Nitrate	mg/L	4.58	4.56	4.53	3.65	3.43	3.06	3.07	2.88	2.89	2.87	2.86	2.85
Nitrite	mg/L	0.658	0.655	0.651	0.492	0.442	0.388	0.379	0.352	0.354	0.352	0.350	0.349
Alkalinity	mg/L	43	43	43	37	36	32	32	30	31	30	30	30
OrthoPhosphate-P	mg/L	0.1462	0.1455	0.1446	0.1083	0.0966	0.0844	0.0821	0.0762	0.0766	0.0761	0.0757	0.0754
Phosphate-P	mg/L	0.1536	0.1529	0.1520	0.1178	0.1066	0.0935	0.0915	0.0850	0.0855	0.0850	0.0845	0.0842
Org. Carbon	mg/L	4.6	4.6	4.5	4.6	4.8	4.4	4.5	4.2	4.2	4.2	4.2	4.2
Hardness CaCO3	mg/L	78	77	77	64	61	55	55	51	51	51	51	51
Total Metals													
Aluminum Al	mg/L	0.10	0.10	0.10	0.11	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Antimony Sb	mg/L	0.0132	0.0132	0.0131	0.0098	0.0088	0.0077	0.0075	0.0070	0.0070	0.0070	0.0069	0.0069
Arsenic As	mg/L	0.0021	0.0020	0.0020	0.0017	0.0016	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Barium Ba	mg/L	0.0071	0.0071	0.0071	0.0056	0.0052	0.0046	0.0046	0.0043	0.0043	0.0043	0.0043	0.0042
Beryllium Be	mg/L	0.00055	0.00055	0.00055	0.00046	0.00044	0.00038	0.00038	0.00035	0.00035	0.00035	0.00035	0.00035
Bismuth Bi	mg/L	0.01275	0.01268	0.01261	0.00943	0.00840	0.00733	0.00714	0.00662	0.00666	0.00662	0.00658	0.00656
Boron B	mg/L	0.033	0.033	0.032	0.031	0.032	0.029	0.030	0.028	0.028	0.028	0.028	0.028
Cadmium Cd	mg/L	0.0000433	0.0000431	0.0000428	0.0000365	0.0000353	0.0000317	0.0000322	0.0000303	0.0000305	0.0000302	0.0000301	0.0000300
Calcium Ca	mg/L	201	200	199	150	134	118	115	106	107	106	106	105
Chromium Cr	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002
Cobalt Co	mg/L	0.0062	0.0062	0.0061	0.0046	0.0041	0.0036	0.0035	0.0033	0.0033	0.0033	0.0033	0.0032
Copper Cu	mg/L	0.0060	0.0059	0.0059	0.0047	0.0044	0.0039	0.0038	0.0035	0.0036	0.0035	0.0035	0.0035
Iron Fe	mg/L	0.10	0.10	0.10	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.11
Lead Pb	mg/L	0.00035	0.00035	0.00035	0.00029	0.00027	0.00024	0.00024	0.00023	0.00023	0.00023	0.00022	0.00022
Lithium Li	mg/L	0.0050	0.0050	0.0050	0.0047	0.0047	0.0043	0.0043	0.0041	0.0041	0.0041	0.0040	0.0040
Magnesium Mg	mg/L	8.5	8.5	8.4	7.6	7.4	6.7	6.8	6.4	6.4	6.4	6.3	6.3
Manganese Mn	mg/L	0.019	0.018	0.018	0.015	0.013	0.012	0.012	0.011	0.011	0.011	0.011	0.011
Mercury Hg	mg/L	0.0000083	0.0000083	0.0000082	0.0000092	0.0000097	0.0000089	0.0000093	0.0000088	0.0000088	0.0000088	0.0000087	0.0000087
Molybdenum Mo	mg/L	0.00519	0.00516	0.00513	0.00389	0.00350	0.00306	0.00299	0.00277	0.00279	0.00277	0.00276	0.00275
Nickel Ni	mg/L	0.0056	0.0055	0.0055	0.0043	0.0039	0.0034	0.0033	0.0031	0.0031	0.0031	0.0031	0.0031
Phosphorus P	mg/L	0.212	0.211	0.210	0.160	0.144	0.126	0.123	0.115	0.115	0.115	0.114	0.114
Potassium K	mg/L	24.4	24.3	24.2	18.7	17.0	14.9	14.7	13.6	13.7	13.6	13.6	13.5
Selenium Se	mg/L	0.00067	0.00067	0.00067	0.00073	0.00076	0.00070	0.00072	0.00068	0.00068	0.00068	0.00068	0.00067
Silicon SiO2	mg/L	2.87	2.85	2.84	2.41	2.30	2.05	2.05	1.92	1.93	1.92	1.91	1.90
Silver Ag	mg/L	0.0001181	0.0001175	0.0001168	0.0001130	0.0001140	0.0001006	0.0000996	0.0000929	0.0000935	0.0000928	0.0000923	0.0000920
Sodium Na	mg/L	370	368	366	282	256	225	221	205	206	205	204	203
Strontium Sr	mg/L	0.066	0.065	0.065	0.055	0.053	0.047	0.048	0.045	0.045	0.045	0.044	0.044
Tellurium Te	mg/L	0.038	0.037	0.037	0.038	0.039	0.036	0.037	0.034	0.035	0.034	0.034	0.034
Thallium Tl	mg/L	0.000041	0.000041	0.000041	0.000038	0.000038	0.000034	0.000035	0.000033	0.000033	0.000033	0.000033	0.000032
Thorium Th	mg/L	0.000043	0.000043	0.000043	0.000047	0.000051	0.000047	0.000050	0.000047	0.000048	0.000047	0.000047	0.000047
Tin Sn	mg/L	0.00210	0.00209	0.00208	0.00159	0.00145	0.00128	0.00126	0.00117	0.00118	0.00117	0.00117	0.00116
Titanium Ti	mg/L	0.0081	0.0081	0.0081	0.0092	0.0097	0.0089	0.0093	0.0088	0.0088	0.0088	0.0087	0.0087
Uranium U	mg/L	0.000072	0.000071	0.000071	0.000075	0.000079	0.000071	0.000073	0.000069	0.000069	0.000069	0.000068	0.000068
Vanadium V	mg/L	0.0033	0.0033	0.0033	0.0029	0.0027	0.0024	0.0024	0.0023	0.0023	0.0023	0.0023	0.0023
Zinc Zn	mg/L	0.0153	0.0152	0.0151	0.0117	0.0106	0.0094	0.0095	0.0089	0.0089	0.0089	0.0088	0.0088
Zirconium Zr	mg/L	0.0043	0.0043	0.0043	0.0044	0.0045	0.0041	0.0042	0.0040	0.0040	0.0040	0.0039	0.0039

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	806	802	797	624	570	589	534	494	483	480	477	475
TSS	mg/L	3.2	3.2	3.2	3.3	3.5	3.7	3.6	3.3	3.3	3.2	3.2	3.2
Free CN	mg/L	0.00188	0.00187	0.00186	0.00141	0.00126	0.00129	0.00116	0.00107	0.00105	0.00104	0.00104	0.00103
Total CN	mg/L	0.020	0.019	0.019	0.015	0.014	0.014	0.013	0.012	0.011	0.011	0.011	0.011
WAD CN	mg/L	0.0025	0.0025	0.0025	0.0019	0.0017	0.0017	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014
CNO	mg/L	2.07	2.06	2.05	1.55	1.39	1.42	1.28	1.18	1.15	1.14	1.14	1.13
SCN	mg/L	0.028	0.028	0.028	0.021	0.019	0.019	0.017	0.016	0.016	0.016	0.016	0.015
Sulphate	mg/L	31.0	30.9	30.7	23.7	21.5	22.2	20.1	18.6	18.1	18.0	17.9	17.8
Chloride	mg/L	538	535	532	418	383	396	359	333	325	323	321	320
Total Ammonia	mg/L	0.492	0.490	0.487	0.402	0.381	0.402	0.374	0.350	0.342	0.340	0.338	0.337
Nitrate	mg/L	2.84	2.82	2.81	2.38	2.30	2.44	2.29	2.15	2.10	2.08	2.07	2.06
Nitrite	mg/L	0.347	0.346	0.344	0.266	0.242	0.251	0.227	0.211	0.206	0.205	0.203	0.203
Alkalinity	mg/L	30	30	30	27	28	29	27	25	25	25	25	24
OrthoPhosphate-P	mg/L	0.0751	0.0748	0.0743	0.0565	0.0508	0.0522	0.0470	0.0434	0.0424	0.0421	0.0419	0.0418
Phosphate-P	mg/L	0.0839	0.0834	0.0830	0.0668	0.0615	0.0638	0.0579	0.0536	0.0524	0.0520	0.0517	0.0516
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.6	4.6	4.3	4.2	4.1	4.1	4.1
Hardness CaCO3	mg/L	50	50	50	44	44	46	43	40	39	39	39	39
Total Metals													
Aluminum Al	mg/L	0.11	0.11	0.11	0.12	0.12	0.13	0.13	0.12	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0069	0.0068	0.0068	0.0052	0.0047	0.0048	0.0044	0.0040	0.0039	0.0039	0.0039	0.0039
Arsenic As	mg/L	0.0013	0.0013	0.0013	0.0011	0.0011	0.0012	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010
Barium Ba	mg/L	0.0042	0.0042	0.0042	0.0035	0.0033	0.0035	0.0032	0.0030	0.0030	0.0029	0.0029	0.0029
Beryllium Be	mg/L	0.00035	0.00035	0.00034	0.00031	0.00030	0.00032	0.00029	0.00027	0.00026	0.00026	0.00026	0.00026
Bismuth Bi	mg/L	0.00653	0.00650	0.00646	0.00490	0.00440	0.00452	0.00406	0.00375	0.00367	0.00364	0.00362	0.00361
Boron B	mg/L	0.028	0.028	0.027	0.028	0.029	0.031	0.029	0.027	0.027	0.027	0.026	0.026
Cadmium Cd	mg/L	0.0000299	0.0000297	0.0000295	0.0000267	0.0000265	0.0000284	0.0000269	0.0000253	0.0000247	0.0000245	0.0000244	0.0000243
Calcium Ca	mg/L	105	104	104	80	72	75	67	62	61	61	60	60
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0032	0.0032	0.0032	0.0025	0.0022	0.0023	0.0021	0.0019	0.0019	0.0019	0.0019	0.0018
Copper Cu	mg/L	0.0035	0.0035	0.0035	0.0029	0.0028	0.0029	0.0026	0.0025	0.0024	0.0024	0.0024	0.0024
Iron Fe	mg/L	0.11	0.11	0.11	0.12	0.13	0.14	0.14	0.13	0.13	0.13	0.12	0.12
Lead Pb	mg/L	0.00022	0.00022	0.00022	0.00019	0.00019	0.00020	0.00019	0.00017	0.00017	0.00017	0.00017	0.00017
Lithium Li	mg/L	0.0040	0.0040	0.0040	0.0040	0.0040	0.0043	0.0041	0.0038	0.0037	0.0037	0.0037	0.0037
Magnesium Mg	mg/L	6.3	6.3	6.2	5.9	6.0	6.4	6.1	5.7	5.5	5.5	5.5	5.4
Manganese Mn	mg/L	0.011	0.011	0.011	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008	0.008
Mercury Hg	mg/L	0.0000087	0.0000086	0.0000086	0.0000094	0.0000099	0.0000107	0.0000102	0.0000096	0.0000094	0.0000093	0.0000093	0.0000093
Molybdenum Mo	mg/L	0.00273	0.00272	0.00271	0.00210	0.00192	0.00198	0.00179	0.00165	0.00161	0.00160	0.00160	0.00159
Nickel Ni	mg/L	0.0031	0.0030	0.0030	0.0024	0.0023	0.0023	0.0021	0.0020	0.0019	0.0019	0.0019	0.0019
Phosphorus P	mg/L	0.113	0.113	0.112	0.088	0.080	0.083	0.075	0.070	0.068	0.068	0.067	0.067
Potassium K	mg/L	13.5	13.4	13.3	10.7	9.9	10.3	9.4	8.7	8.5	8.5	8.4	8.4
Selenium Se	mg/L	0.00067	0.00067	0.00066	0.00072	0.00076	0.00081	0.00078	0.00073	0.00071	0.00071	0.00070	0.00070
Silicon SiO2	mg/L	1.90	1.89	1.88	1.70	1.67	1.76	1.65	1.54	1.50	1.49	1.48	1.48
Silver Ag	mg/L	0.0000916	0.0000912	0.0000907	0.0000933	0.0000964	0.0001003	0.0000920	0.0000855	0.0000835	0.0000829	0.0000825	0.0000822
Sodium Na	mg/L	202	201	200	160	148	154	140	130	127	126	126	125
Strontium Sr	mg/L	0.044	0.044	0.044	0.039	0.039	0.041	0.039	0.036	0.035	0.035	0.035	0.035
Tellurium Te	mg/L	0.034	0.034	0.034	0.035	0.037	0.039	0.037	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000032	0.000032	0.000032	0.000031	0.000032	0.000034	0.000032	0.000030	0.000030	0.000030	0.000029	0.000029
Thorium Th	mg/L	0.000047	0.000046	0.000046	0.000050	0.000053	0.000057	0.000056	0.000052	0.000051	0.000051	0.000051	0.000050
Tin Sn	mg/L	0.00116	0.00115	0.00115	0.00090	0.00085	0.00088	0.00081	0.00075	0.00074	0.00073	0.00073	0.00072
Titanium Ti	mg/L	0.0086	0.0086	0.0086	0.0095	0.0100	0.0108	0.0103	0.0097	0.0095	0.0094	0.0093	0.0093
Uranium U	mg/L	0.000068	0.000067	0.000067	0.000072	0.000076	0.000081	0.000076	0.000072	0.000070	0.000069	0.000069	0.000069
Vanadium V	mg/L	0.0023	0.0022	0.0022	0.0021	0.0020	0.0022	0.0020	0.0019	0.0018	0.0018	0.0018	0.0018
Zinc Zn	mg/L	0.0088	0.0087	0.0087	0.0069	0.0064	0.0067	0.0064	0.0060	0.0059	0.0059	0.0058	0.0058
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0040	0.0042	0.0045	0.0043	0.0040	0.0039	0.0039	0.0039	0.0039

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	473	471	468	374	345	305	301	306	299	297	295	294
TSS	mg/L	3.2	3.2	3.2	3.4	3.5	3.2	3.3	3.4	3.3	3.3	3.3	3.2
Free CN	mg/L	0.00103	0.00102	0.00102	0.00076	0.00068	0.00059	0.00058	0.00058	0.00057	0.00057	0.00056	0.00056
Total CN	mg/L	0.011	0.011	0.011	0.009	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.007
WAD CN	mg/L	0.0014	0.0014	0.0014	0.0010	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007
CNO	mg/L	1.13	1.12	1.12	0.84	0.75	0.65	0.64	0.64	0.63	0.62	0.62	0.62
SCN	mg/L	0.015	0.015	0.015	0.011	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008
Sulphate	mg/L	17.8	17.7	17.6	13.6	12.4	10.9	10.7	10.8	10.6	10.5	10.5	10.4
Chloride	mg/L	318	317	315	252	234	207	205	208	203	202	201	200
Total Ammonia	mg/L	0.335	0.334	0.332	0.250	0.223	0.195	0.191	0.193	0.189	0.188	0.187	0.186
Nitrate	mg/L	2.06	2.05	2.03	1.53	1.36	1.19	1.16	1.17	1.14	1.14	1.13	1.13
Nitrite	mg/L	0.202	0.201	0.200	0.150	0.134	0.117	0.114	0.115	0.113	0.112	0.111	0.111
Alkalinity	mg/L	24	24	24	23	24	22	22	22	22	22	22	22
OrthoPhosphate-P	mg/L	0.0416	0.0414	0.0411	0.0313	0.0281	0.0246	0.0240	0.0243	0.0237	0.0236	0.0234	0.0233
Phosphate-P	mg/L	0.0514	0.0511	0.0508	0.0424	0.0395	0.0351	0.0347	0.0352	0.0344	0.0342	0.0340	0.0338
Org. Carbon	mg/L	4.1	4.1	4.0	4.2	4.5	4.1	4.2	4.3	4.2	4.2	4.1	4.1
Hardness CaCO3	mg/L	39	38	38	35	36	32	33	34	33	33	33	32
Total Metals													
Aluminum Al	mg/L	0.12	0.12	0.12	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0039	0.0038	0.0038	0.0029	0.0026	0.0023	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022
Arsenic As	mg/L	0.0010	0.0010	0.0010	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Barium Ba	mg/L	0.0029	0.0029	0.0029	0.0025	0.0024	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022
Beryllium Be	mg/L	0.00026	0.00025	0.00025	0.00023	0.00023	0.00020	0.00019	0.00019	0.00019	0.00019	0.00019	0.00019
Bismuth Bi	mg/L	0.00359	0.00358	0.00356	0.00267	0.00239	0.00209	0.00204	0.00206	0.00201	0.00199	0.00198	0.00198
Boron B	mg/L	0.026	0.026	0.026	0.026	0.027	0.024	0.025	0.026	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000242	0.0000241	0.0000239	0.0000197	0.0000184	0.0000163	0.0000162	0.0000165	0.0000161	0.0000160	0.0000159	0.0000158
Calcium Ca	mg/L	60	59	59	46	41	37	36	36	35	35	35	35
Chromium Cr	mg/L	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0018	0.0018	0.0018	0.0014	0.0013	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Copper Cu	mg/L	0.0023	0.0023	0.0023	0.0020	0.0020	0.0018	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017
Iron Fe	mg/L	0.12	0.12	0.12	0.13	0.14	0.13	0.13	0.14	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00017	0.00016	0.00016	0.00014	0.00013	0.00012	0.00012	0.00012	0.00012	0.00011	0.00011	0.00011
Lithium Li	mg/L	0.0037	0.0036	0.0036	0.0037	0.0038	0.0035	0.0036	0.0036	0.0036	0.0035	0.0035	0.0035
Magnesium Mg	mg/L	5.4	5.4	5.4	5.3	5.4	4.9	5.1	5.2	5.1	5.0	5.0	5.0
Manganese Mn	mg/L	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Mercury Hg	mg/L	0.0000092	0.0000092	0.0000091	0.0000096	0.0000099	0.0000091	0.0000094	0.0000096	0.0000094	0.0000093	0.0000093	0.0000092
Molybdenum Mo	mg/L	0.00158	0.00157	0.00157	0.00124	0.00114	0.00100	0.00099	0.00100	0.00097	0.00097	0.00096	0.00096
Nickel Ni	mg/L	0.0019	0.0019	0.0019	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012
Phosphorus P	mg/L	0.067	0.067	0.066	0.051	0.046	0.041	0.040	0.040	0.039	0.039	0.039	0.039
Potassium K	mg/L	8.3	8.3	8.3	6.9	6.5	5.7	5.7	5.8	5.7	5.6	5.6	5.6
Selenium Se	mg/L	0.00070	0.00069	0.00069	0.00073	0.00076	0.00069	0.00071	0.00073	0.00071	0.00071	0.00070	0.00070
Silicon SiO2	mg/L	1.47	1.47	1.46	1.36	1.34	1.21	1.23	1.25	1.22	1.22	1.21	1.20
Silver Ag	mg/L	0.0000819	0.0000814	0.0000810	0.0000824	0.0000842	0.0000739	0.0000723	0.0000731	0.0000714	0.0000709	0.0000705	0.0000703
Sodium Na	mg/L	125	124	123	102	96	85	85	86	84	83	83	83
Strontium Sr	mg/L	0.035	0.035	0.034	0.032	0.033	0.030	0.030	0.031	0.030	0.030	0.030	0.030
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000029	0.000029	0.000029	0.000028	0.000028	0.000026	0.000026	0.000027	0.000026	0.000026	0.000026	0.000026
Thorium Th	mg/L	0.000050	0.000050	0.000050	0.000047	0.000046	0.000042	0.000043	0.000044	0.000043	0.000042	0.000042	0.000042
Tin Sn	mg/L	0.00072	0.00072	0.00071	0.00056	0.00053	0.00048	0.00048	0.00048	0.00047	0.00047	0.00047	0.00046
Titanium Ti	mg/L	0.0093	0.0092	0.0092	0.0100	0.0104	0.0096	0.0099	0.0102	0.0099	0.0098	0.0098	0.0098
Uranium U	mg/L	0.000069	0.000068	0.000068	0.000067	0.000068	0.000061	0.000060	0.000061	0.000060	0.000059	0.000059	0.000059
Vanadium V	mg/L	0.0018	0.0018	0.0018	0.0017	0.0017	0.0015	0.0015	0.0016	0.0015	0.0015	0.0015	0.0015
Zinc Zn	mg/L	0.0058	0.0058	0.0057	0.0046	0.0043	0.0039	0.0041	0.0042	0.0041	0.0041	0.0041	0.0041
Zirconium Zr	mg/L	0.0039	0.0038	0.0038	0.0039	0.0040	0.0036	0.0037	0.0038	0.0037	0.0037	0.0037	0.0037

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	293	291	289	239	225	199	198	185	186	185	184	183
TSS	mg/L	3.2	3.2	3.2	3.4	3.5	3.2	3.3	3.1	3.1	3.1	3.1	3.1
Free CN	mg/L	0.00056	0.00056	0.00055	0.00041	0.00037	0.00032	0.00031	0.00029	0.00029	0.00029	0.00029	0.00029
Total CN	mg/L	0.007	0.007	0.007	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
WAD CN	mg/L	0.0007	0.0007	0.0007	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
CNO	mg/L	0.62	0.61	0.61	0.45	0.40	0.35	0.34	0.32	0.32	0.32	0.32	0.31
SCN	mg/L	0.008	0.008	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Sulphate	mg/L	10.4	10.3	10.3	8.1	7.4	6.5	6.5	6.0	6.1	6.0	6.0	6.0
Chloride	mg/L	199	198	197	163	155	137	137	128	129	128	127	127
Total Ammonia	mg/L	0.185	0.184	0.183	0.138	0.123	0.107	0.105	0.098	0.099	0.098	0.097	0.097
Nitrate	mg/L	1.12	1.12	1.11	0.83	0.74	0.64	0.63	0.58	0.58	0.58	0.58	0.57
Nitrite	mg/L	0.110	0.110	0.109	0.082	0.073	0.064	0.062	0.058	0.058	0.058	0.057	0.057
Alkalinity	mg/L	21	21	21	21	22	20	20	19	19	19	19	19
OrthoPhosphate-P	mg/L	0.0233	0.0231	0.0230	0.0176	0.0158	0.0139	0.0136	0.0126	0.0127	0.0126	0.0125	0.0125
Phosphate-P	mg/L	0.0337	0.0335	0.0334	0.0292	0.0278	0.0247	0.0246	0.0230	0.0231	0.0230	0.0229	0.0228
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.1	4.2	3.9	4.0	3.9	3.9	3.9
Hardness CaCO3	mg/L	32	32	32	31	32	29	29	28	28	28	28	27
Total Metals													
Aluminum Al	mg/L	0.12	0.12	0.12	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.11	0.11
Antimony Sb	mg/L	0.0022	0.0022	0.0022	0.0017	0.0015	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012
Arsenic As	mg/L	0.0007	0.0007	0.0007	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Barium Ba	mg/L	0.0022	0.0022	0.0021	0.0019	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017
Beryllium Be	mg/L	0.00019	0.00019	0.00018	0.00018	0.00018	0.00016	0.00015	0.00014	0.00014	0.00014	0.00014	0.00014
Bismuth Bi	mg/L	0.00197	0.00196	0.00195	0.00146	0.00130	0.00114	0.00111	0.00103	0.00103	0.00102	0.00102	0.00102
Boron B	mg/L	0.025	0.024	0.024	0.025	0.026	0.023	0.024	0.023	0.023	0.023	0.023	0.023
Cadmium Cd	mg/L	0.0000158	0.0000157	0.0000156	0.0000134	0.0000128	0.0000114	0.0000114	0.0000107	0.0000107	0.0000107	0.0000106	0.0000106
Calcium Ca	mg/L	35	35	34	27	25	22	22	20	20	20	20	20
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0011	0.0010	0.0010	0.0008	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Copper Cu	mg/L	0.0017	0.0017	0.0017	0.0016	0.0015	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Iron Fe	mg/L	0.13	0.13	0.13	0.14	0.14	0.13	0.14	0.13	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00011	0.00011	0.00011	0.00010	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008	0.00008
Lithium Li	mg/L	0.0035	0.0035	0.0035	0.0036	0.0037	0.0034	0.0035	0.0033	0.0033	0.0033	0.0032	0.0032
Magnesium Mg	mg/L	5.0	4.9	4.9	5.0	5.1	4.7	4.8	4.5	4.5	4.5	4.5	4.5
Manganese Mn	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Mercury Hg	mg/L	0.0000092	0.0000091	0.0000091	0.0000096	0.0000099	0.0000091	0.0000094	0.0000088	0.0000089	0.0000088	0.0000088	0.0000087
Molybdenum Mo	mg/L	0.00096	0.00095	0.00094	0.00077	0.00072	0.00063	0.00063	0.00058	0.00059	0.00058	0.00058	0.00058
Nickel Ni	mg/L	0.0012	0.0012	0.0012	0.0011	0.0010	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008
Phosphorus P	mg/L	0.038	0.038	0.038	0.030	0.027	0.024	0.024	0.022	0.022	0.022	0.022	0.022
Potassium K	mg/L	5.6	5.5	5.5	4.8	4.6	4.1	4.1	3.9	3.9	3.9	3.8	3.8
Selenium Se	mg/L	0.00070	0.00070	0.00069	0.00073	0.00076	0.00069	0.00071	0.00067	0.00068	0.00067	0.00067	0.00067
Silicon SiO2	mg/L	1.20	1.19	1.19	1.15	1.16	1.05	1.07	1.01	1.01	1.01	1.00	1.00
Silver Ag	mg/L	0.0000700	0.0000696	0.0000692	0.0000737	0.0000765	0.0000669	0.0000655	0.0000608	0.0000612	0.0000608	0.0000605	0.0000602
Sodium Na	mg/L	82	82	81	70	67	60	60	57	57	56	56	56
Strontium Sr	mg/L	0.030	0.030	0.029	0.029	0.029	0.027	0.027	0.026	0.026	0.026	0.026	0.026
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.032	0.033	0.032	0.032	0.032
Thallium Tl	mg/L	0.000025	0.000025	0.000025	0.000025	0.000026	0.000023	0.000024	0.000023	0.000023	0.000023	0.000022	0.000022
Thorium Th	mg/L	0.000042	0.000042	0.000041	0.000040	0.000041	0.000037	0.000038	0.000035	0.000036	0.000035	0.000035	0.000035
Tin Sn	mg/L	0.00046	0.00046	0.00046	0.00037	0.00036	0.00032	0.00033	0.00031	0.00031	0.00031	0.00030	0.00030
Titanium Ti	mg/L	0.0097	0.0097	0.0096	0.0103	0.0107	0.0098	0.0101	0.0096	0.0096	0.0095	0.0095	0.0095
Uranium U	mg/L	0.000059	0.000058	0.000058	0.000060	0.000062	0.000055	0.000055	0.000051	0.000051	0.000051	0.000051	0.000051
Vanadium V	mg/L	0.0015	0.0015	0.0015	0.0015	0.0015	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Zinc Zn	mg/L	0.0041	0.0040	0.0040	0.0033	0.0031	0.0028	0.0031	0.0030	0.0030	0.0030	0.0030	0.0030
Zirconium Zr	mg/L	0.0037	0.0036	0.0036	0.0037	0.0038	0.0035	0.0036	0.0034	0.0034	0.0034	0.0034	0.0034

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	182	181	180	158	153	161	149	139	136	135	134	134
TSS	mg/L	3.1	3.1	3.1	3.3	3.4	3.7	3.5	3.3	3.2	3.2	3.2	3.1
Free CN	mg/L	0.00028	0.00028	0.00028	0.00021	0.00019	0.00019	0.00018	0.00016	0.00016	0.00016	0.00016	0.00016
Total CN	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
WAD CN	mg/L	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
CNO	mg/L	0.31	0.31	0.31	0.23	0.21	0.21	0.19	0.18	0.17	0.17	0.17	0.17
SCN	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Sulphate	mg/L	5.9	5.9	5.9	4.8	4.6	4.8	4.4	4.1	4.0	4.0	4.0	3.9
Chloride	mg/L	126	126	125	110	107	113	105	98	96	95	95	94
Total Ammonia	mg/L	0.097	0.096	0.096	0.073	0.066	0.068	0.062	0.058	0.056	0.056	0.056	0.055
Nitrate	mg/L	0.57	0.57	0.57	0.43	0.38	0.39	0.35	0.33	0.32	0.32	0.32	0.31
Nitrite	mg/L	0.057	0.056	0.056	0.043	0.038	0.040	0.036	0.033	0.032	0.032	0.032	0.032
Alkalinity	mg/L	19	19	19	19	20	22	20	19	19	19	18	18
OrthoPhosphate-P	mg/L	0.0124	0.0124	0.0123	0.0097	0.0088	0.0091	0.0083	0.0077	0.0075	0.0075	0.0074	0.0074
Phosphate-P	mg/L	0.0227	0.0226	0.0224	0.0211	0.0206	0.0217	0.0202	0.0188	0.0183	0.0182	0.0181	0.0180
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.4	4.7	4.4	4.1	4.0	4.0	4.0	4.0
Hardness CaCO3	mg/L	27	27	27	27	28	30	29	27	26	26	26	26
Total Metals													
Aluminum Al	mg/L	0.11	0.11	0.11	0.12	0.12	0.14	0.13	0.12	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0012	0.0012	0.0012	0.0009	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008
Arsenic As	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004
Barium Ba	mg/L	0.0017	0.0017	0.0017	0.0016	0.0016	0.0017	0.0017	0.0016	0.0015	0.0015	0.0015	0.0015
Beryllium Be	mg/L	0.00014	0.00014	0.00014	0.00014	0.00015	0.00015	0.00014	0.00013	0.00012	0.00012	0.00012	0.00012
Bismuth Bi	mg/L	0.00101	0.00101	0.00100	0.00076	0.00069	0.00071	0.00063	0.00059	0.00057	0.00057	0.00057	0.00056
Boron B	mg/L	0.022	0.022	0.022	0.023	0.024	0.026	0.025	0.023	0.023	0.023	0.022	0.022
Cadmium Cd	mg/L	0.0000105	0.0000105	0.0000104	0.0000095	0.0000094	0.0000099	0.0000093	0.0000086	0.0000084	0.0000084	0.0000083	0.0000083
Calcium Ca	mg/L	20	20	20	16	15	16	15	14	13	13	13	13
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0006	0.0006	0.0006	0.0005	0.0004	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Copper Cu	mg/L	0.0013	0.0013	0.0013	0.0012	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011
Iron Fe	mg/L	0.13	0.13	0.13	0.13	0.14	0.15	0.14	0.14	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007
Lithium Li	mg/L	0.0032	0.0032	0.0032	0.0034	0.0035	0.0037	0.0036	0.0033	0.0033	0.0032	0.0032	0.0032
Magnesium Mg	mg/L	4.5	4.4	4.4	4.6	4.8	5.1	4.9	4.6	4.5	4.5	4.4	4.4
Manganese Mn	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Mercury Hg	mg/L	0.0000087	0.0000086	0.0000086	0.0000092	0.0000096	0.0000103	0.0000098	0.0000092	0.0000090	0.0000089	0.0000089	0.0000088
Molybdenum Mo	mg/L	0.00058	0.00057	0.00057	0.00049	0.00047	0.00049	0.00045	0.00042	0.00041	0.00041	0.00041	0.00041
Nickel Ni	mg/L	0.0008	0.0008	0.0008	0.0008	0.0007	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Phosphorus P	mg/L	0.022	0.021	0.021	0.018	0.016	0.017	0.015	0.014	0.014	0.014	0.014	0.014
Potassium K	mg/L	3.8	3.8	3.8	3.5	3.5	3.7	3.4	3.2	3.1	3.1	3.1	3.1
Selenium Se	mg/L	0.00066	0.00066	0.00066	0.00070	0.00074	0.00079	0.00075	0.00070	0.00069	0.00068	0.00068	0.00067
Silicon SiO2	mg/L	0.99	0.99	0.98	1.00	1.02	1.09	1.04	0.97	0.95	0.94	0.94	0.93
Silver Ag	mg/L	0.0000600	0.0000597	0.0000594	0.0000660	0.0000696	0.0000717	0.0000648	0.0000599	0.0000585	0.0000581	0.0000578	0.0000576
Sodium Na	mg/L	56	55	55	51	50	53	50	46	45	45	45	45
Strontium Sr	mg/L	0.026	0.025	0.025	0.025	0.027	0.028	0.027	0.026	0.025	0.025	0.025	0.025
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.038	0.036	0.034	0.033	0.033	0.033	0.032
Thallium Tl	mg/L	0.000022	0.000022	0.000022	0.000023	0.000024	0.000025	0.000024	0.000022	0.000022	0.000022	0.000022	0.000022
Thorium Th	mg/L	0.000035	0.000035	0.000035	0.000035	0.000036	0.000039	0.000037	0.000035	0.000034	0.000034	0.000033	0.000033
Tin Sn	mg/L	0.00030	0.00030	0.00030	0.00025	0.00026	0.00027	0.00026	0.00024	0.00024	0.00024	0.00023	0.00023
Titanium Ti	mg/L	0.0094	0.0094	0.0093	0.0101	0.0105	0.0113	0.0108	0.0101	0.0099	0.0098	0.0098	0.0097
Uranium U	mg/L	0.000050	0.000050	0.000050	0.000054	0.000056	0.000059	0.000054	0.000050	0.000049	0.000049	0.000049	0.000048
Vanadium V	mg/L	0.0013	0.0013	0.0013	0.0013	0.0014	0.0014	0.0014	0.0013	0.0012	0.0012	0.0012	0.0012
Zinc Zn	mg/L	0.0029	0.0029	0.0029	0.0025	0.0024	0.0026	0.0027	0.0026	0.0025	0.0025	0.0025	0.0025
Zirconium Zr	mg/L	0.0033	0.0033	0.0033	0.0035	0.0036	0.0039	0.0037	0.0035	0.0034	0.0034	0.0034	0.0034

Appendix 1

Table I-2-a-A.2
Scenario 3 - No Degradation

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	
Parameter													
TDS	mg/L	133	133	132	121	120	108	110	103	104	103	102	
TSS	mg/L	3.1	3.1	3.1	3.3	3.5	3.2	3.3	3.1	3.1	3.1	3.1	
Free CN	mg/L	0.00015	0.00015	0.00015	0.00011	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008	
Total CN	mg/L	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
WAD CN	mg/L	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	
CNO	mg/L	0.17	0.17	0.17	0.13	0.11	0.10	0.10	0.09	0.09	0.09	0.09	
SCN	mg/L	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	
Sulphate	mg/L	3.9	3.9	3.9	3.3	3.2	2.9	2.9	2.7	2.7	2.7	2.7	
Chloride	mg/L	94	93	93	86	86	77	79	74	74	74	73	
Total Ammonia	mg/L	0.055	0.055	0.055	0.042	0.038	0.033	0.033	0.031	0.032	0.031	0.031	
Nitrate	mg/L	0.31	0.31	0.31	0.23	0.21	0.18	0.18	0.17	0.17	0.16	0.16	
Nitrite	mg/L	0.031	0.031	0.031	0.024	0.021	0.019	0.018	0.017	0.017	0.017	0.017	
Alkalinity	mg/L	18	18	18	19	20	18	19	17	18	17	17	
OrthoPhosphate-P	mg/L	0.0074	0.0073	0.0073	0.0059	0.0054	0.0048	0.0048	0.0044	0.0045	0.0044	0.0044	
Phosphate-P	mg/L	0.0180	0.0179	0.0178	0.0176	0.0174	0.0157	0.0159	0.0149	0.0150	0.0149	0.0148	
Org. Carbon	mg/L	4.0	3.9	3.9	4.2	4.4	4.0	4.1	3.9	3.9	3.9	3.8	
Hardness CaCO3	mg/L	26	26	26	26	27	25	26	24	25	24	24	
Total Metals													
Aluminum Al	mg/L	0.12	0.12	0.11	0.12	0.13	0.12	0.12	0.11	0.11	0.11	0.11	
Antimony Sb	mg/L	0.0008	0.0008	0.0008	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
Arsenic As	mg/L	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	
Barium Ba	mg/L	0.0015	0.0015	0.0015	0.0014	0.0015	0.0014	0.0014	0.0013	0.0014	0.0013	0.0013	
Beryllium Be	mg/L	0.00012	0.00012	0.00012	0.00013	0.00014	0.00012	0.00012	0.00011	0.00011	0.00011	0.00011	
Bismuth Bi	mg/L	0.00056	0.00056	0.00056	0.00042	0.00038	0.00033	0.00033	0.00030	0.00031	0.00030	0.00030	
Boron B	mg/L	0.022	0.022	0.022	0.023	0.024	0.022	0.023	0.022	0.022	0.022	0.021	
Cadmium Cd	mg/L	0.0000083	0.0000082	0.0000082	0.0000079	0.0000079	0.0000071	0.0000073	0.0000068	0.0000069	0.0000068	0.0000068	
Calcium Ca	mg/L	13	13	13	11	11	9	10	9	9	9	9	
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
Cobalt Co	mg/L	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	
Copper Cu	mg/L	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.0010	0.0010	
Iron Fe	mg/L	0.13	0.13	0.13	0.14	0.14	0.13	0.14	0.13	0.13	0.13	0.13	
Lead Pb	mg/L	0.00007	0.00007	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	
Lithium Li	mg/L	0.0032	0.0032	0.0032	0.0034	0.0035	0.0032	0.0033	0.0031	0.0031	0.0031	0.0031	
Magnesium Mg	mg/L	4.4	4.4	4.3	4.5	4.7	4.3	4.5	4.2	4.3	4.2	4.2	
Manganese Mn	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	
Mercury Hg	mg/L	0.0000088	0.0000088	0.0000087	0.0000093	0.0000097	0.0000088	0.0000091	0.0000086	0.0000087	0.0000086	0.0000086	
Molybdenum Mo	mg/L	0.00040	0.00040	0.00040	0.00036	0.00036	0.00032	0.00032	0.00030	0.00030	0.00030	0.00030	
Nickel Ni	mg/L	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	
Phosphorus P	mg/L	0.014	0.014	0.014	0.012	0.011	0.010	0.010	0.009	0.009	0.009	0.009	
Potassium K	mg/L	3.1	3.1	3.0	2.9	3.0	2.7	2.8	2.6	2.6	2.6	2.6	
Selenium Se	mg/L	0.00067	0.00067	0.00067	0.00071	0.00074	0.00068	0.00070	0.00066	0.00066	0.00066	0.00065	
Silicon SiO2	mg/L	0.93	0.92	0.92	0.95	0.98	0.89	0.92	0.87	0.87	0.87	0.86	
Silver Ag	mg/L	0.0000574	0.0000571	0.0000568	0.0000642	0.0000681	0.0000597	0.0000585	0.0000544	0.0000547	0.0000544	0.0000541	
Sodium Na	mg/L	44	44	44	42	43	39	40	37	37	37	37	
Strontium Sr	mg/L	0.024	0.024	0.024	0.025	0.026	0.024	0.025	0.023	0.023	0.023	0.023	
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.036	0.033	0.034	0.032	0.032	0.032	0.031	
Thallium Tl	mg/L	0.000021	0.000021	0.000021	0.000022	0.000023	0.000021	0.000022	0.000020	0.000021	0.000020	0.000020	
Thorium Th	mg/L	0.000033	0.000033	0.000033	0.000034	0.000035	0.000032	0.000033	0.000031	0.000031	0.000031	0.000031	
Tin Sn	mg/L	0.00023	0.00023	0.00023	0.00020	0.00021	0.00019	0.00020	0.00019	0.00019	0.00019	0.00019	
Titanium Ti	mg/L	0.0097	0.0096	0.0096	0.0103	0.0107	0.0098	0.0101	0.0095	0.0096	0.0095	0.0095	
Uranium U	mg/L	0.000048	0.000048	0.000048	0.000052	0.000055	0.000049	0.000049	0.000046	0.000046	0.000046	0.000045	
Vanadium V	mg/L	0.0012	0.0012	0.0012	0.0013	0.0013	0.0012	0.0012	0.0011	0.0012	0.0011	0.0011	
Zinc Zn	mg/L	0.0025	0.0025	0.0025	0.0022	0.0021	0.0020	0.0023	0.0022	0.0022	0.0022	0.0022	
Zirconium Zr	mg/L	0.0033	0.0033	0.0033	0.0035	0.0036	0.0033	0.0034	0.0032	0.0033	0.0032	0.0032	

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradation

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	117442	101234	86389	86424	83234	78530	81148	81148	73295
TSS	183	177	183	1239	685	341	375	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18322	17074	15398	15298	14794	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	71048	57314	58180	52622	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15548	12117	8343	8349	7362	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1171.73	314.49	328.91	86.92				
Hardness CaCO3	14992	14508	14992	26182	22190	16931	17008	15652	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.31	12.08	9.26	8.84	5.92	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.00	1.76	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.30	7.39	4.51	4.73	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42156	42169	41159	39995	40733	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.32	1.27	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.53	11.68	9.32	9.43	6.00	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.84	1.15	0.69	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2866	2088	1461	1468	1204	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7119	7036	6794	6630	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	963	773	631	633	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11746	9527	7313	7360	6675	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.74	8.41	2.65	3.32	0.89	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.42	1.22	0.46	0.56	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.10	1.04	0.35	0.44	0.13				

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradat

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	117011	101009	86327	86328	83208	78530	81148	81148	73295
TSS	183	177	183	1227	680	339	372	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18314	17069	15397	15295	14793	13840	14302	14302	12918
Chloride	49110	47526	49110	82247	70972	57293	58150	52614	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15450	12059	8326	8329	7357	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2098.99	1158.56	310.77	324.90	85.83				
Hardness CaCO3	14992	14508	14992	26053	22109	16908	16978	15644	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.24	12.06	9.23	8.82	5.92	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.28	2.00	1.75	1.73	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.26	7.36	4.50	4.72	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42136	42158	41155	39990	40731	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.31	1.26	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.36	11.62	9.28	9.38	5.99	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.83	1.14	0.69	0.73	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2850	2079	1458	1464	1203	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7113	7032	6793	6629	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	960	771	630	632	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11684	9492	7302	7346	6671	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.54	8.31	2.62	3.28	0.88	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.39	1.21	0.46	0.55	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.08	1.03	0.35	0.44	0.12				

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradat

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	87387	70473	55832	56817	52721	49028	50662	50662	45759
TSS				1046	495	155	195	51				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5619	3993	2358	2669	1769	1247	1289	1289	1164
Chloride	49110	47526	49110	82214	70956	57290	58148	52614	47526	49110	49110	44357
Total Ammonia	25	24	25	153	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1036	654	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				8718	5118	1396	1623	429				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2092.35	1155.64	310.19	324.55	85.81				
Hardness CaCO3				11508	7099	1913	2467	652				
Total Metals												
Aluminum Al	0.81	0.78	0.81	12.73	6.56	4.79	4.29	1.91	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.55	3.32	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.27	0.18	0.09	0.10	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.82	0.49	0.25	0.27	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.20	0.13	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.52	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.43	4.73	2.12	2.36	1.15	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	3033	1827	888	1007	489	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.38	0.30	0.16	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.28	0.19	0.11	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.43	0.25	0.09	0.10	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	16.37	6.78	4.69	4.89	1.51	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.42	0.73	0.28	0.34	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1899	1106	493	529	240	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.89	0.56	0.40	0.49	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.65	0.43	0.24	0.26	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	33	29	25	25	24	22	23	23	21
Potassium K	25	24	25	651	358	120	171	66	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.16	0.08	0.02	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	397	204	76	93	34	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5526	3140	958	1206	329	12	12	12	11
Strontium Sr	0	0	0	9	5	2	3	1	0	0	0	0
Tellurium Te				17.46	8.27	2.59	3.25	0.86				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.55	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.34	1.17	0.42	0.51	0.19	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.88	0.59	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.2	0.8	0.5	1.0	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.94	0.95	0.31	0.39	0.11				

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradat

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				417065	398294	383460	386128	380307				
TSS				1718	814	255	321	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				843	516	146	241	68				
Chloride				258472	245537	234827	236164	231920				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8830	5188	1417	1649	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2119.25	1171.42	314.86	329.81	87.29				
Hardness CaCO3				11656	7196	1942	2507	663				
Total Metals												
Aluminum Al				67.17	31.63	11.99	13.55	3.71				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.60	0.33	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.35	6.50	2.15	2.57	0.71				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				24897	23661	22797	22895	22446				
Chromium Cr				0.26	0.19	0.07	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.52	0.27	0.07	0.09	0.02				
Iron Fe				71.30	32.59	12.63	14.92	3.98				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.74	0.83	0.26	0.33	0.09				
Magnesium Mg				2224	1148	401	446	119				
Manganese Mn				1.63	0.76	0.32	0.44	0.12				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1159	575	167	236	63				
Selenium Se				0.39	0.19	0.06	0.07	0.02				
Silicon SiO2				504	246	80	101	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				141685	133712	128070	128725	126387				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.68	8.38	2.63	3.31	0.88				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.38	2.55	0.80	1.01	0.27				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.69	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.98	0.97	0.32	0.40	0.11				

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradat

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				39489	20419	5256	7929	2081				
TSS				1746	828	256	321	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				854	523	146	241	68				
Chloride				28539	15399	4442	5782	1517				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8975	5275	1419	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2153.97	1191.12	315.39	330.38	86.71				
Hardness CaCO3				11847	7317	1945	2511	659				
Total Metals												
Aluminum Al				68.20	32.12	12.01	13.57	3.68				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.27	0.15	0.05	0.06	0.02				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.54	6.60	2.15	2.57	0.70				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2661	1407	523	621	170				
Chromium Cr				0.27	0.19	0.07	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.53	0.27	0.07	0.09	0.02				
Iron Fe				72.45	33.13	12.65	14.95	3.95				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.76	0.84	0.26	0.33	0.09				
Magnesium Mg				2260	1167	402	447	118				
Manganese Mn				1.66	0.77	0.32	0.44	0.12				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.27	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1178	585	167	237	62				
Selenium Se				0.40	0.19	0.06	0.07	0.02				
Silicon SiO2				512	250	80	101	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16405	8304	2529	3186	836				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.97	8.52	2.63	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.46	2.59	0.80	1.01	0.27				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.70	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				2.01	0.98	0.32	0.40	0.11				

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradat

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				39345	20343	5320	7972	2092				
TSS				1739	824	259	323	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				852	522	147	242	68				
Chloride				28435	15342	4496	5813	1525				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8942	5255	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2146.11	1186.67	319.23	332.17	87.16				
Hardness CaCO3				11804	7290	1969	2525	662				
Total Metals												
Aluminum Al				67.96	32.01	12.15	13.63	3.70				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.27	0.15	0.05	0.06	0.02				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.50	6.58	2.17	2.58	0.71				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2652	1402	529	624	171				
Chromium Cr				0.27	0.19	0.07	0.04	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.53	0.27	0.07	0.09	0.02				
Iron Fe				72.19	33.00	12.80	15.03	3.97				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.76	0.84	0.26	0.33	0.09				
Magnesium Mg				2251	1162	406	449	119				
Manganese Mn				1.65	0.77	0.33	0.44	0.12				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.27	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1173	582	169	238	63				
Selenium Se				0.40	0.19	0.06	0.07	0.02				
Silicon SiO2				510	249	81	102	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16345	8273	2560	3203	841				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.91	8.49	2.67	3.33	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.44	2.58	0.81	1.01	0.27				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.69	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				2.00	0.98	0.32	0.40	0.11				

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradat

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				39433	20389	5249	7918	2096				
TSS				1743	826	255	321	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	51				
Chloride				28499	15377	4436	5773	1528				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8962	5267	1417	1650	437				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2150.88	1189.37	314.97	329.92	87.32				
Hardness CaCO3				11830	7306	1942	2507	664				
Total Metals												
Aluminum Al				63.82	29.42	10.88	12.12	3.21				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.52	5.97	1.89	2.23	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2406	1249	457	536	142				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.06	0.08	0.02				
Iron Fe				71.35	32.46	12.37	14.59	3.86				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.83	0.25	0.32	0.08				
Magnesium Mg				2231	1149	394	438	116				
Manganese Mn				1.63	0.76	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1169	580	165	234	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				464	220	68	85	23				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16375	8288	2524	3179	841				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.93	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.44	2.58	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.26	0.33	0.09				

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradat

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				39503	20426	5258	7932	2082				
TSS				1746	828	256	321	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				707	432	108	192	50				
Chloride				28549	15405	4443	5784	1518				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8978	5277	1420	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2154.72	1191.54	315.49	330.49	86.74				
Hardness CaCO3				11851	7319	1946	2512	659				
Total Metals												
Aluminum Al				63.93	29.47	10.90	12.14	3.19				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.54	5.98	1.89	2.24	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2410	1251	458	537	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.07	0.08	0.02				
Iron Fe				71.48	32.52	12.39	14.62	3.84				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.83	0.26	0.32	0.08				
Magnesium Mg				2235	1151	395	438	115				
Manganese Mn				1.63	0.76	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1172	581	165	235	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				465	220	68	86	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16404	8303	2528	3185	836				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.96	8.51	2.63	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.45	2.58	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.27	0.33	0.09				

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradat

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				39358	20350	5322	7975	2093				
TSS				1740	825	259	323	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				705	431	109	193	51				
Chloride				28444	15347	4497	5815	1526				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8945	5257	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2146.79	1187.06	319.34	332.29	87.19				
Hardness CaCO3				11807	7292	1969	2525	663				
Total Metals												
Aluminum Al				63.70	29.36	11.03	12.20	3.20				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.59	0.33	0.15	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.50	5.96	1.91	2.25	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2402	1247	463	540	142				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.50	0.26	0.07	0.08	0.02				
Iron Fe				71.21	32.39	12.54	14.70	3.86				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.82	0.26	0.32	0.08				
Magnesium Mg				2227	1147	400	441	116				
Manganese Mn				1.63	0.75	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1167	579	167	236	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				463	219	69	86	23				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16344	8272	2559	3202	840				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.89	8.48	2.66	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.43	2.57	0.81	1.01	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.65	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.27	0.34	0.09				

Appendix 1

Table I-2-a-A.3
Scenario 3 - No Degradat

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				39445	20396	5251	7920	2079				
TSS				1744	827	255	321	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	50				
Chloride				28508	15382	4437	5775	1516				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8965	5269	1418	1650	433				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2151.56	1189.76	315.06	330.02	86.62				
Hardness CaCO3				11834	7309	1943	2508	658				
Total Metals												
Aluminum Al				63.84	29.43	10.88	12.12	3.18				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.53	5.97	1.89	2.23	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2407	1250	457	536	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.06	0.08	0.02				
Iron Fe				71.37	32.47	12.37	14.60	3.83				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.83	0.26	0.32	0.08				
Magnesium Mg				2232	1150	395	438	115				
Manganese Mn				1.63	0.76	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1170	580	165	234	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				464	220	68	85	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16380	8291	2525	3180	835				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.93	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.44	2.58	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.27	0.33	0.09				

Table I-2-a-B.1
Scenario 3 - No Degradation

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate Degradation None		1000000 m3/year Tail Lk Cu < CME Year 8					
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.7	6.8	8.1	
Free CN	mg/L	1.0	0.005	0.0079	0.00043	0.00022	9%
Total CN	mg/L			0.077	0.006	0.004	
WAD CN	mg/L			0.0105	0.0006	0.0003	
CNO	mg/L			8.7	0.47	0.24	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1051	113	91	
Total Ammonia	mg/L		0.97	1.27	0.078	0.043	8%
Nitrate	mg/L		2.9	7.0	0.41	0.22	14%
Nitrite	mg/L		0.018	0.95	0.055	0.030	302%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0315	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.14	0.08	0.25	83%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00071	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.034	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000067	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.15	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000107	0.0000012	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.305	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00081	0.00089	0.00084	89%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000088	0.0000073	9%
Sodium Na	mg/L			386	58	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.002001	4%
Thorium Th	mg/L			0.000057	0.0000044	0.0000023	
Tin Sn	mg/L			0.00296	0.00054	0.00009	
Titanium Ti	mg/L			0.0115	0.0063	0.0063	
Uranium U	mg/L			0.000081	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0045	0.0050	0.0051	

Table I-2-a-B.2
Scenario 3 - No Degradation

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	151	153				
TSS	mg/L				3.9	5.6	5.8	6.7	6.7				
Free CN	mg/L				0.00008	0.00009	0.00011	0.00014	0.00016				
Total CN	mg/L				0.003	0.003	0.003	0.003	0.004				
WAD CN	mg/L				0.0001	0.0001	0.0001	0.0002	0.0002				
CNO	mg/L				0.09	0.10	0.12	0.15	0.18				
SCN	mg/L				0.001	0.001	0.002	0.002	0.002				
Sulphate	mg/L				3.8	3.9	4.3	4.9	5.2				
Chloride	mg/L				61	62	62	67	69				
Total Ammonia	mg/L				0.019	0.026	0.036	0.041	0.045				
Nitrate	mg/L				0.09	0.12	0.15	0.18	0.20				
Nitrite	mg/L				0.011	0.012	0.015	0.018	0.021				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P	mg/L				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon	mg/L				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi	mg/L				0.00012	0.00021	0.00028	0.00033	0.00039				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000040	0.0000038	0.0000040	0.0000043				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.021	0.027	0.024	0.025				
Potassium K	mg/L				3.2	2.9	3.0	3.1	3.3				
Selenium Se	mg/L				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.55	0.57	0.58	0.60				
Silver Ag	mg/L				0.0000049	0.0000058	0.0000060	0.0000064	0.0000065				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-B.2
Scenario 3 - No Degradation

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				160	139	143	165	166				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00034	0.00029	0.00029	0.00033	0.00035				
Total CN	mg/L				0.005	0.005	0.005	0.005	0.005				
WAD CN	mg/L				0.0004	0.0004	0.0004	0.0004	0.0005				
CNO	mg/L				0.37	0.32	0.32	0.36	0.38				
SCN	mg/L				0.005	0.004	0.004	0.005	0.005				
Sulphate	mg/L				7.3	6.7	6.9	7.5	7.7				
Chloride	mg/L				74	73	71	77	78				
Total Ammonia	mg/L				0.060	0.059	0.066	0.071	0.075				
Nitrate	mg/L				0.31	0.30	0.31	0.34	0.36				
Nitrite	mg/L				0.039	0.035	0.035	0.039	0.041				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P	mg/L				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi	mg/L				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000059	0.0000057	0.0000053	0.0000056	0.0000058				
Calcium Ca	mg/L				21	18	18	19	20				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo	mg/L				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P	mg/L				0.027	0.027	0.033	0.030	0.030				
Potassium K	mg/L				4.8	4.1	4.1	4.3	4.4				
Selenium Se	mg/L				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2	mg/L				0.68	0.66	0.66	0.68	0.69				
Silver Ag	mg/L				0.0000070	0.0000074	0.0000075	0.0000079	0.0000080				
Sodium Na	mg/L				39	33	35	33	33				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.043				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-B.2
Scenario 3 - No Degradation

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				171	148	150	171	172				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00043	0.00034	0.00032	0.00032	0.00031				
Total CN	mg/L				0.006	0.005	0.005	0.005	0.005				
WAD CN	mg/L				0.0006	0.0005	0.0004	0.0004	0.0004				
CNO	mg/L				0.47	0.38	0.35	0.36	0.35				
SCN	mg/L				0.006	0.005	0.005	0.005	0.005				
Sulphate	mg/L				8.7	7.5	7.4	7.7	7.6				
Chloride	mg/L				82	80	78	83	84				
Total Ammonia	mg/L				0.078	0.071	0.075	0.076	0.077				
Nitrate	mg/L				0.41	0.36	0.35	0.37	0.37				
Nitrite	mg/L				0.054	0.046	0.045	0.047	0.048				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P	mg/L				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				50	46	46	47	47				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000067	0.0000062	0.0000055	0.0000056	0.0000056				
Calcium Ca	mg/L				24	20	19	19	19				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0007	0.0007	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.5	6.7	6.8	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni	mg/L				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P	mg/L				0.032	0.031	0.036	0.033	0.033				
Potassium K	mg/L				5.3	4.4	4.3	4.2	4.2				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.73	0.69	0.68	0.69	0.68				
Silver Ag	mg/L				0.0000082	0.0000083	0.0000082	0.0000085	0.0000085				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.044	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00051	0.00050	0.00051	0.00052	0.00052				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-2-a-B.2
Scenario 3 - No Degradation

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				173	158	169	201	212				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00030	0.00024	0.00022	0.00022	0.00021				
Total CN	mg/L				0.005	0.004	0.004	0.004	0.004				
WAD CN	mg/L				0.0004	0.0003	0.0003	0.0003	0.0003				
CNO	mg/L				0.33	0.26	0.24	0.24	0.24				
SCN	mg/L				0.005	0.004	0.003	0.003	0.003				
Sulphate	mg/L				7.4	6.3	6.1	6.4	6.3				
Chloride	mg/L				88	89	91	103	110				
Total Ammonia	mg/L				0.070	0.061	0.064	0.064	0.064				
Nitrate	mg/L				0.36	0.30	0.29	0.30	0.29				
Nitrite	mg/L				0.055	0.044	0.041	0.042	0.041				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P	mg/L				0.0276	0.0265	0.0315	0.0275	0.0273				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000060	0.0000056	0.0000050	0.0000052	0.0000052				
Calcium Ca	mg/L				20	17	17	17	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.031	0.035	0.031	0.031				
Potassium K	mg/L				4.6	3.8	3.7	3.7	3.6				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00056	0.00057				
Silicon SiO2	mg/L				0.68	0.65	0.64	0.65	0.65				
Silver Ag	mg/L				0.0000088	0.0000086	0.0000083	0.0000086	0.0000085				
Sodium Na	mg/L				39	37	42	44	48				
Strontium Sr	mg/L				0.043	0.043	0.037	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00054	0.00051	0.00050	0.00050	0.00050				
Titanium Ti	mg/L				0.0059	0.0060	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0039	0.0036	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-2-a-B.2
Scenario 3 - No Degradation

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				216	179	176	187	186				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L				0.00021	0.00015	0.00014	0.00012	0.00012				
Total CN	mg/L				0.004	0.003	0.003	0.003	0.003				
WAD CN	mg/L				0.0003	0.0002	0.0002	0.0002	0.0002				
CNO	mg/L				0.23	0.17	0.15	0.13	0.13				
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.1	4.9	4.8	4.7				
Chloride	mg/L				113	100	94	93	92				
Total Ammonia	mg/L				0.054	0.047	0.050	0.045	0.045				
Nitrate	mg/L				0.29	0.24	0.22	0.20	0.20				
Nitrite	mg/L				0.039	0.030	0.027	0.024	0.024				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P	mg/L				0.0241	0.0235	0.0286	0.0237	0.0236				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.08				
Antimony Sb	mg/L				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00074	0.00056	0.00050	0.00044	0.00043				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000055	0.0000052	0.0000047	0.0000045	0.0000045				
Calcium Ca	mg/L				19	16	15	14	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000012	0.0000011	0.0000012				
Molybdenum Mo	mg/L				0.00044	0.00036	0.00037	0.00032	0.00032				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.028	0.026	0.031	0.026	0.026				
Potassium K	mg/L				4.0	3.3	3.2	3.0	3.0				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.64	0.62	0.61	0.59	0.59				
Silver Ag	mg/L				0.0000084	0.0000083	0.0000081	0.0000073	0.0000073				
Sodium Na	mg/L				58	47	47	43	43				
Strontium Sr	mg/L				0.042	0.043	0.037	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.0000004	0.0000004	0.0000004	0.0000004	0.0000004				
Tin Sn	mg/L				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000029	0.000034	0.000042	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0037	0.0033	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-2-a-B.2
Scenario 3 - No Degradation

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				177	150	150	170	167				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L				0.00010	0.00008	0.00007	0.00007	0.00007				
Total CN	mg/L				0.003	0.003	0.003	0.003	0.003				
WAD CN	mg/L				0.0001	0.0001	0.0001	0.0001	0.0001				
CNO	mg/L				0.12	0.09	0.08	0.08	0.07				
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.4	3.9	3.9	4.1	3.9				
Chloride	mg/L				87	81	77	81	79				
Total Ammonia	mg/L				0.032	0.030	0.035	0.035	0.033				
Nitrate	mg/L				0.16	0.14	0.13	0.14	0.13				
Nitrite	mg/L				0.021	0.017	0.016	0.016	0.015				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P	mg/L				0.0202	0.0206	0.0261	0.0220	0.0217				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000040	0.0000039	0.0000034	0.0000035	0.0000034				
Calcium Ca	mg/L				14	12	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo	mg/L				0.00030	0.00026	0.00028	0.00026	0.00025				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.022	0.022	0.027	0.023	0.023				
Potassium K	mg/L				3.4	2.9	2.8	2.8	2.7				
Selenium Se	mg/L				0.00088	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.58	0.57	0.57	0.57	0.56				
Silver Ag	mg/L				0.0000059	0.0000062	0.0000060	0.0000063	0.0000058				
Sodium Na	mg/L				48	40	41	39	38				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0063	0.0062				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0002	0.0003	0.0003	0.0002				
Zinc Zn	mg/L				0.0013	0.0034	0.0030	0.0020	0.0020				
Zirconium Zr	mg/L				0.0049	0.0049	0.0050	0.0050	0.0050				

Table I-2-a-B.2
Scenario 3 - No Degradation

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				158	135	137	154	154				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L				0.00006	0.00004	0.00004	0.00003	0.00003				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0001	0.0001	0.0000	0.0000				
CNO	mg/L				0.06	0.05	0.04	0.04	0.04				
SCN	mg/L				0.001	0.001	0.001	0.001	0.000				
Sulphate	mg/L				3.6	3.3	3.4	3.4	3.4				
Chloride	mg/L				75	71	68	71	71				
Total Ammonia	mg/L				0.023	0.022	0.026	0.023	0.023				
Nitrate	mg/L				0.12	0.09	0.08	0.07	0.07				
Nitrite	mg/L				0.013	0.010	0.009	0.008	0.008				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P	mg/L				0.0184	0.0193	0.0249	0.0204	0.0204				
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi	mg/L				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000035	0.0000029	0.0000028	0.0000028				
Calcium Ca	mg/L				11	10	10	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0029	0.0029	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00024	0.00021	0.00024	0.00021	0.00021				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.020	0.025	0.021	0.021				
Potassium K	mg/L				3.1	2.7	2.6	2.5	2.5				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.54	0.54				
Silver Ag	mg/L				0.0000053	0.0000056	0.0000053	0.0000048	0.0000047				
Sodium Na	mg/L				44	37	38	35	35				
Strontium Sr	mg/L				0.040	0.041	0.036	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000002	0.000002				
Tin Sn	mg/L				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-B.2
Scenario 3 - No Degradation

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				148	128	131	148	148				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.03	0.03	0.02	0.02	0.02				
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.2	3.0	3.1	3.2	3.2				
Chloride	mg/L				68	66	64	67	67				
Total Ammonia	mg/L				0.015	0.015	0.020	0.018	0.018				
Nitrate	mg/L				0.07	0.05	0.05	0.04	0.04				
Nitrite	mg/L				0.008	0.006	0.006	0.005	0.005				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P	mg/L				0.0174	0.0185	0.0242	0.0198	0.0198				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000032	0.0000031	0.0000026	0.0000025	0.0000025				
Calcium Ca	mg/L				10	9	9	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00020	0.00019	0.00021	0.00019	0.00019				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.018	0.019	0.024	0.020	0.020				
Potassium K	mg/L				3.0	2.6	2.5	2.4	2.4				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.53	0.53				
Silver Ag	mg/L				0.0000047	0.0000051	0.0000049	0.0000044	0.0000043				
Sodium Na	mg/L				42	35	36	34	34				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti	mg/L				0.0062	0.0062	0.0063	0.0062	0.0062				
Uranium U	mg/L				0.000027	0.000031	0.000039	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-B.2
Scenario 3 - No Degradation

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				142	123	127	146	145				
TSS	mg/L				3.9	5.7	5.9	6.8	6.8				
Free CN	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.02	0.01	0.01	0.01	0.01				
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.0	2.8	2.9	3.1	3.1				
Chloride	mg/L				64	63	61	65	65				
Total Ammonia	mg/L				0.010	0.012	0.017	0.016	0.016				
Nitrate	mg/L				0.04	0.03	0.03	0.03	0.03				
Nitrite	mg/L				0.005	0.004	0.004	0.004	0.004				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P	mg/L				0.0168	0.0181	0.0238	0.0196	0.0195				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				44	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.022				
Cadmium Cd	mg/L				0.0000029	0.0000029	0.0000024	0.0000024	0.0000024				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0029	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00018	0.00017	0.00020	0.00018	0.00018				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0004				
Phosphorus P	mg/L				0.017	0.018	0.024	0.019	0.019				
Potassium K	mg/L				2.9	2.5	2.5	2.4	2.4				
Selenium Se	mg/L				0.00088	0.00058	0.00062	0.00057	0.00057				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000041	0.0000046	0.0000045	0.0000046	0.0000043				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti	mg/L				0.0062	0.0062	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000033	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-B.2
Scenario 3 - No Degradatio

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				140	121	125	143	143			
TSS	mg/L				3.9	5.7	5.9	6.8	6.8			
Free CN	mg/L				0.00001	0.00001	0.00001	0.00001	0.00000			
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000			
CNO	mg/L				0.01	0.01	0.01	0.01	0.01			
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				2.9	2.7	2.9	3.0	3.0			
Chloride	mg/L				62	62	60	63	63			
Total Ammonia	mg/L				0.008	0.010	0.015	0.014	0.014			
Nitrate	mg/L				0.02	0.02	0.02	0.02	0.02			
Nitrite	mg/L				0.004	0.003	0.003	0.003	0.003			
Alkalinity	mg/L				27	25	27	26	26			
OrthoPhosphate-P	mg/L				0.0011	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0166	0.0179	0.0236	0.0193	0.0193			
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0			
Hardness CaCO3	mg/L				44	42	42	43	43			
Total Metals												
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005			
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000028	0.0000028	0.0000023	0.0000023	0.0000023			
Calcium Ca	mg/L				9	8	8	7	7			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015			
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4			
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011			
Molybdenum Mo	mg/L				0.00017	0.00016	0.00019	0.00017	0.00017			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.016	0.018	0.023	0.019	0.019			
Potassium K	mg/L				2.8	2.4	2.4	2.4	2.4			
Selenium Se	mg/L				0.00088	0.00058	0.00063	0.00056	0.00056			
Silicon SiO2	mg/L				0.52	0.53	0.53	0.52	0.52			
Silver Ag	mg/L				0.0000040	0.0000045	0.0000044	0.0000040	0.0000039			
Sodium Na	mg/L				40	34	35	33	33			
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039			
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000029	0.000030			
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002			
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039			
Titanium Ti	mg/L				0.0062	0.0062	0.0063	0.0062	0.0062			
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000032	0.000032			
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002			
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017			
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049			

Table I-2-a-B.3
Scenario 3 - No Degradation

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1073956	586904	257660	384118	135770				
TSS				29483	26699	11501	17154	5992				
Free CN				0.60	0.42	0.21	0.35	0.14				
Total CN				21	13	6	8	3				
WAD CN				0.81	0.55	0.29	0.47	0.19				
CNO				665	457	235	387	159				
SCN				9	6	3	5	2				
Sulphate				28611	18314	8584	12413	4649				
Chloride				468083	295283	123233	171437	61017				
Total Ammonia				143	123	72	103	40				
Nitrate				648	556	291	447	179				
Nitrite				83	59	30	46	19				
Alkalinity				206688	119301	53699	68141	23935				
OrthoPhosphate-P				17	12	6	9	3				
Phosphate-P				132	89	50	54	19				
Org. Carbon				40778	23698	14478	12543	4379				
Hardness CaCO3				342229	200983	84935	113548	39956				
Total Metals												
Aluminum Al				250	275	156	179	63				
Antimony Sb				3.4	4.6	5.9	1.9	0.7				
Arsenic As				3.8	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.09	0.04	0.06	0.02				
Bismuth Bi				0.92	0.99	0.55	0.85	0.35				
Boron B				253	104	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				84525	51177	22658	31216	11723				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.30	1.29	2.02	0.75	0.30				
Copper Cu				10	8	3	4	1				
Iron Fe				379	566	163	223	78				
Lead Pb				0.19	0.32	0.09	0.12	0.04				
Lithium Li				21	13	6	7	3				
Magnesium Mg				53966	30305	12948	16335	5728				
Manganese Mn				50	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.96	1.26	0.64	0.87	0.33				
Nickel Ni				3.73	3.14	1.18	1.54	0.56				
Phosphorus P				142	97	54	61	22				
Potassium K				24293	13560	5932	7916	2900				
Selenium Se				6.59	2.64	1.20	1.39	0.49				
Silicon SiO2				4141	2613	1126	1487	532				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				289400	152276	66908	80717	28310				
Strontium Sr				303	195	71	102	36				
Tellurium Te				370	230	97	125	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.02	1.94	0.84	1.10	0.39				
Titanium Ti				44	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.09	0.03				
Vanadium V				4.30	0.49	0.59	0.57	0.21				
Zinc Zn				8.69	15.69	6.16	5.40	1.97				
Zirconium Zr				37	23	10	13	4				

Table I-2-a-B.3
Scenario 3 - No Degradat

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1220165	658674	285400	420123	147948				
TSS				29841	26873	11568	17241	6021				
Free CN				2.57	1.38	0.59	0.83	0.31				
Total CN				40	23	10	13	5				
WAD CN				3.42	1.84	0.78	1.11	0.41				
CNO				2822	1517	645	918	339				
SCN				38	21	9	13	5				
Sulphate				55480	31510	13684	19031	6887				
Chloride				564931	342809	141595	195266	69076				
Total Ammonia				458	278	132	181	66				
Nitrate				2388	1409	620	874	323				
Nitrite				299	165	71	100	37				
Alkalinity				219476	125568	56119	71284	24998				
OrthoPhosphate-P				55	30	13	18	7				
Phosphate-P				170	108	57	64	23				
Org. Carbon				40852	23731	14490	12559	4385				
Hardness CaCO3				369674	214447	90137	120301	42240				
Total Metals												
Aluminum Al				261	280	158	182	64				
Antimony Sb				6.9	6.3	6.5	2.8	1.0				
Arsenic As				4.6	2.4	1.0	1.3	0.5				
Barium Ba				25	16	7	9	3				
Beryllium Be				0.26	0.15	0.07	0.09	0.03				
Bismuth Bi				4.27	2.63	1.18	1.68	0.62				
Boron B				259	107	47	58	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.01				
Calcium Ca				157237	86903	36468	49138	17785				
Chromium Cr				7	3	1	1	1				
Cobalt Co				4.35	2.79	2.60	1.51	0.55				
Copper Cu				12	9	3	5	2				
Iron Fe				389	571	165	226	79				
Lead Pb				0.30	0.37	0.11	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56099	31350	13351	16859	5905				
Manganese Mn				59	99	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.61	2.56	1.14	1.52	0.55				
Nickel Ni				6.10	4.31	1.63	2.12	0.76				
Phosphorus P				205	128	66	76	27				
Potassium K				36288	19454	8210	10872	3899				
Selenium Se				6.66	2.67	1.22	1.41	0.49				
Silicon SiO2				5179	3122	1323	1743	618				
Silver Ag				0.05	0.04	0.01	0.02	0.01				
Sodium Na				301047	157988	69115	83582	29279				
Strontium Sr				326	207	76	108	38				
Tellurium Te				370	230	97	125	44				
Thallium Tl				0.23	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.54	2.20	0.94	1.23	0.43				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.14	0.91	0.75	0.77	0.28				
Zinc Zn				15.33	18.96	7.42	7.03	2.53				
Zirconium Zr				37	23	10	13	4				

Table I-2-a-B.3
Scenario 3 - No Degradat

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1300322	697522	299220	436673	153011				
TSS				30001	26945	11589	17259	6024				
Free CN				3.25	1.62	0.63	0.82	0.28				
Total CN				46	25	10	13	4				
WAD CN				4.33	2.17	0.84	1.10	0.37				
CNO				3573	1786	693	905	308				
SCN				49	24	9	12	4				
Sulphate				65965	35656	14686	19545	6776				
Chloride				628689	376026	154662	212713	75121				
Total Ammonia				597	336	149	195	68				
Nitrate				3125	1708	700	933	327				
Nitrite				412	218	89	121	43				
Alkalinity				224269	127428	56526	71400	24887				
OrthoPhosphate-P				80	43	18	25	9				
Phosphate-P				195	121	62	71	25				
Org. Carbon				40952	23797	14519	12600	4400				
Hardness CaCO3				379716	218247	90921	120414	41950				
Total Metals												
Aluminum Al				267	283	158	183	64				
Antimony Sb				9.1	7.5	7.0	3.4	1.2				
Arsenic As				4.9	2.6	1.0	1.3	0.5				
Barium Ba				26	17	7	9	3				
Beryllium Be				0.33	0.18	0.08	0.11	0.04				
Bismuth Bi				6.45	3.77	1.63	2.27	0.83				
Boron B				262	109	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.01				
Calcium Ca				182881	96201	38181	48879	16801				
Chromium Cr				8	3	2	1	1				
Cobalt Co				5.47	3.20	2.69	1.52	0.52				
Copper Cu				13	9	3	5	2				
Iron Fe				393	573	166	226	79				
Lead Pb				0.35	0.40	0.12	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				57003	31733	13457	16940	5913				
Manganese Mn				62	100	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				5.54	2.90	1.20	1.51	0.52				
Nickel Ni				7.04	4.68	1.72	2.17	0.75				
Phosphorus P				241	145	72	84	30				
Potassium K				40505	20981	8489	10824	3735				
Selenium Se				6.70	2.69	1.22	1.42	0.49				
Silicon SiO2				5567	3268	1354	1749	608				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				305334	159620	69457	83643	29161				
Strontium Sr				335	210	76	108	38				
Tellurium Te				371	231	97	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.88	2.37	1.01	1.32	0.47				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.60	1.12	0.83	0.86	0.31				
Zinc Zn				17.88	19.95	7.65	7.13	2.48				
Zirconium Zr				38	23	10	13	4				

Table I-2-a-B.3
Scenario 3 - No Degradat

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1316091	745342	336198	512442	188653				
TSS				29982	27023	11637	17334	6054				
Free CN				2.30	1.12	0.43	0.56	0.19				
Total CN				37	20	8	10	4				
WAD CN				3.06	1.49	0.57	0.75	0.25				
CNO				2526	1228	471	619	210				
SCN				34	17	6	8	3				
Sulphate				56656	29974	12240	16246	5592				
Chloride				672180	418703	181111	262564	97524				
Total Ammonia				537	290	127	164	57				
Nitrate				2749	1428	570	757	262				
Nitrite				420	208	81	106	36				
Alkalinity				219552	124925	55549	70173	24476				
OrthoPhosphate-P				96	47	18	24	8				
Phosphate-P				211	125	63	70	24				
Org. Carbon				41238	23954	14584	12693	4433				
Hardness CaCO3				368526	212290	88579	117438	40947				
Total Metals												
Aluminum Al				266	289	162	189	66				
Antimony Sb				10.8	7.7	6.9	3.1	1.1				
Arsenic As				4.6	2.4	0.9	1.2	0.4				
Barium Ba				25	16	6	9	3				
Beryllium Be				0.36	0.19	0.07	0.10	0.03				
Bismuth Bi				8.14	4.00	1.54	2.02	0.69				
Boron B				262	109	47	59	21				
Cadmium Cd				0.05	0.03	0.01	0.01	0.00				
Calcium Ca				148759	80827	33292	44379	15911				
Chromium Cr				7	2	1	1	0				
Cobalt Co				4.16	2.48	2.39	1.13	0.39				
Copper Cu				12	9	3	5	2				
Iron Fe				392	580	169	232	81				
Lead Pb				0.34	0.38	0.11	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56558	31527	13378	16842	5879				
Manganese Mn				58	98	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.30	2.24	0.94	1.17	0.40				
Nickel Ni				6.26	4.20	1.51	1.90	0.65				
Phosphorus P				251	145	70	80	28				
Potassium K				34847	18029	7329	9333	3229				
Selenium Se				6.69	2.71	1.24	1.44	0.50				
Silicon SiO2				5157	3062	1274	1648	574				
Silver Ag				0.07	0.04	0.02	0.02	0.01				
Sodium Na				300688	174807	82729	111256	42294				
Strontium Sr				326	206	75	106	37				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.02	0.01	0.01	0.00				
Tin Sn				4.15	2.41	1.00	1.29	0.45				
Titanium Ti				45	29	12	16	5				
Uranium U				0.21	0.16	0.08	0.09	0.03				
Vanadium V				5.72	1.15	0.82	0.85	0.29				
Zinc Zn				15.46	18.57	7.08	6.38	2.22				
Zirconium Zr				38	23	10	13	4				

Table I-2-a-B.3
Scenario 3 - No Degradat

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1649633	844341	350162	477954	165786				
TSS				30237	27156	11690	17323	6050				
Free CN				1.57	0.72	0.27	0.30	0.10				
Total CN				30	16	7	8	3				
WAD CN				2.09	0.97	0.36	0.40	0.14				
CNO				1723	797	299	334	113				
SCN				23	11	4	5	2				
Sulphate				45483	23970	9841	12218	4223				
Chloride				861833	471715	186704	236436	81855				
Total Ammonia				414	224	100	116	40				
Nitrate				2173	1114	444	516	180				
Nitrite				298	142	54	62	21				
Alkalinity				216162	123072	54813	68410	23877				
OrthoPhosphate-P				67	32	12	14	5				
Phosphate-P				184	111	57	60	21				
Org. Carbon				41509	24095	14641	12662	4422				
Hardness CaCO3				360257	207793	86790	113734	39688				
Total Metals												
Aluminum Al				285	299	166	191	67				
Antimony Sb				8.2	6.3	6.3	2.2	0.8				
Arsenic As				4.4	2.3	0.9	1.1	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.30	0.15	0.06	0.07	0.02				
Bismuth Bi				5.64	2.65	1.00	1.13	0.39				
Boron B				263	109	47	58	20				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				146558	74925	29424	34556	11916				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.99	1.85	2.14	0.71	0.24				
Copper Cu				11	8	3	4	1				
Iron Fe				412	590	174	234	82				
Lead Pb				0.30	0.36	0.11	0.13	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56154	31303	13288	16560	5783				
Manganese Mn				55	97	27	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				3.33	1.72	0.73	0.82	0.28				
Nickel Ni				5.30	3.69	1.31	1.54	0.53				
Phosphorus P				212	125	62	66	23				
Potassium K				30661	15779	6430	7776	2700				
Selenium Se				6.77	2.76	1.25	1.45	0.51				
Silicon SiO2				4871	2908	1212	1516	529				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				439549	222767	93396	109606	38034				
Strontium Sr				320	202	73	103	36				
Tellurium Te				376	233	98	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.79	2.22	0.92	1.15	0.40				
Titanium Ti				47	29	12	16	6				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.42	0.99	0.76	0.70	0.24				
Zinc Zn				13.07	17.28	6.56	5.46	1.91				
Zirconium Zr				38	24	10	13	4				

Table I-2-a-B.3
Scenario 3 - No Degradat

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1348988	706899	298900	433395	148496				
TSS				30130	27104	11670	17381	6056				
Free CN				0.80	0.37	0.14	0.19	0.06				
Total CN				23	13	5	7	2				
WAD CN				1.06	0.50	0.19	0.25	0.08				
CNO				879	412	155	204	64				
SCN				12	6	2	3	1				
Sulphate				33344	18395	7756	10360	3510				
Chloride				663314	380959	152853	207156	70462				
Total Ammonia				245	142	69	89	30				
Nitrate				1246	659	269	364	120				
Nitrite				162	80	31	41	13				
Alkalinity				210537	120486	53843	67953	23617				
OrthoPhosphate-P				37	18	7	9	3				
Phosphate-P				154	98	52	56	19				
Org. Carbon				41323	24005	14607	12727	4427				
Hardness CaCO3				348734	202509	84813	112518	39109				
Total Metals												
Aluminum Al				284	298	166	193	67				
Antimony Sb				5.5	5.1	5.9	1.8	0.6				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.19	0.10	0.04	0.05	0.02				
Bismuth Bi				2.99	1.44	0.55	0.72	0.23				
Boron B				259	108	47	58	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				105469	56097	22395	28301	9516				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.70	1.26	1.92	0.51	0.17				
Copper Cu				10	8	3	4	1				
Iron Fe				415	591	174	238	83				
Lead Pb				0.22	0.32	0.09	0.11	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55187	30852	13118	16507	5742				
Manganese Mn				52	95	26	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.29	1.24	0.56	0.67	0.22				
Nickel Ni				4.20	3.18	1.12	1.38	0.47				
Phosphorus P				167	103	54	59	20				
Potassium K				25994	13643	5633	7107	2435				
Selenium Se				6.74	2.74	1.25	1.45	0.51				
Silicon SiO2				4401	2683	1127	1456	502				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				368595	190314	81290	99399	34005				
Strontium Sr				311	198	72	102	36				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.37	2.02	0.85	1.09	0.38				
Titanium Ti				47	29	12	16	6				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				4.91	0.75	0.67	0.64	0.22				
Zinc Zn				10.20	15.95	6.06	5.04	1.75				
Zirconium Zr				38	23	10	13	4				

Table I-2-a-B.3
Scenario 3 - No Degradat

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1208037	640342	273705	392674	136850				
TSS				30133	27107	11671	17303	6043				
Free CN				0.44	0.20	0.08	0.09	0.03				
Total CN				19	11	5	6	2				
WAD CN				0.58	0.27	0.10	0.11	0.04				
CNO				479	223	84	94	32				
SCN				7	3	1	1	0				
Sulphate				27718	15715	6735	8744	3042				
Chloride				570344	337059	136236	180144	62754				
Total Ammonia				178	102	51	59	20				
Nitrate				915	433	164	185	63				
Nitrite				100	49	19	22	7				
Alkalinity				208170	119375	53425	66867	23353				
OrthoPhosphate-P				23	12	5	5	2				
Phosphate-P				140	91	50	52	18				
Org. Carbon				41302	23998	14604	12622	4409				
Hardness CaCO3				343689	200134	83917	110534	38602				
Total Metals												
Aluminum Al				288	299	166	190	67				
Antimony Sb				4.2	4.5	5.6	1.4	0.5				
Arsenic As				3.8	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.15	0.07	0.03	0.04	0.01				
Bismuth Bi				1.74	0.84	0.32	0.37	0.13				
Boron B				259	107	47	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				86269	46990	18936	22838	7936				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.11	0.97	1.81	0.34	0.12				
Copper Cu				10	7	3	4	1				
Iron Fe				420	593	175	236	83				
Lead Pb				0.20	0.31	0.08	0.10	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54818	30676	13051	16295	5692				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.80	1.01	0.47	0.53	0.18				
Nickel Ni				3.71	2.94	1.03	1.23	0.43				
Phosphorus P				147	93	50	53	18				
Potassium K				23827	12620	5245	6454	2251				
Selenium Se				6.76	2.74	1.25	1.44	0.50				
Silicon SiO2				4222	2591	1090	1377	481				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				335557	174720	75387	89521	31218				
Strontium Sr				307	196	71	100	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.18	1.93	0.81	1.03	0.36				
Titanium Ti				47	29	12	16	6				
Uranium U				0.21	0.15	0.08	0.08	0.03				
Vanadium V				4.72	0.65	0.63	0.55	0.19				
Zinc Zn				8.93	15.33	5.82	4.63	1.63				
Zirconium Zr				38	23	10	13	4				

Table I-2-a-B.3
Scenario 3 - No Degradat

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1131301	604436	260169	377448	131677				
TSS				30150	27116	11675	17306	6044				
Free CN				0.24	0.11	0.04	0.05	0.02				
Total CN				17	10	4	5	2				
WAD CN				0.32	0.15	0.05	0.06	0.02				
CNO				261	121	45	50	17				
SCN				4	2	1	1	0				
Sulphate				24580	14245	6181	8121	2831				
Chloride				519760	313389	127314	170108	59344				
Total Ammonia				114	72	40	47	16				
Nitrate				519	247	94	107	36				
Nitrite				61	31	12	14	5				
Alkalinity				206962	118815	53216	66627	23272				
OrthoPhosphate-P				15	8	3	4	1				
Phosphate-P				133	88	48	50	18				
Org. Carbon				41310	24003	14607	12623	4409				
Hardness CaCO3				341047	198903	83456	110009	38424				
Total Metals												
Aluminum Al				289	300	166	191	67				
Antimony Sb				3.5	4.1	5.5	1.3	0.5				
Arsenic As				3.7	1.9	0.7	0.9	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.12	0.06	0.03	0.03	0.01				
Bismuth Bi				1.05	0.52	0.20	0.24	0.08				
Boron B				258	107	46	57	20				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				75673	42030	17066	20736	7222				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.78	0.82	1.75	0.27	0.09				
Copper Cu				9	7	3	4	1				
Iron Fe				422	594	175	236	83				
Lead Pb				0.17	0.30	0.08	0.10	0.03				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54625	30587	13018	16256	5679				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.53	0.89	0.42	0.48	0.17				
Nickel Ni				3.43	2.81	0.98	1.17	0.41				
Phosphorus P				135	88	48	50	18				
Potassium K				22650	12069	5038	6221	2172				
Selenium Se				6.76	2.74	1.25	1.44	0.50				
Silicon SiO2				4106	2537	1070	1354	473				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				317634	166338	72228	85964	30010				
Strontium Sr				305	195	71	100	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.07	1.88	0.79	1.01	0.35				
Titanium Ti				47	30	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.59	0.59	0.61	0.53	0.19				
Zinc Zn				8.20	14.99	5.69	4.49	1.58				
Zirconium Zr				38	23	10	13	4				

Table I-2-a-B.3
Scenario 3 - No Degradat

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1084533	583016	252171	371986	129241				
TSS				30085	27083	11662	17371	6053				
Free CN				0.12	0.06	0.02	0.03	0.01				
Total CN				16	10	4	5	2				
WAD CN				0.16	0.08	0.03	0.04	0.01				
CNO				133	62	23	31	10				
SCN				2	1	0	0	0				
Sulphate				22703	13388	5861	7867	2727				
Chloride				488787	299202	122015	166630	57754				
Total Ammonia				77	55	34	41	14				
Nitrate				286	141	54	71	23				
Nitrite				38	20	8	10	3				
Alkalinity				205842	118288	53015	66865	23276				
OrthoPhosphate-P				11	6	2	3	1				
Phosphate-P				128	85	47	50	17				
Org. Carbon				41221	23958	14589	12704	4420				
Hardness CaCO3				338932	197919	83082	110244	38396				
Total Metals												
Aluminum Al				287	298	166	193	67				
Antimony Sb				3.1	3.9	5.4	1.2	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				0.64	0.34	0.13	0.17	0.06				
Boron B				257	107	46	57	20				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				69344	39137	15987	19874	6871				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.58	0.73	1.72	0.25	0.08				
Copper Cu				9	7	3	4	1				
Iron Fe				421	593	175	239	83				
Lead Pb				0.16	0.29	0.08	0.10	0.03				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54411	30485	12979	16323	5684				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.37	0.81	0.39	0.46	0.16				
Nickel Ni				3.26	2.73	0.95	1.15	0.40				
Phosphorus P				128	85	47	49	17				
Potassium K				21908	11728	4910	6157	2137				
Selenium Se				6.74	2.74	1.24	1.45	0.50				
Silicon SiO2				4018	2496	1054	1360	472				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				306393	161176	70299	84955	29476				
Strontium Sr				303	194	70	100	35				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.01	1.85	0.78	1.00	0.35				
Titanium Ti				47	29	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.50	0.55	0.59	0.54	0.18				
Zinc Zn				7.72	14.77	5.61	4.45	1.56				
Zirconium Zr				37	23	10	13	4				

Table I-2-a-B.3
Scenario 3 - No Degradat

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1063722	573231	248476	364428	127259				
TSS				30108	27096	11667	17298	6042				
Free CN				0.07	0.03	0.01	0.01	0.00				
Total CN				16	10	4	5	2				
WAD CN				0.09	0.04	0.02	0.02	0.01				
CNO				72	34	13	14	5				
SCN				1	0	0	0	0				
Sulphate				21843	12983	5708	7594	2652				
Chloride				475104	292769	119586	161504	56424				
Total Ammonia				59	47	31	36	13				
Nitrate				176	89	35	41	14				
Nitrite				28	15	6	8	3				
Alkalinity				205608	118185	52978	66365	23183				
OrthoPhosphate-P				9	5	2	2	1				
Phosphate-P				126	84	47	49	17				
Org. Carbon				41246	23972	14595	12611	4405				
Hardness CaCO3				338340	197648	82983	109487	38247				
Total Metals												
Aluminum Al				288	299	166	190	67				
Antimony Sb				2.9	3.9	5.4	1.2	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.09	0.05	0.02	0.02	0.01				
Bismuth Bi				0.45	0.25	0.10	0.12	0.04				
Boron B				257	107	46	57	20				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				66440	37768	15469	18957	6618				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.49	0.69	1.70	0.22	0.08				
Copper Cu				9	7	3	4	1				
Iron Fe				422	594	175	236	83				
Lead Pb				0.15	0.29	0.08	0.09	0.03				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54382	30474	12975	16209	5663				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.30	0.78	0.38	0.43	0.15				
Nickel Ni				3.18	2.70	0.94	1.12	0.39				
Phosphorus P				125	83	46	48	17				
Potassium K				21594	11582	4855	6017	2103				
Selenium Se				6.75	2.74	1.25	1.43	0.50				
Silicon SiO2				3991	2484	1050	1332	466				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				301610	158935	69453	82877	28962				
Strontium Sr				302	194	70	100	35				
Tellurium Te				373	232	98	125	44				
Thallium Tl				0.22	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				2.98	1.84	0.78	0.99	0.35				
Titanium Ti				47	30	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.47	0.54	0.59	0.50	0.18				
Zinc Zn				7.53	14.68	5.58	4.36	1.54				
Zirconium Zr				37	23	10	13	4				

Table I-2-a-C.1
Scenario 3 - No Degradation

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate Degradation None		1000000 m3/year Tail Lk Cu < CME Year		8			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.7	6.8	8.1	
Free CN	mg/L		0.005	0.0079	0.00043	0.00022	9%
Total CN	mg/L	1.0		0.077	0.006	0.004	
WAD CN	mg/L			0.0105	0.0006	0.0003	
CNO	mg/L			8.7	0.47	0.24	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1051	113	91	
Total Ammonia	mg/L		0.97	1.27	0.078	0.043	8%
Nitrate	mg/L		2.9	7.0	0.41	0.22	14%
Nitrite	mg/L		0.018	0.95	0.055	0.030	302%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0315	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.14	0.08	0.25	83%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00071	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.034	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000067	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.15	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000107	0.0000012	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.305	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00081	0.00089	0.00084	89%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000088	0.0000073	9%
Sodium Na	mg/L			386	58	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.002001	4%
Thorium Th	mg/L			0.000057	0.0000044	0.0000023	
Tin Sn	mg/L			0.00296	0.00054	0.00009	
Titanium Ti	mg/L			0.0115	0.0063	0.0063	
Uranium U	mg/L			0.000081	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0045	0.0050	0.0051	

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake Outflow

Date		Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1
		Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08
Parameter												
TDS	mg/L				155	155	146	167	168			
TSS	mg/L				7.0	8.1	4.1	5.1	5.1			
Free CN	mg/L				0.00004	0.00005	0.00006	0.00007	0.00008			
Total CN	mg/L				0.002	0.002	0.003	0.003	0.003			
WAD CN	mg/L				0.0001	0.0001	0.0001	0.0001	0.0001			
CNO	mg/L				0.05	0.05	0.06	0.08	0.09			
SCN	mg/L				0.001	0.001	0.001	0.001	0.001			
Sulphate	mg/L				4.3	4.4	5.5	5.5	5.7			
Chloride	mg/L				63	61	60	69	70			
Total Ammonia	mg/L				0.012	0.015	0.012	0.022	0.024			
Nitrate	mg/L				0.05	0.06	0.07	0.09	0.11			
Nitrite	mg/L				0.007	0.007	0.007	0.010	0.012			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0018	0.0019	0.0021	0.0024	0.0027			
Phosphate-P	mg/L				0.0249	0.0170	0.0082	0.0205	0.0208			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	46	46			
Total Metals												
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0005	0.0005			
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00002			
Bismuth Bi	mg/L				0.00015	0.00019	0.00023	0.00026	0.00029			
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000031	0.0000048	0.0000155	0.0000031	0.0000032			
Calcium Ca	mg/L				9	8	9	10	11			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002			
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0020	0.0020			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.3			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007			
Molybdenum Mo	mg/L				0.00024	0.00023	0.00031	0.00029	0.00031			
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007			
Phosphorus P	mg/L				0.026	0.018	0.009	0.022	0.022			
Potassium K	mg/L				3.0	2.5	2.5	2.9	3.0			
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060			
Silicon SiO2	mg/L				0.54	0.54	0.55	0.56	0.56			
Silver Ag	mg/L				0.0000053	0.0000030	0.0000057	0.0000042	0.0000043			
Sodium Na	mg/L				38	32	34	37	37			
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.047			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00003	0.00003			
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061			
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044			
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0054	0.0054			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				164	163	153	174	175				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00017	0.00015	0.00015	0.00017	0.00018				
Total CN	mg/L				0.004	0.003	0.004	0.004	0.004				
WAD CN	mg/L				0.0002	0.0002	0.0002	0.0002	0.0002				
CNO	mg/L				0.19	0.17	0.17	0.19	0.20				
SCN	mg/L				0.003	0.002	0.002	0.003	0.003				
Sulphate	mg/L				6.2	5.8	6.8	6.8	7.0				
Chloride	mg/L				70	66	65	74	75				
Total Ammonia	mg/L				0.034	0.032	0.027	0.037	0.039				
Nitrate	mg/L				0.17	0.16	0.16	0.18	0.19				
Nitrite	mg/L				0.021	0.019	0.017	0.021	0.022				
Alkalinity	mg/L				24	24	25	27	27				
OrthoPhosphate-P	mg/L				0.0044	0.0039	0.0040	0.0043	0.0045				
Phosphate-P	mg/L				0.0275	0.0190	0.0101	0.0224	0.0226				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0020	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00038	0.00037	0.00039	0.00043	0.00045				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000042	0.0000057	0.0000163	0.0000039	0.0000040				
Calcium Ca	mg/L				14	12	12	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.009				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00042	0.00037	0.00044	0.00043	0.00044				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.030	0.021	0.012	0.025	0.025				
Potassium K	mg/L				3.8	3.1	3.1	3.5	3.6				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.60	0.60	0.61	0.62				
Silver Ag	mg/L				0.0000064	0.0000039	0.0000064	0.0000050	0.0000051				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000002				
Tin Sn	mg/L				0.00004	0.00004	0.00005	0.00005	0.00006				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				170	167	157	178	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00022	0.00018	0.00016	0.00017	0.00016				
Total CN	mg/L				0.004	0.004	0.004	0.004	0.004				
WAD CN	mg/L				0.0003	0.0002	0.0002	0.0002	0.0002				
CNO	mg/L				0.24	0.20	0.18	0.18	0.18				
SCN	mg/L				0.003	0.003	0.002	0.003	0.002				
Sulphate	mg/L				6.9	6.3	7.1	6.9	6.9				
Chloride	mg/L				74	70	69	78	78				
Total Ammonia	mg/L				0.043	0.038	0.032	0.040	0.040				
Nitrate	mg/L				0.22	0.19	0.18	0.19	0.19				
Nitrite	mg/L				0.029	0.025	0.022	0.026	0.026				
Alkalinity	mg/L				25	25	25	27	27				
OrthoPhosphate-P	mg/L				0.0061	0.0054	0.0053	0.0057	0.0059				
Phosphate-P	mg/L				0.0292	0.0205	0.0114	0.0238	0.0240				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				47	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00052	0.00050	0.00051	0.00055	0.00057				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000047	0.0000059	0.0000164	0.0000039	0.0000039				
Calcium Ca	mg/L				16	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0016	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	5.3	5.4	7.4	7.4				
Manganese Mn	mg/L				0.025	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00048	0.00041	0.00046	0.00042	0.00042				
Nickel Ni	mg/L				0.0009	0.0007	0.0009	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.023	0.014	0.026	0.027				
Potassium K	mg/L				4.1	3.3	3.2	3.5	3.5				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.63	0.61	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000071	0.0000043	0.0000068	0.0000053	0.0000053				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000002	0.000002				
Tin Sn	mg/L				0.00007	0.00006	0.00007	0.00007	0.00008				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0042	0.0023	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				171	172	166	193	199				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00016	0.00012	0.00011	0.00011	0.00011				
Total CN	mg/L				0.004	0.003	0.003	0.003	0.003				
WAD CN	mg/L				0.0002	0.0002	0.0001	0.0002	0.0001				
CNO	mg/L				0.17	0.13	0.12	0.13	0.12				
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.2	5.6	6.4	6.3	6.2				
Chloride	mg/L				77	74	75	88	91				
Total Ammonia	mg/L				0.039	0.033	0.026	0.034	0.034				
Nitrate	mg/L				0.19	0.16	0.15	0.16	0.16				
Nitrite	mg/L				0.030	0.024	0.020	0.023	0.022				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0071	0.0058	0.0054	0.0055	0.0054				
Phosphate-P	mg/L				0.0302	0.0210	0.0116	0.0237	0.0236				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0010	0.0021	0.0016	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00064	0.00052	0.00049	0.00050	0.00049				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000043	0.0000056	0.0000161	0.0000037	0.0000037				
Calcium Ca	mg/L				14	12	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00039	0.00033	0.00039	0.00036	0.00035				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.023	0.014	0.026	0.026				
Potassium K	mg/L				3.7	3.0	2.9	3.2	3.2				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.59	0.59	0.59	0.59				
Silver Ag	mg/L				0.0000073	0.0000045	0.0000069	0.0000054	0.0000053				
Sodium Na	mg/L				39	34	38	43	45				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00009	0.00007	0.00006	0.00007	0.00006				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0021	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				194	183	170	186	186				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00011	0.00008	0.00007	0.00006	0.00006				
Total CN	mg/L				0.003	0.003	0.003	0.003	0.003				
WAD CN	mg/L				0.0001	0.0001	0.0001	0.0001	0.0001				
CNO	mg/L				0.12	0.09	0.08	0.07	0.07				
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.5	5.0	5.8	5.5	5.4				
Chloride	mg/L				90	80	77	82	82				
Total Ammonia	mg/L				0.031	0.026	0.019	0.024	0.024				
Nitrate	mg/L				0.15	0.12	0.11	0.11	0.11				
Nitrite	mg/L				0.021	0.017	0.013	0.014	0.013				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0052	0.0042	0.0038	0.0035	0.0034				
Phosphate-P	mg/L				0.0284	0.0194	0.0101	0.0217	0.0217				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0020	0.0014	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00047	0.00038	0.00035	0.00031	0.00031				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000041	0.0000054	0.0000159	0.0000033	0.0000033				
Calcium Ca	mg/L				14	11	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00033	0.00028	0.00034	0.00029	0.00028				
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.030	0.021	0.011	0.023	0.023				
Potassium K	mg/L				3.4	2.7	2.7	2.9	2.9				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.59	0.57	0.57	0.56	0.56				
Silver Ag	mg/L				0.0000071	0.0000043	0.0000067	0.0000047	0.0000047				
Sodium Na	mg/L				48	39	41	43	42				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00005	0.00004	0.00004	0.00004				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0020	0.0018	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				173	168	157	177	176				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00005	0.00004	0.00004	0.00004	0.00003				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0001	0.0000	0.0001	0.0000				
CNO	mg/L				0.06	0.05	0.04	0.04	0.04				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.7	4.4	5.3	5.1	5.0				
Chloride	mg/L				76	70	68	77	75				
Total Ammonia	mg/L				0.019	0.017	0.011	0.019	0.018				
Nitrate	mg/L				0.09	0.08	0.07	0.08	0.07				
Nitrite	mg/L				0.012	0.010	0.007	0.009	0.009				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0032	0.0026	0.0025	0.0025	0.0024				
Phosphate-P	mg/L				0.0264	0.0179	0.0088	0.0209	0.0207				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0042				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00029	0.00024	0.00023	0.00023	0.00022				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000033	0.0000047	0.0000153	0.0000028	0.0000028				
Calcium Ca	mg/L				11	9	9	10	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00026	0.00023	0.00029	0.00025	0.00025				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.019	0.009	0.021	0.021				
Potassium K	mg/L				3.1	2.5	2.4	2.8	2.7				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00062	0.00061				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000058	0.0000032	0.0000057	0.0000042	0.0000039				
Sodium Na	mg/L				43	36	38	40	40				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00003	0.00003	0.00002	0.00003	0.00002				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				164	161	150	169	169				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.03	0.02	0.02	0.02	0.02				
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.3	4.1	5.0	4.8	4.8				
Chloride	mg/L				70	65	64	71	71				
Total Ammonia	mg/L				0.015	0.012	0.006	0.013	0.013				
Nitrate	mg/L				0.07	0.05	0.04	0.04	0.04				
Nitrite	mg/L				0.008	0.006	0.004	0.005	0.005				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0022	0.0019	0.0018	0.0017	0.0017				
Phosphate-P	mg/L				0.0255	0.0172	0.0082	0.0200	0.0200				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00020	0.00018	0.00017	0.00016	0.00016				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000045	0.0000150	0.0000025	0.0000025				
Calcium Ca	mg/L				9	8	8	9	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.2	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00023	0.00020	0.00027	0.00023	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.4	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000056	0.0000029	0.0000053	0.0000034	0.0000034				
Sodium Na	mg/L				41	34	36	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				158	157	147	166	166				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.02	0.01	0.01	0.01	0.01				
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.1	3.9	4.9	4.6	4.6				
Chloride	mg/L				67	63	62	69	69				
Total Ammonia	mg/L				0.010	0.009	0.004	0.010	0.010				
Nitrate	mg/L				0.04	0.03	0.02	0.02	0.02				
Nitrite	mg/L				0.005	0.004	0.002	0.004	0.004				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0015	0.0015	0.0014	0.0014				
Phosphate-P	mg/L				0.0250	0.0169	0.0078	0.0197	0.0197				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00016	0.00014	0.00014	0.00013	0.00013				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000029	0.0000043	0.0000149	0.0000023	0.0000023				
Calcium Ca	mg/L				9	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00021	0.00019	0.00026	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000052	0.0000026	0.0000051	0.0000032	0.0000032				
Sodium Na	mg/L				40	33	35	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 9	Year 9	Year 9	Year 9	Year 9	Year 9	Year 9	Year 9	Year 9	Year 9	Year 9
		Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16
Parameter												
TDS	mg/L				155	155	144	165	164			
TSS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000			
CNO	mg/L				0.01	0.01	0.01	0.01	0.01			
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.9	3.8	4.8	4.6	4.6			
Chloride	mg/L				65	61	60	68	68			
Total Ammonia	mg/L				0.008	0.007	0.002	0.009	0.009			
Nitrate	mg/L				0.02	0.02	0.01	0.02	0.02			
Nitrite	mg/L				0.004	0.003	0.001	0.003	0.003			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0013	0.0013	0.0012			
Phosphate-P	mg/L				0.0247	0.0166	0.0076	0.0196	0.0196			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0005	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00013	0.00012	0.00012	0.00012	0.00012			
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000027	0.0000042	0.0000148	0.0000023	0.0000023			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009			
Molybdenum Mo	mg/L				0.00020	0.00018	0.00025	0.00021	0.00021			
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.025	0.017	0.007	0.019	0.019			
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6			
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061			
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53			
Silver Ag	mg/L				0.0000049	0.0000024	0.0000049	0.0000033	0.0000031			
Sodium Na	mg/L				39	32	35	38	37			
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063			
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044			
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-2-a-C.2
Scenario 3 - No Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				154	154	143	163	163			
TSS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L				0.00000	0.00000	0.00000	0.00000	0.00000			
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000			
CNO	mg/L				0.00	0.00	0.00	0.00	0.00			
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.9	3.8	4.8	4.5	4.5			
Chloride	mg/L				64	60	59	67	67			
Total Ammonia	mg/L				0.007	0.006	0.001	0.008	0.008			
Nitrate	mg/L				0.02	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.003	0.003	0.001	0.003	0.003			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0012	0.0012	0.0012	0.0011	0.0011			
Phosphate-P	mg/L				0.0245	0.0165	0.0075	0.0195	0.0195			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00012	0.00011	0.00011	0.00011	0.00011			
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000027	0.0000042	0.0000147	0.0000022	0.0000022			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009			
Molybdenum Mo	mg/L				0.00019	0.00017	0.00025	0.00021	0.00021			
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.8	2.3	2.2	2.5	2.5			
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061			
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53			
Silver Ag	mg/L				0.0000049	0.0000024	0.0000049	0.0000030	0.0000030			
Sodium Na	mg/L				39	32	35	37	37			
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063			
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000044	0.000044			
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-2-a-C.3
Scenario 3 - No Degradation

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	151	153				
TSS				3.9	5.6	5.8	6.7	6.7				
Free CN				0.00008	0.00009	0.00011	0.00014	0.00016				
Total CN				0.003	0.003	0.003	0.003	0.004				
WAD CN				0.0001	0.0001	0.0001	0.0002	0.0002				
CNO				0.09	0.10	0.12	0.15	0.18				
SCN				0.001	0.001	0.002	0.002	0.002				
Sulphate				3.8	3.9	4.3	4.9	5.2				
Chloride				61	62	62	67	69				
Total Ammonia				0.019	0.026	0.036	0.041	0.045				
Nitrate				0.09	0.12	0.15	0.18	0.20				
Nitrite				0.011	0.012	0.015	0.018	0.021				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi				0.00012	0.00021	0.00028	0.00033	0.00039				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000040	0.0000038	0.0000040	0.0000043				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000008	0.0000008				
Molybdenum Mo				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.021	0.027	0.024	0.025				
Potassium K				3.2	2.9	3.0	3.1	3.3				
Selenium Se				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2				0.54	0.55	0.57	0.58	0.60				
Silver Ag				0.0000049	0.0000058	0.0000060	0.0000064	0.0000065				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000020	0.0000022	0.0000023	0.0000025				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-C.3
Scenario 3 - No Degradat

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				160	139	143	165	166				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00034	0.00029	0.00029	0.00033	0.00035				
Total CN				0.005	0.005	0.005	0.005	0.005				
WAD CN				0.0004	0.0004	0.0004	0.0004	0.0005				
CNO				0.37	0.32	0.32	0.36	0.38				
SCN				0.005	0.004	0.004	0.005	0.005				
Sulphate				7.3	6.7	6.9	7.5	7.7				
Chloride				74	73	71	77	78				
Total Ammonia				0.060	0.059	0.066	0.071	0.075				
Nitrate				0.31	0.30	0.31	0.34	0.36				
Nitrite				0.039	0.035	0.035	0.039	0.041				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000059	0.0000057	0.0000053	0.0000056	0.0000058				
Calcium Ca				21	18	18	19	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P				0.027	0.027	0.033	0.030	0.030				
Potassium K				4.8	4.1	4.1	4.3	4.4				
Selenium Se				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2				0.68	0.66	0.66	0.68	0.69				
Silver Ag				0.0000070	0.0000074	0.0000075	0.0000079	0.0000080				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.043				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000023	0.0000026	0.0000028	0.0000029	0.0000030				
Tin Sn				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-C.3
Scenario 3 - No Degradat

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				171	148	150	171	172				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00043	0.00034	0.00032	0.00032	0.00031				
Total CN				0.006	0.005	0.005	0.005	0.005				
WAD CN				0.0006	0.0005	0.0004	0.0004	0.0004				
CNO				0.47	0.38	0.35	0.36	0.35				
SCN				0.006	0.005	0.005	0.005	0.005				
Sulphate				8.7	7.5	7.4	7.7	7.6				
Chloride				82	80	78	83	84				
Total Ammonia				0.078	0.071	0.075	0.076	0.077				
Nitrate				0.41	0.36	0.35	0.37	0.37				
Nitrite				0.054	0.046	0.045	0.047	0.048				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				50	46	46	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000067	0.0000062	0.0000055	0.0000056	0.0000056				
Calcium Ca				24	20	19	19	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0007	0.0007	0.0013	0.0006	0.0006				
Copper Cu				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.5	6.7	6.8	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P				0.032	0.031	0.036	0.033	0.033				
Potassium K				5.3	4.4	4.3	4.2	4.2				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.73	0.69	0.68	0.69	0.68				
Silver Ag				0.0000082	0.0000083	0.0000082	0.0000085	0.0000085				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.044	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000028	0.0000028	0.0000029	0.0000030	0.0000030				
Tin Sn				0.00051	0.00050	0.00051	0.00052	0.00052				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-2-a-C.3
Scenario 3 - No Degradat

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				173	158	169	201	212				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00030	0.00024	0.00022	0.00022	0.00021				
Total CN				0.005	0.004	0.004	0.004	0.004				
WAD CN				0.0004	0.0003	0.0003	0.0003	0.0003				
CNO				0.33	0.26	0.24	0.24	0.24				
SCN				0.005	0.004	0.003	0.003	0.003				
Sulphate				7.4	6.3	6.1	6.4	6.3				
Chloride				88	89	91	103	110				
Total Ammonia				0.070	0.061	0.064	0.064	0.064				
Nitrate				0.36	0.30	0.29	0.30	0.29				
Nitrite				0.055	0.044	0.041	0.042	0.041				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P				0.0276	0.0265	0.0315	0.0275	0.0273				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000060	0.0000056	0.0000050	0.0000052	0.0000052				
Calcium Ca				20	17	17	17	18				
Chromium Cr				0.001	0.001	0.001	0.000	0.000				
Cobalt Co				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P				0.033	0.031	0.035	0.031	0.031				
Potassium K				4.6	3.8	3.7	3.7	3.6				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00057				
Silicon SiO2				0.68	0.65	0.64	0.65	0.65				
Silver Ag				0.0000088	0.0000086	0.0000083	0.0000086	0.0000085				
Sodium Na				39	37	42	44	48				
Strontium Sr				0.043	0.043	0.037	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000030	0.0000034	0.0000037	0.0000039	0.0000040				
Tin Sn				0.00054	0.00051	0.00050	0.00050	0.00050				
Titanium Ti				0.0059	0.0060	0.0061	0.0061	0.0061				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0039	0.0036	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-2-a-C.3
Scenario 3 - No Degradat

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				216	179	176	187	186				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN				0.00021	0.00015	0.00014	0.00012	0.00012				
Total CN				0.004	0.003	0.003	0.003	0.003				
WAD CN				0.0003	0.0002	0.0002	0.0002	0.0002				
CNO				0.23	0.17	0.15	0.13	0.13				
SCN				0.003	0.002	0.002	0.002	0.002				
Sulphate				6.0	5.1	4.9	4.8	4.7				
Chloride				113	100	94	93	92				
Total Ammonia				0.054	0.047	0.050	0.045	0.045				
Nitrate				0.29	0.24	0.22	0.20	0.20				
Nitrite				0.039	0.030	0.027	0.024	0.024				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P				0.0241	0.0235	0.0286	0.0237	0.0236				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.08				
Antimony Sb				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00074	0.00056	0.00050	0.00044	0.00043				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000055	0.0000052	0.0000047	0.0000045	0.0000045				
Calcium Ca				19	16	15	14	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000012	0.0000011	0.0000012				
Molybdenum Mo				0.00044	0.00036	0.00037	0.00032	0.00032				
Nickel Ni				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.028	0.026	0.031	0.026	0.026				
Potassium K				4.0	3.3	3.2	3.0	3.0				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.64	0.62	0.61	0.59	0.59				
Silver Ag				0.0000084	0.0000083	0.0000081	0.0000073	0.0000073				
Sodium Na				58	47	47	43	43				
Strontium Sr				0.042	0.043	0.037	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000040	0.0000042	0.0000044	0.0000042	0.0000044				
Tin Sn				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U				0.000029	0.000034	0.000042	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0017	0.0037	0.0033	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-2-a-C.3
Scenario 3 - No Degradat

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				177	150	150	170	167				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN				0.00010	0.00008	0.00007	0.00007	0.00007				
Total CN				0.003	0.003	0.003	0.003	0.003				
WAD CN				0.0001	0.0001	0.0001	0.0001	0.0001				
CNO				0.12	0.09	0.08	0.08	0.07				
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.4	3.9	3.9	4.1	3.9				
Chloride				87	81	77	81	79				
Total Ammonia				0.032	0.030	0.035	0.035	0.033				
Nitrate				0.16	0.14	0.13	0.14	0.13				
Nitrite				0.021	0.017	0.016	0.016	0.015				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P				0.0202	0.0206	0.0261	0.0220	0.0217				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000040	0.0000039	0.0000034	0.0000035	0.0000034				
Calcium Ca				14	12	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.5	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo				0.00030	0.00026	0.00028	0.00026	0.00025				
Nickel Ni				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.022	0.022	0.027	0.023	0.023				
Potassium K				3.4	2.9	2.8	2.8	2.7				
Selenium Se				0.00088	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.58	0.57	0.57	0.57	0.56				
Silver Ag				0.0000059	0.0000062	0.0000060	0.0000063	0.0000058				
Sodium Na				48	40	41	39	38				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000026	0.0000028	0.0000030	0.0000032	0.0000031				
Tin Sn				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti				0.0061	0.0062	0.0062	0.0063	0.0062				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0002	0.0003	0.0003	0.0002				
Zinc Zn				0.0013	0.0034	0.0030	0.0020	0.0020				
Zirconium Zr				0.0049	0.0049	0.0050	0.0050	0.0050				

Table I-2-a-C.3
Scenario 3 - No Degradat

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				158	135	137	154	154				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN				0.00006	0.00004	0.00004	0.00003	0.00003				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0001	0.0001	0.0000	0.0000				
CNO				0.06	0.05	0.04	0.04	0.04				
SCN				0.001	0.001	0.001	0.001	0.000				
Sulphate				3.6	3.3	3.4	3.4	3.4				
Chloride				75	71	68	71	71				
Total Ammonia				0.023	0.022	0.026	0.023	0.023				
Nitrate				0.12	0.09	0.08	0.07	0.07				
Nitrite				0.013	0.010	0.009	0.008	0.008				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P				0.0184	0.0193	0.0249	0.0204	0.0204				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000035	0.0000029	0.0000028	0.0000028				
Calcium Ca				11	10	10	9	9				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0029	0.0029	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.6	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00024	0.00021	0.00024	0.00021	0.00021				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.020	0.025	0.021	0.021				
Potassium K				3.1	2.7	2.6	2.5	2.5				
Selenium Se				0.00089	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2				0.55	0.55	0.55	0.54	0.54				
Silver Ag				0.0000053	0.0000056	0.0000053	0.0000048	0.0000047				
Sodium Na				44	37	38	35	35				
Strontium Sr				0.040	0.041	0.036	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000028	0.0000026	0.0000026	0.0000024	0.0000024				
Tin Sn				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-C.3
Scenario 3 - No Degradat

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				148	128	131	148	148				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN				0.00003	0.00002	0.00002	0.00002	0.00002				
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO				0.03	0.03	0.02	0.02	0.02				
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.2	3.0	3.1	3.2	3.2				
Chloride				68	66	64	67	67				
Total Ammonia				0.015	0.015	0.020	0.018	0.018				
Nitrate				0.07	0.05	0.05	0.04	0.04				
Nitrite				0.0080	0.0065	0.006	0.005	0.005				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P				0.0174	0.0185	0.0242	0.0198	0.0198				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000032	0.0000031	0.0000026	0.0000025	0.0000025				
Calcium Ca				10	9	9	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00020	0.00019	0.00021	0.00019	0.00019				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.024	0.020	0.020				
Potassium K				3.0	2.6	2.5	2.4	2.4				
Selenium Se				0.00089	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2				0.54	0.54	0.54	0.53	0.53				
Silver Ag				0.0000047	0.0000051	0.0000049	0.0000044	0.0000043				
Sodium Na				42	35	36	34	34				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000023	0.0000023	0.0000023	0.0000021	0.0000021				
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0062	0.0062	0.0063	0.0062	0.0062				
Uranium U				0.000027	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-C.3
Scenario 3 - No Degradat

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

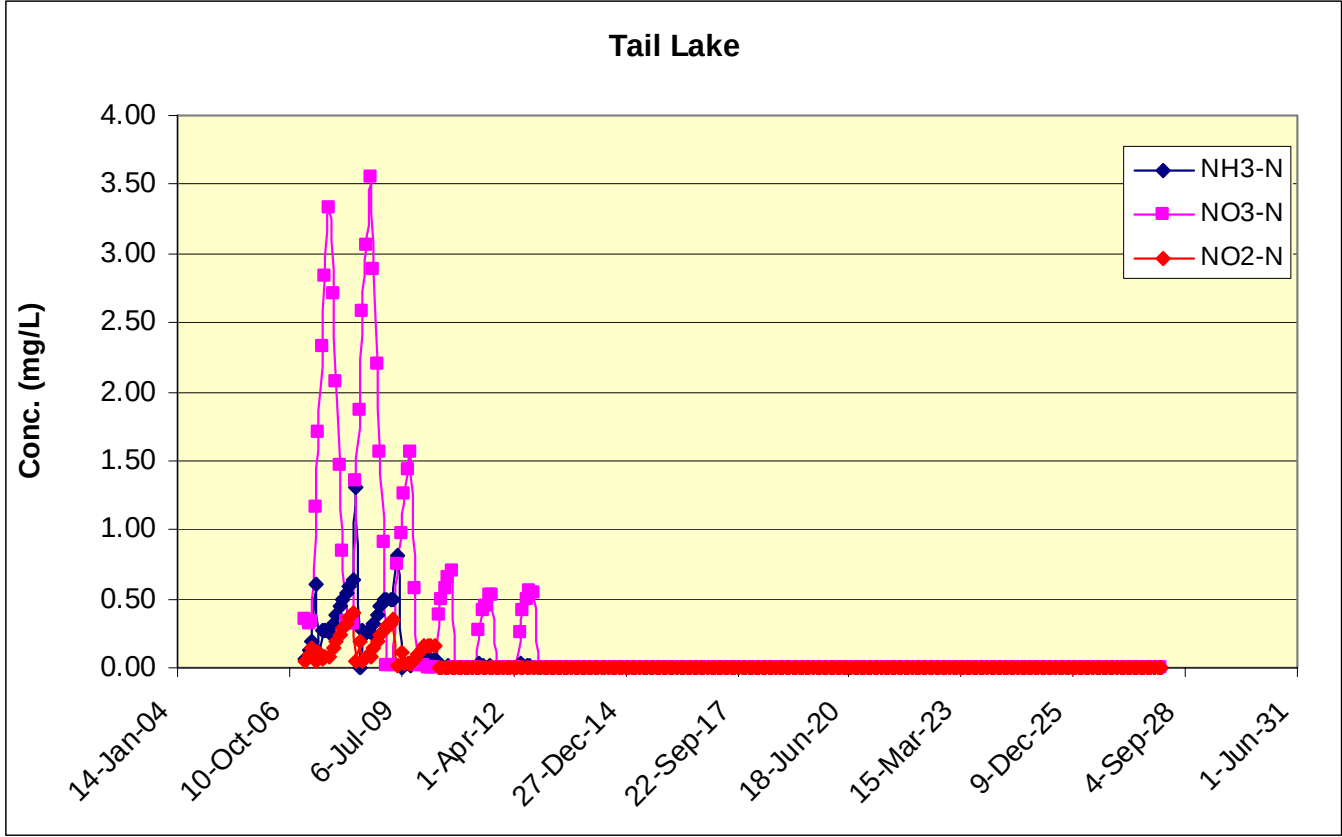
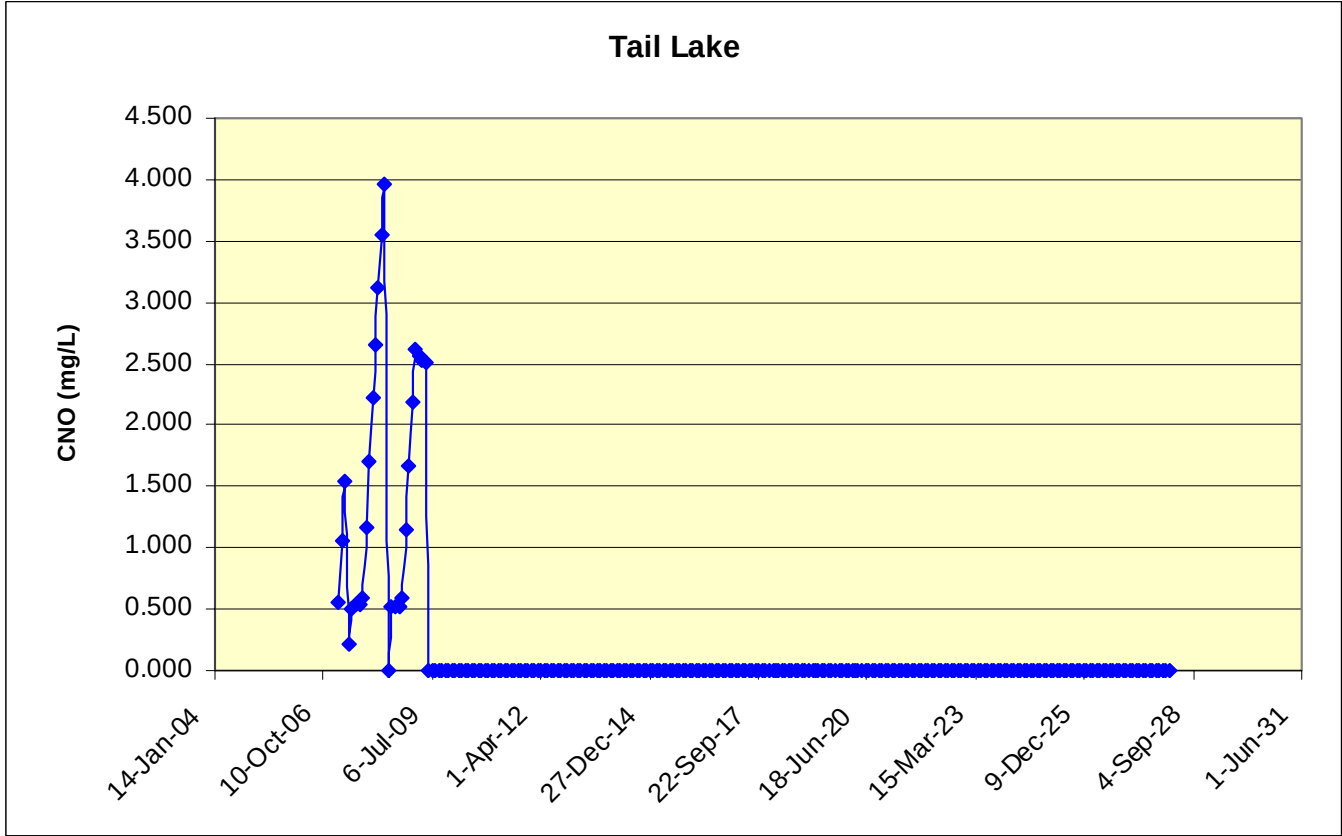
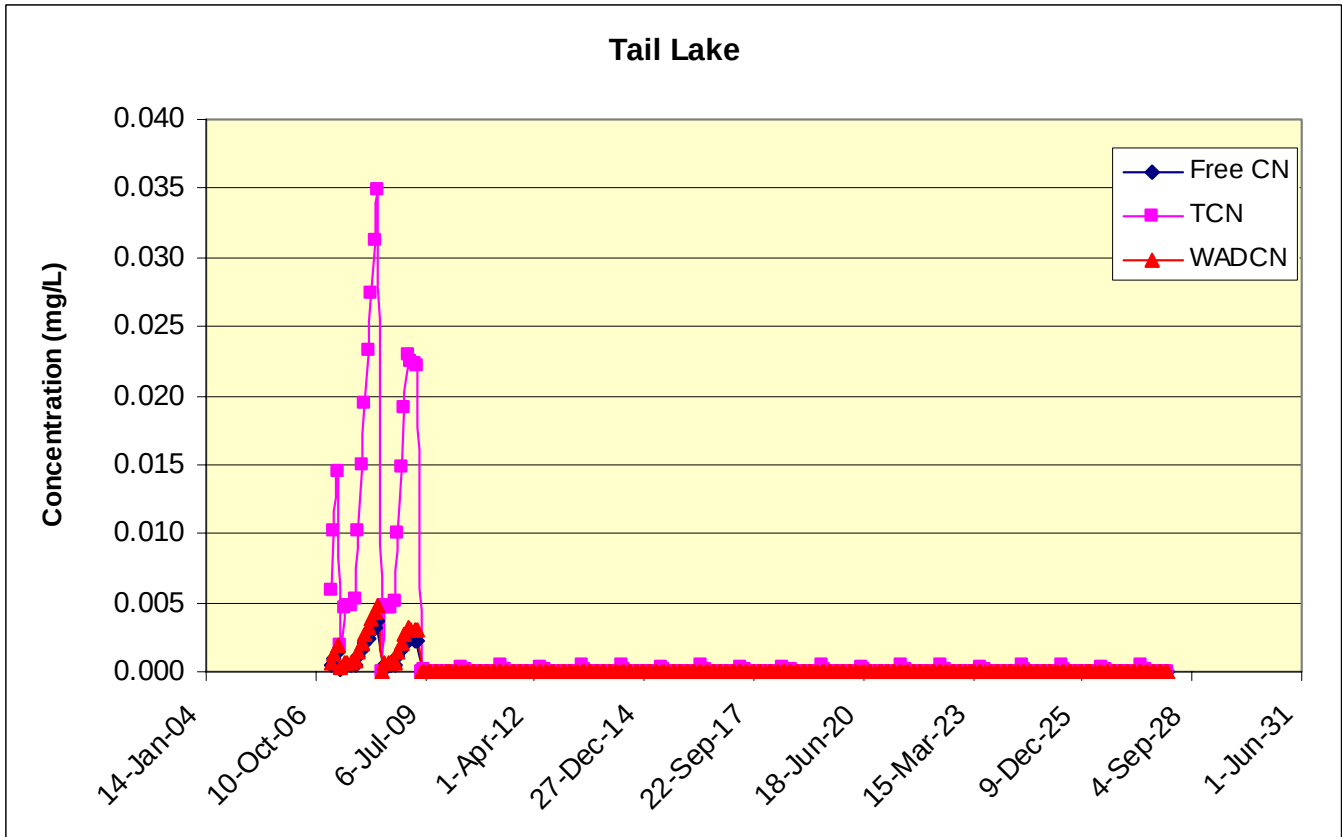
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				142	123	127	146	145				
TSS				3.9	5.7	5.9	6.8	6.8				
Free CN				0.00002	0.00001	0.00001	0.00001	0.00001				
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO				0.02	0.01	0.01	0.01	0.01				
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.0	2.8	2.9	3.1	3.1				
Chloride				64	63	61	65	65				
Total Ammonia				0.010	0.012	0.017	0.016	0.016				
Nitrate				0.04	0.03	0.03	0.03	0.03				
Nitrite				0.005	0.004	0.004	0.004	0.004				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P				0.0168	0.0181	0.0238	0.0196	0.0195				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B				0.034	0.023	0.023	0.023	0.022				
Cadmium Cd				0.0000029	0.0000029	0.0000024	0.0000024	0.0000024				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0029	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00018	0.00017	0.00020	0.00018	0.00018				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0004				
Phosphorus P				0.017	0.018	0.024	0.019	0.019				
Potassium K				2.9	2.5	2.5	2.4	2.4				
Selenium Se				0.00088	0.00058	0.00062	0.00057	0.00057				
Silicon SiO2				0.53	0.53	0.53	0.53	0.53				
Silver Ag				0.0000041	0.0000046	0.0000045	0.0000046	0.0000043				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000019	0.0000020	0.0000020	0.0000022	0.0000021				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0062	0.0062	0.0063	0.0063	0.0063				
Uranium U				0.000026	0.000031	0.000039	0.000033	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-a-C.3
Scenario 3 - No Degradat

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				140	121	125	143	143				
TSS				3.9	5.7	5.9	6.8	6.8				
Free CN				0.00001	0.00001	0.00001	0.00001	0.00000				
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO				0.01	0.01	0.01	0.01	0.01				
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				2.9	2.7	2.9	3.0	3.0				
Chloride				62	62	60	63	63				
Total Ammonia				0.008	0.010	0.015	0.014	0.014				
Nitrate				0.02	0.02	0.02	0.02	0.02				
Nitrite				0.004	0.003	0.003	0.003	0.003				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0011	0.0010	0.0010	0.0010	0.0010				
Phosphate-P				0.0166	0.0179	0.0236	0.0193	0.0193				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00006	0.00005	0.00005	0.00005	0.00005				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000028	0.0000028	0.0000023	0.0000023	0.0000023				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00017	0.00016	0.00019	0.00017	0.00017				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.016	0.018	0.023	0.019	0.019				
Potassium K				2.8	2.4	2.4	2.4	2.4				
Selenium Se				0.00088	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2				0.52	0.53	0.53	0.52	0.52				
Silver Ag				0.0000040	0.0000045	0.0000044	0.0000040	0.0000039				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000029	0.000030				
Thorium Th				0.0000018	0.0000019	0.0000020	0.0000018	0.0000019				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0062	0.0062	0.0063	0.0062	0.0062				
Uranium U				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Scenario 3 - Enhanced Degradation



Scenario 3 - Enhanced Degradation

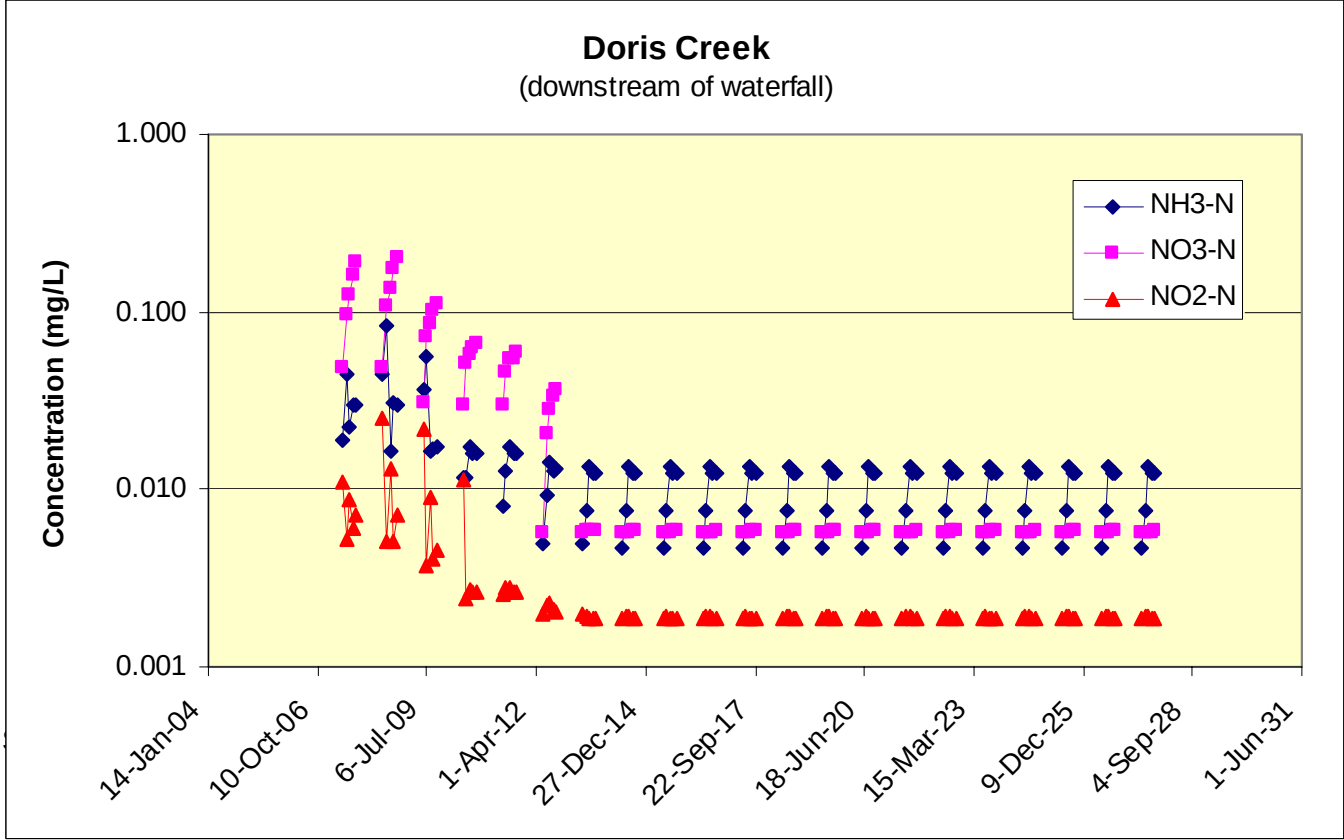
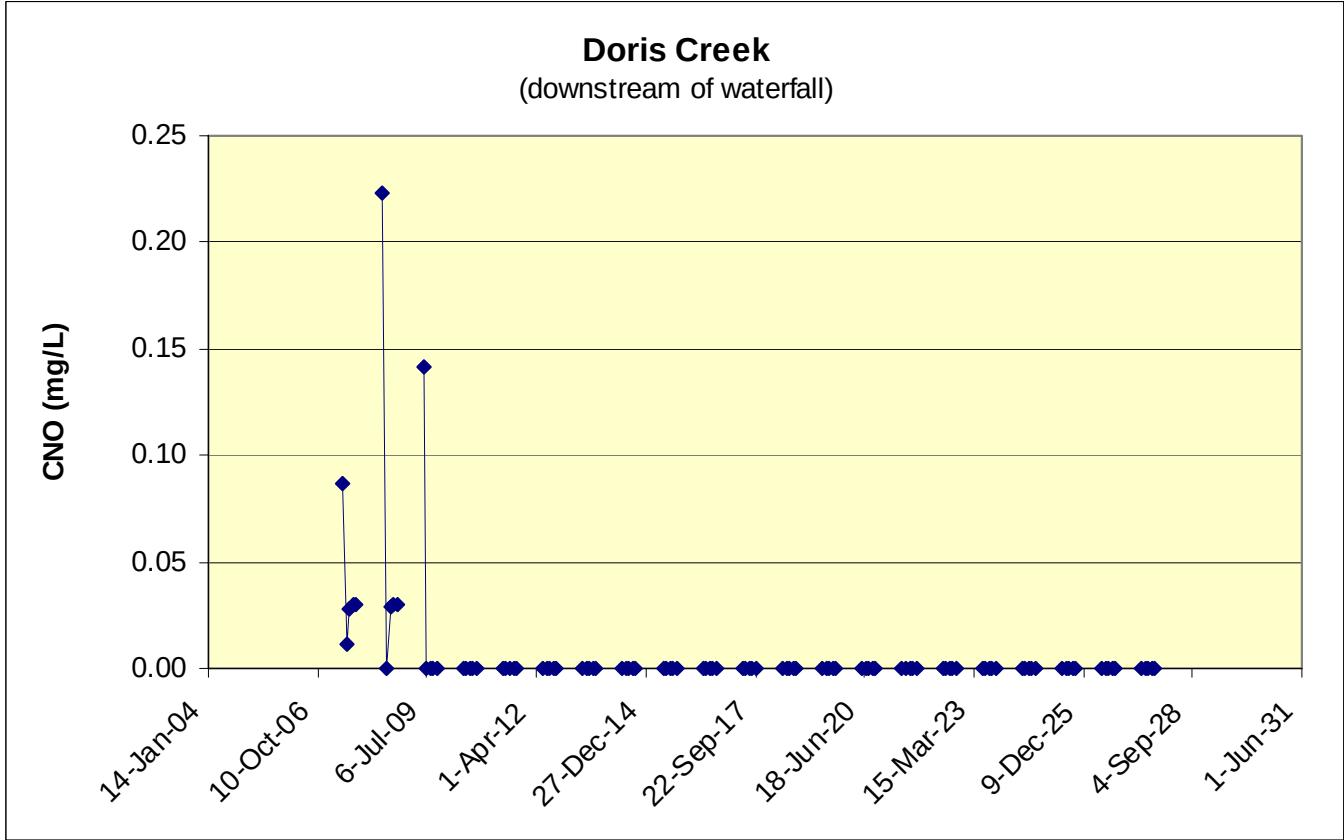
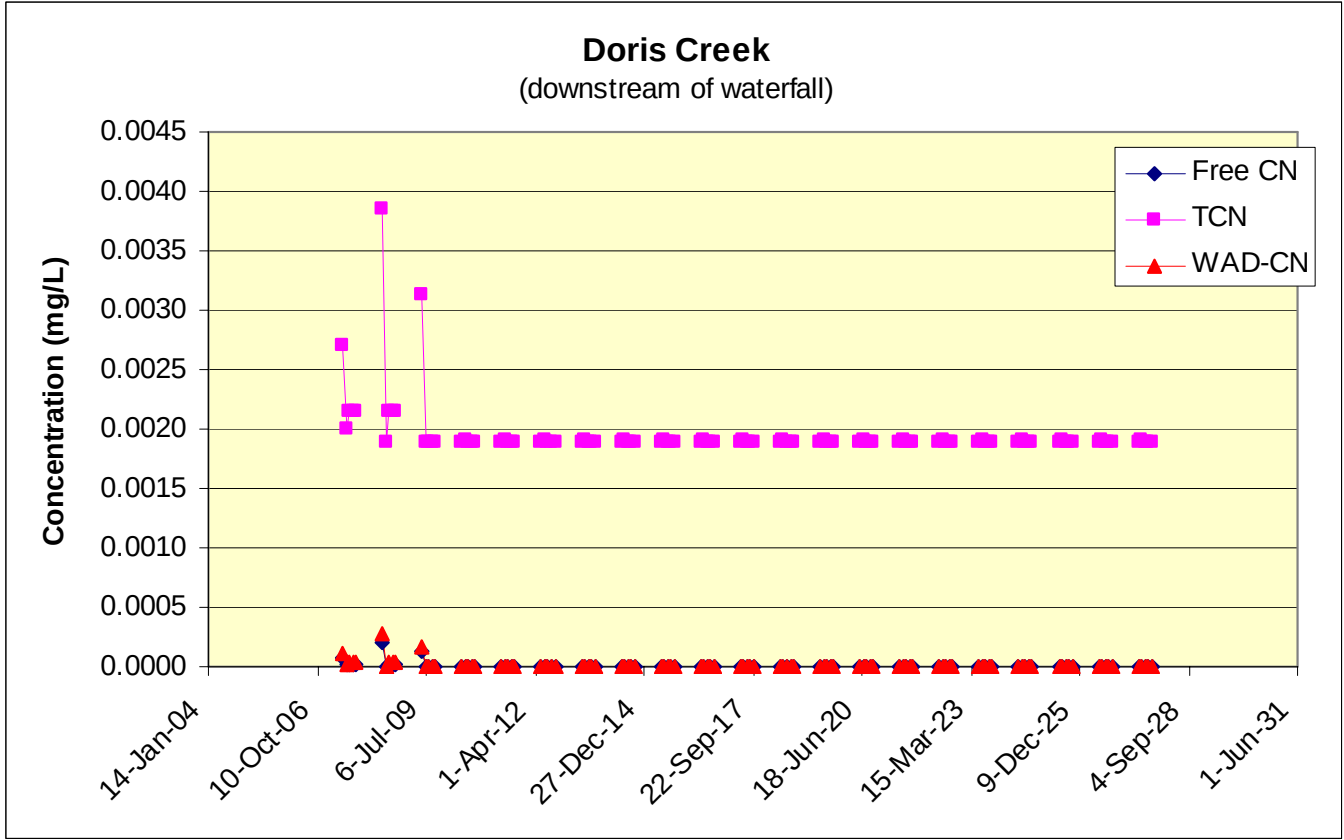


Table I-2-b-A.1
Scenario 3 - ENHANCED Degradation

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Enhanced		Tail Lk Cu < CME Year		8			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.7	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1051	113	91	
Total Ammonia	mg/L		0.97	1.31	0.084	0.045	9%
Nitrate	mg/L		2.9	3.6	0.20	0.11	7%
Nitrite	mg/L		0.018	0.40	0.025	0.014	138%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0315	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.14	0.08	0.25	83%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00071	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.034	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000067	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.00194	0.0021	97%
Iron Fe	mg/L		0.3	0.15	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000107	0.00000118	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.305	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00081	0.0009	0.00084	89%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000088	0.0000073	9%
Sodium Na	mg/L			386	58	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.0020	4%
Thorium Th	mg/L			0.000057	0.0000044	0.0000023	
Tin Sn	mg/L			0.00296	0.00054	0.00009	
Titanium Ti	mg/L			0.0115	0.0063	0.0063	
Uranium U	mg/L			0.000081	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0045	0.0050	0.0051	

Table I-2-b-A.2
Scenario 3 - ENHANCED Degradation

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	173	202	245	280	321	353	381	407	429
TSS	mg/L	1.6	1.6	1.6	1.8	2.0	2.2	2.3	2.4	2.4	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00141	0.00019	0.00046	0.00049	0.00048	0.00054	0.00105	0.00155	0.00201	0.00241
Total CN	mg/L	0.006	0.010	0.015	0.002	0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0003	0.0006	0.0007	0.0006	0.0007	0.0014	0.0021	0.0027	0.0032
CNO	mg/L	0.55	1.06	1.55	0.21	0.50	0.54	0.53	0.59	1.16	1.70	2.22	2.65
SCN	mg/L	0.008	0.014	0.021	0.023	0.029	0.037	0.043	0.052	0.058	0.064	0.070	0.075
Sulphate	mg/L	7.5	13.4	19.3	22.9	28.5	36.1	42.4	49.8	55.5	60.6	65.5	69.5
Chloride	mg/L	37	57	77	95	118	147	171	197	216	233	248	262
Total Ammonia	mg/L	0.070	0.133	0.194	0.598	0.105	0.264	0.265	0.261	0.327	0.388	0.446	0.495
Nitrate	mg/L	0.35	0.32	0.33	1.17	1.71	2.33	2.84	3.34	2.71	2.08	1.47	0.84
Nitrite	mg/L	0.054	0.102	0.150	0.050	0.114	0.062	0.082	0.085	0.138	0.190	0.238	0.280
Alkalinity	mg/L	16	18	21	23	26	30	34	37	40	42	44	45
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0313	0.0381	0.0486	0.0572	0.0678	0.0765	0.0842	0.0916	0.0978
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0349	0.0416	0.0522	0.0608	0.0714	0.0800	0.0877	0.0949	0.1010
Org. Carbon	mg/L	3.0	2.9	2.8	3.1	3.4	3.6	3.6	3.6	3.6	3.5	3.3	3.3
Hardness CaCO3	mg/L	23	29	35	38	45	53	60	68	74	78	83	87
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0034	0.0046	0.0057	0.0067	0.0076	0.0080	0.0084	0.0088	0.0090
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0019	0.0020	0.0021
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0032	0.0038	0.0046	0.0053	0.0062	0.0068	0.0073	0.0078	0.0082
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00022	0.00027	0.00031	0.00034	0.00037	0.00039	0.00040	0.00041	0.00042
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00318	0.00435	0.00540	0.00636	0.00716	0.00759	0.00794	0.00827	0.00854
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.016	0.018	0.020	0.021	0.021	0.022	0.022
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000152	0.0000196	0.0000244	0.0000286	0.0000328	0.0000356	0.0000381	0.0000404	0.0000423
Calcium Ca	mg/L	21	38	54	61	74	94	111	131	148	162	176	188
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0025	0.0031	0.0039	0.0046	0.0055	0.0062	0.0068	0.0074	0.0078
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0026	0.0031	0.0039	0.0045	0.0052	0.0058	0.0063	0.0068	0.0072
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00012	0.00016	0.00019	0.00022	0.00025	0.00027	0.00028	0.00029	0.00031
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037	0.0038	0.0039	0.0040	0.0041
Magnesium Mg	mg/L	2.5	2.9	3.3	3.8	4.4	5.2	5.7	6.3	6.7	7.0	7.3	7.5
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.020	0.022
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000017	0.0000021	0.0000026	0.0000030	0.0000035	0.0000037	0.0000040	0.0000042	0.0000044
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00217	0.00265	0.00338	0.00398	0.00472	0.00532	0.00586	0.00638	0.00681
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0022	0.0027	0.0034	0.0040	0.0046	0.0051	0.0056	0.0060	0.0063
Phosphorus P	mg/L	0.020	0.033	0.047	0.056	0.069	0.087	0.102	0.119	0.132	0.144	0.155	0.165
Potassium K	mg/L	3.8	6.6	9.3	10.4	12.6	15.9	18.7	22.0	24.7	27.2	29.5	31.4
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00027	0.00031	0.00034	0.00036	0.00038	0.00039	0.00040	0.00040	0.00041
Silicon SiO2	mg/L	0.70	0.92	1.14	1.30	1.53	1.85	2.10	2.39	2.60	2.79	2.96	3.11
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000682	0.0000773	0.0000833	0.0000866	0.0000906	0.0000915	0.0000915	0.0000916	0.0000915
Sodium Na	mg/L	11	13	16	17	20	24	26	30	32	34	36	38
Strontium Sr	mg/L	0.017	0.021	0.026	0.029	0.035	0.042	0.047	0.054	0.059	0.063	0.067	0.070
Tellurium Te	mg/L	0.025	0.024	0.024	0.026	0.028	0.029	0.030	0.030	0.030	0.029	0.028	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000022	0.000025	0.000028	0.000031	0.000033	0.000034	0.000035	0.000035	0.000036
Thorium Th	mg/L				0.000007	0.000011	0.000013	0.000016	0.000017	0.000016	0.000016	0.000015	0.000015
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00053	0.00073	0.00090	0.00106	0.00118	0.00124	0.00129	0.00133	0.00137
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0033	0.0036	0.0039	0.0040	0.0041	0.0041	0.0040	0.0039	0.0038
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000034	0.000039	0.000042	0.000044	0.000045	0.000044	0.000043	0.000042	0.000041
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0017	0.0020	0.0021	0.0022	0.0023	0.0024
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0057	0.0070	0.0089	0.0107	0.0125	0.0139	0.0152	0.0164	0.0174
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0027	0.0030	0.0032	0.0033	0.0033	0.0033	0.0032	0.0031	0.0030

Table I-2-b-A.2
Scenario 3 - ENHANCED Degradati

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	454	475	497	443	450	496	523	564	589	609	628	643
TSS	mg/L	2.5	2.5	2.5	2.5	2.6	2.8	2.9	3.0	3.0	3.0	3.0	3.0
Free CN	mg/L	0.00284	0.00322	0.00360		0.00047	0.00048	0.00048	0.00053	0.00104	0.00152	0.00198	0.00238
Total CN	mg/L	0.027	0.031	0.035		0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0038	0.0043	0.0048		0.0006	0.0006	0.0006	0.0007	0.0014	0.0020	0.0026	0.0032
CNO	mg/L	3.12	3.55	3.96		0.52	0.53	0.52	0.58	1.14	1.68	2.18	2.61
SCN	mg/L	0.080	0.085	0.090	0.078	0.079	0.087	0.092	0.100	0.106	0.110	0.115	0.118
Sulphate	mg/L	74.1	78.0	81.9	72.6	74.0	82.2	87.1	94.3	99.0	102.6	106.1	108.9
Chloride	mg/L	277	290	302	274	282	313	332	357	372	384	395	404
Total Ammonia	mg/L	0.549	0.596	0.643	1.310		0.275	0.260	0.257	0.322	0.382	0.440	0.488
Nitrate	mg/L	0.33	0.32	0.32	1.36	1.87	2.58	3.06	3.56	2.88	2.21	1.56	0.90
Nitrite	mg/L	0.324	0.364	0.403	0.047	0.187	0.046	0.084	0.083	0.136	0.187	0.235	0.275
Alkalinity	mg/L	47	49	50	46	48	52	55	58	60	62	63	64
OrthoPhosphate-P	mg/L	0.1047	0.1107	0.1167	0.1014	0.1024	0.1138	0.1204	0.1308	0.1379	0.1436	0.1490	0.1535
Phosphate-P	mg/L	0.1079	0.1138	0.1197	0.1048	0.1057	0.1172	0.1237	0.1341	0.1412	0.1467	0.1521	0.1565
Org. Carbon	mg/L	3.2	3.1	3.0	3.2	3.5	3.7	3.7	3.8	3.7	3.6	3.4	3.4
Hardness CaCO3	mg/L	91	95	99	89	91	101	106	113	118	121	124	127
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0094	0.0097	0.0100	0.0099	0.0105	0.0117	0.0125	0.0134	0.0137	0.0139	0.0141	0.0142
Arsenic As	mg/L	0.0022	0.0023	0.0024	0.0022	0.0023	0.0025	0.0027	0.0029	0.0030	0.0031	0.0032	0.0033
Barium Ba	mg/L	0.0087	0.0091	0.0095	0.0085	0.0087	0.0096	0.0102	0.0110	0.0114	0.0118	0.0122	0.0125
Beryllium Be	mg/L	0.00043	0.00044	0.00045	0.00045	0.00048	0.00052	0.00055	0.00058	0.00059	0.00059	0.00060	0.00060
Bismuth Bi	mg/L	0.00887	0.00913	0.00940	0.00934	0.01000	0.01113	0.01191	0.01269	0.01299	0.01316	0.01332	0.01345
Boron B	mg/L	0.023	0.024	0.024	0.023	0.025	0.027	0.029	0.030	0.031	0.031	0.032	0.032
Cadmium Cd	mg/L	0.0000445	0.0000464	0.0000483	0.0000451	0.0000470	0.0000522	0.0000555	0.0000596	0.0000618	0.0000634	0.0000649	0.0000661
Calcium Ca	mg/L	201	213	224	195	197	219	232	252	265	276	286	295
Chromium Cr	mg/L	0.005	0.006	0.006	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.008	0.008
Cobalt Co	mg/L	0.0084	0.0088	0.0093	0.0082	0.0083	0.0092	0.0097	0.0106	0.0111	0.0116	0.0120	0.0123
Copper Cu	mg/L	0.0077	0.0081	0.0085	0.0075	0.0076	0.0084	0.0089	0.0096	0.0101	0.0104	0.0108	0.0111
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00032	0.00033	0.00034	0.00033	0.00034	0.00038	0.00040	0.00043	0.00044	0.00045	0.00046	0.00047
Lithium Li	mg/L	0.0042	0.0043	0.0044	0.0042	0.0044	0.0047	0.0050	0.0052	0.0053	0.0054	0.0054	0.0055
Magnesium Mg	mg/L	7.8	8.0	8.3	7.7	8.0	8.8	9.2	9.8	10.1	10.3	10.5	10.6
Manganese Mn	mg/L	0.023	0.024	0.026	0.023	0.023	0.025	0.027	0.029	0.031	0.032	0.033	0.034
Mercury Hg	mg/L	0.0000046	0.0000048	0.0000050	0.0000047	0.0000049	0.0000054	0.0000057	0.0000061	0.0000063	0.0000065	0.0000067	0.0000068
Molybdenum Mo	mg/L	0.00729	0.00771	0.00812	0.00706	0.00714	0.00793	0.00839	0.00912	0.00961	0.01001	0.01038	0.01069
Nickel Ni	mg/L	0.0067	0.0071	0.0074	0.0066	0.0067	0.0075	0.0079	0.0085	0.0090	0.0093	0.0096	0.0098
Phosphorus P	mg/L	0.175	0.184	0.193	0.172	0.176	0.195	0.206	0.223	0.234	0.242	0.250	0.257
Potassium K	mg/L	33.6	35.4	37.3	32.5	32.9	36.5	38.6	41.9	44.1	45.9	47.6	49.0
Selenium Se	mg/L	0.00041	0.00042	0.00042	0.00042	0.00044	0.00048	0.00049	0.00052	0.00052	0.00052	0.00052	0.00052
Silicon SiO2	mg/L	3.27	3.41	3.56	3.22	3.29	3.63	3.82	4.11	4.28	4.41	4.53	4.63
Silver Ag	mg/L	0.0000918	0.0000918	0.0000918	0.0000972	0.0001037	0.0001103	0.0001128	0.0001168	0.0001170	0.0001162	0.0001154	0.0001147
Sodium Na	mg/L	40	41	43	39	40	44	46	49	51	52	54	55
Strontium Sr	mg/L	0.074	0.077	0.080	0.072	0.074	0.081	0.086	0.092	0.096	0.099	0.101	0.104
Tellurium Te	mg/L	0.026	0.026	0.025	0.027	0.028	0.030	0.031	0.031	0.030	0.029	0.029	0.028
Thallium Tl	mg/L	0.000037	0.000037	0.000038	0.000037	0.000039	0.000042	0.000044	0.000046	0.000047	0.000047	0.000048	0.000048
Thorium Th	mg/L	0.000014	0.000014	0.000014	0.000018	0.000021	0.000023	0.000025	0.000026	0.000026	0.000025	0.000024	0.000023
Tin Sn	mg/L	0.00141	0.00145	0.00149	0.00149	0.00161	0.00179	0.00191	0.00203	0.00207	0.00209	0.00211	0.00213
Titanium Ti	mg/L	0.0038	0.0037	0.0037	0.0039	0.0041	0.0044	0.0045	0.0046	0.0046	0.0045	0.0044	0.0043
Uranium U	mg/L	0.000040	0.000039	0.000038	0.000045	0.000049	0.000053	0.000054	0.000055	0.000054	0.000053	0.000051	0.000050
Vanadium V	mg/L	0.0025	0.0026	0.0027	0.0026	0.0027	0.0030	0.0031	0.0034	0.0034	0.0035	0.0036	0.0036
Zinc Zn	mg/L	0.0185	0.0194	0.0204	0.0180	0.0183	0.0203	0.0217	0.0236	0.0247	0.0256	0.0264	0.0271
Zirconium Zr	mg/L	0.0029	0.0028	0.0027	0.0030	0.0032	0.0034	0.0036	0.0036	0.0035	0.0034	0.0033	0.0032

Table I-2-b-A.2
 Scenario 3 - ENHANCED Degradati

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	652	668	684	589	573	612	624	654	679	698	716	733
TSS	mg/L	2.9	2.9	2.9	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L	0.00232	0.00230	0.00228									
Total CN	mg/L	0.022	0.022	0.022		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0031	0.0031	0.0030									
CNO	mg/L	2.56	2.54	2.51									
SCN	mg/L	0.116	0.115	0.114	0.092	0.084	0.086	0.084	0.084	0.084	0.083	0.082	0.082
Sulphate	mg/L	107.1	106.8	106.4	88.2	82.9	85.8	84.9	86.1	86.8	86.5	86.3	86.2
Chloride	mg/L	416	434	451	399	399	435	452	481	506	525	545	563
Total Ammonia	mg/L	0.488	0.495	0.501	0.816		0.028	0.032	0.020	0.032	0.044	0.056	0.067
Nitrate	mg/L	0.01	0.01	0.01	0.75	0.98	1.27	1.44	1.56	0.57	0.01	0.01	0.01
Nitrite	mg/L	0.298	0.322	0.347	0.023	0.117	0.027	0.036	0.037	0.069	0.101	0.133	0.161
Alkalinity	mg/L	63	62	62	53	51	53	53	53	53	52	52	52
OrthoPhosphate-P	mg/L	0.1595	0.1671	0.1749	0.1501	0.1478	0.1611	0.1673	0.1789	0.1895	0.1982	0.2070	0.2149
Phosphate-P	mg/L	0.1624	0.1700	0.1778	0.1535	0.1511	0.1645	0.1707	0.1823	0.1929	0.2016	0.2104	0.2183
Org. Carbon	mg/L	3.3	3.3	3.2	3.5	3.7	4.0	4.0	4.1	4.1	4.0	4.0	4.0
Hardness CaCO3	mg/L	124	123	122	103	98	101	100	101	101	100	99	98
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0144	0.0148	0.0152	0.0142	0.0146	0.0159	0.0166	0.0175	0.0181	0.0185	0.0190	0.0194
Arsenic As	mg/L	0.0032	0.0032	0.0032	0.0027	0.0026	0.0026	0.0026	0.0027	0.0027	0.0027	0.0026	0.0026
Barium Ba	mg/L	0.0122	0.0122	0.0121	0.0101	0.0095	0.0098	0.0097	0.0098	0.0098	0.0098	0.0097	0.0096
Beryllium Be	mg/L	0.00060	0.00061	0.00062	0.00058	0.00059	0.00063	0.00065	0.00067	0.00069	0.00070	0.00070	0.00071
Bismuth Bi	mg/L	0.01369	0.01408	0.01448	0.01361	0.01399	0.01528	0.01603	0.01691	0.01751	0.01794	0.01837	0.01877
Boron B	mg/L	0.031	0.031	0.031	0.029	0.028	0.030	0.030	0.031	0.031	0.031	0.031	0.031
Cadmium Cd	mg/L	0.0000647	0.0000642	0.0000637	0.0000538	0.0000511	0.0000529	0.0000525	0.0000531	0.0000531	0.0000526	0.0000522	0.0000518
Calcium Ca	mg/L	288	286	284	230	213	217	212	213	214	211	209	208
Chromium Cr	mg/L	0.008	0.008	0.008	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0121	0.0120	0.0119	0.0097	0.0090	0.0093	0.0091	0.0092	0.0092	0.0091	0.0091	0.0090
Copper Cu	mg/L	0.0109	0.0108	0.0107	0.0088	0.0082	0.0084	0.0083	0.0083	0.0083	0.0083	0.0082	0.0081
Iron Fe	mg/L	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00046	0.00046	0.00047	0.00041	0.00040	0.00042	0.00043	0.00044	0.00045	0.00045	0.00045	0.00045
Lithium Li	mg/L	0.0054	0.0053	0.0053	0.0049	0.0048	0.0051	0.0051	0.0052	0.0052	0.0052	0.0052	0.0052
Magnesium Mg	mg/L	10.5	10.4	10.4	9.2	9.0	9.4	9.4	9.6	9.6	9.6	9.5	9.5
Manganese Mn	mg/L	0.033	0.033	0.033	0.027	0.025	0.026	0.025	0.025	0.026	0.025	0.025	0.025
Mercury Hg	mg/L	0.0000066	0.0000066	0.0000065	0.0000056	0.0000053	0.0000055	0.0000055	0.0000055	0.0000056	0.0000055	0.0000055	0.0000054
Molybdenum Mo	mg/L	0.01047	0.01038	0.01030	0.00834	0.00770	0.00787	0.00768	0.00772	0.00772	0.00765	0.00758	0.00752
Nickel Ni	mg/L	0.0096	0.0096	0.0096	0.0080	0.0076	0.0078	0.0078	0.0079	0.0079	0.0079	0.0079	0.0079
Phosphorus P	mg/L	0.261	0.269	0.277	0.237	0.231	0.248	0.254	0.268	0.279	0.288	0.297	0.305
Potassium K	mg/L	47.9	47.5	47.1	38.3	35.4	36.2	35.3	35.5	35.5	35.2	34.8	34.5
Selenium Se	mg/L	0.00051	0.00051	0.00050	0.00047	0.00047	0.00049	0.00049	0.00050	0.00050	0.00049	0.00049	0.00049
Silicon SiO2	mg/L	4.53	4.50	4.46	3.77	3.56	3.67	3.62	3.65	3.66	3.62	3.59	3.57
Silver Ag	mg/L	0.0001133	0.0001133	0.0001134	0.0001130	0.0001161	0.0001214	0.0001218	0.0001243	0.0001255	0.0001254	0.0001254	0.0001254
Sodium Na	mg/L	54	53	53	45	43	44	43	44	44	43	43	43
Strontium Sr	mg/L	0.101	0.101	0.100	0.084	0.080	0.083	0.082	0.083	0.083	0.082	0.081	0.081
Tellurium Te	mg/L	0.027	0.027	0.027	0.029	0.030	0.032	0.033	0.034	0.034	0.033	0.033	0.033
Thallium Tl	mg/L	0.000047	0.000046	0.000046	0.000042	0.000042	0.000044	0.000044	0.000044	0.000044	0.000044	0.000044	0.000043
Thorium Th	mg/L	0.000023	0.000023	0.000022	0.000022	0.000023	0.000025	0.000026	0.000027	0.000027	0.000027	0.000026	0.000026
Tin Sn	mg/L	0.00216	0.00222	0.00228	0.00215	0.00222	0.00243	0.00255	0.00269	0.00278	0.00284	0.00290	0.00296
Titanium Ti	mg/L	0.0042	0.0042	0.0042	0.0044	0.0046	0.0048	0.0050	0.0051	0.0051	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000049	0.000049	0.000049	0.000051	0.000054	0.000056	0.000057	0.000058	0.000058	0.000058	0.000058	0.000057
Vanadium V	mg/L	0.0036	0.0037	0.0037	0.0034	0.0034	0.0036	0.0037	0.0038	0.0039	0.0040	0.0040	0.0041
Zinc Zn	mg/L	0.0266	0.0265	0.0263	0.0217	0.0203	0.0210	0.0209	0.0212	0.0213	0.0212	0.0211	0.0210
Zirconium Zr	mg/L	0.0031	0.0031	0.0031	0.0033	0.0035	0.0037	0.0038	0.0039	0.0039	0.0038	0.0038	0.0038

Table I-2-b-A.2
Scenario 3 - ENHANCED Degradati

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	728	724	721	769	903	1140	1337	1583	1546	1535	1527	1521
TSS	mg/L	2.8	2.8	2.8	3.0	3.2	3.4	3.5	3.6	3.5	3.5	3.5	3.5
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.081	0.081	0.080	0.063	0.057	0.059	0.057	0.058	0.057	0.056	0.056	0.056
Sulphate	mg/L	85.5	85.1	84.7	66.8	61.1	62.8	61.3	61.9	60.5	60.0	59.7	59.5
Chloride	mg/L	558	556	553	559	635	782	900	1051	1026	1019	1014	1010
Total Ammonia	mg/L	0.067	0.066	0.066	0.016	0.017	0.008	0.012	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L				0.38	0.49	0.58	0.66	0.70				
Nitrite	mg/L	0.159	0.159	0.158		0.005	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	51	51	51	44	43	45	44	45	44	44	44	43
OrthoPhosphate-P	mg/L	0.2133	0.2123	0.2112	0.1659	0.1513	0.1553	0.1512	0.1528	0.1492	0.1482	0.1474	0.1468
Phosphate-P	mg/L	0.2166	0.2156	0.2144	0.1718	0.1579	0.1626	0.1588	0.1605	0.1568	0.1557	0.1548	0.1543
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.3	4.6	4.7	4.8	4.7	4.6	4.6	4.6
Hardness CaCO3	mg/L	97	97	96	81	77	81	80	81	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.07	0.08	0.09	0.10	0.10	0.10	0.10	0.10	0.10
Antimony Sb	mg/L	0.0192	0.0191	0.0190	0.0150	0.0137	0.0140	0.0137	0.0138	0.0135	0.0134	0.0133	0.0133
Arsenic As	mg/L	0.0026	0.0026	0.0026	0.0022	0.0020	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Barium Ba	mg/L	0.0096	0.0095	0.0095	0.0077	0.0072	0.0075	0.0074	0.0075	0.0073	0.0072	0.0072	0.0072
Beryllium Be	mg/L	0.00071	0.00070	0.00070	0.00059	0.00056	0.00058	0.00057	0.00058	0.00056	0.00056	0.00056	0.00055
Bismuth Bi	mg/L	0.01862	0.01853	0.01844	0.01447	0.01319	0.01354	0.01318	0.01332	0.01301	0.01292	0.01285	0.01280
Boron B	mg/L	0.031	0.031	0.031	0.030	0.031	0.033	0.033	0.034	0.033	0.033	0.033	0.033
Cadmium Cd	mg/L	0.0000514	0.0000511	0.0000509	0.0000438	0.0000422	0.0000442	0.0000443	0.0000452	0.0000442	0.0000439	0.0000436	0.0000435
Calcium Ca	mg/L	206	205	204	172	169	186	195	210	205	204	203	202
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.004	0.005	0.005	0.005	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0090	0.0089	0.0089	0.0070	0.0064	0.0066	0.0064	0.0065	0.0063	0.0063	0.0062	0.0062
Copper Cu	mg/L	0.0081	0.0080	0.0080	0.0065	0.0061	0.0063	0.0062	0.0062	0.0061	0.0061	0.0060	0.0060
Iron Fe	mg/L	0.06	0.06	0.06	0.08	0.09	0.10	0.10	0.11	0.11	0.10	0.10	0.10
Lead Pb	mg/L	0.00045	0.00045	0.00044	0.00037	0.00035	0.00037	0.00036	0.00037	0.00036	0.00036	0.00035	0.00035
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0048	0.0048	0.0051	0.0051	0.0053	0.0051	0.0051	0.0051	0.0050
Magnesium Mg	mg/L	9.4	9.4	9.4	8.4	8.3	8.7	8.7	8.9	8.7	8.6	8.6	8.5
Manganese Mn	mg/L	0.025	0.025	0.025	0.020	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Mercury Hg	mg/L	0.0000054	0.0000054	0.0000053	0.0000067	0.0000074	0.0000081	0.0000084	0.0000087	0.0000085	0.0000084	0.0000084	0.0000084
Molybdenum Mo	mg/L	0.00746	0.00743	0.00739	0.00585	0.00535	0.00550	0.00536	0.00542	0.00529	0.00526	0.00523	0.00521
Nickel Ni	mg/L	0.0078	0.0078	0.0078	0.0062	0.0057	0.0059	0.0058	0.0058	0.0057	0.0056	0.0056	0.0056
Phosphorus P	mg/L	0.302	0.301	0.299	0.238	0.218	0.224	0.219	0.221	0.216	0.215	0.214	0.213
Potassium K	mg/L	34.3	34.1	33.9	27.2	25.0	25.8	25.2	25.5	24.9	24.8	24.6	24.5
Selenium Se	mg/L	0.00048	0.00048	0.00048	0.00057	0.00061	0.00066	0.00068	0.00070	0.00069	0.00068	0.00068	0.00068
Silicon SiO2	mg/L	3.54	3.52	3.50	2.99	2.85	2.97	2.95	3.00	2.93	2.91	2.89	2.88
Silver Ag	mg/L	0.0001244	0.0001239	0.0001232	0.0001182	0.0001189	0.0001232	0.0001216	0.0001234	0.0001205	0.0001197	0.0001190	0.0001185
Sodium Na	mg/L	42	42	42	102	161	237	306	386	377	375	373	371
Strontium Sr	mg/L	0.080	0.080	0.079	0.068	0.065	0.068	0.068	0.069	0.067	0.067	0.066	0.066
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.037	0.038	0.039	0.038	0.038	0.038	0.038
Thallium Tl	mg/L	0.000043	0.000043	0.000042	0.000040	0.000039	0.000042	0.000042	0.000043	0.000042	0.000042	0.000041	0.000041
Thorium Th	mg/L	0.000026	0.000026	0.000026	0.000033	0.000037	0.000041	0.000044	0.000045	0.000044	0.000044	0.000044	0.000044
Tin Sn	mg/L	0.00294	0.00292	0.00291	0.00231	0.00214	0.00221	0.00217	0.00219	0.00214	0.00213	0.00211	0.00211
Titanium Ti	mg/L	0.0050	0.0050	0.0050	0.0065	0.0072	0.0079	0.0083	0.0085	0.0083	0.0083	0.0082	0.0082
Uranium U	mg/L	0.000057	0.000057	0.000056	0.000063	0.000067	0.000072	0.000073	0.000075	0.000073	0.000073	0.000072	0.000072
Vanadium V	mg/L	0.0040	0.0040	0.0040	0.0035	0.0033	0.0035	0.0034	0.0035	0.0034	0.0034	0.0034	0.0033
Zinc Zn	mg/L	0.0209	0.0208	0.0207	0.0165	0.0152	0.0158	0.0157	0.0160	0.0156	0.0155	0.0154	0.0153
Zirconium Zr	mg/L	0.0037	0.0037	0.0037	0.0039	0.0040	0.0043	0.0044	0.0045	0.0044	0.0044	0.0044	0.0044

Table I-2-b-A.2
Scenarion 3 - ENHANCED Degradati

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1515	1507	1499	1141	1028	900	880	817	822	816	812	809
TSS	mg/L	3.4	3.4	3.4	3.5	3.7	3.3	3.4	3.2	3.3	3.2	3.2	3.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.055	0.055	0.055	0.041	0.036	0.032	0.031	0.029	0.029	0.029	0.028	0.028
Sulphate	mg/L	59.2	58.9	58.6	44.2	39.7	34.7	33.9	31.5	31.7	31.4	31.3	31.2
Chloride	mg/L	1006	1001	995	759	685	600	587	545	548	545	542	540
Total Ammonia	mg/L	0.004	0.004	0.004	0.034	0.017	0.008	0.012	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L				0.27	0.42	0.44	0.53	0.52				
Nitrite	mg/L	0.002	0.002	0.002	0.007	0.007	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	43	43	43	37	36	32	32	30	31	30	30	30
OrthoPhosphate-P	mg/L	0.1462	0.1455	0.1446	0.1083	0.0966	0.0844	0.0821	0.0762	0.0766	0.0761	0.0757	0.0754
Phosphate-P	mg/L	0.1536	0.1529	0.1520	0.1178	0.1066	0.0935	0.0915	0.0850	0.0855	0.0850	0.0845	0.0842
Org. Carbon	mg/L	4.6	4.6	4.5	4.6	4.8	4.4	4.5	4.2	4.2	4.2	4.2	4.2
Hardness CaCO3	mg/L	78	77	77	64	61	55	55	51	51	51	51	51
Total Metals													
Aluminum Al	mg/L	0.10	0.10	0.10	0.11	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Antimony Sb	mg/L	0.0132	0.0132	0.0131	0.0098	0.0088	0.0077	0.0075	0.0070	0.0070	0.0070	0.0069	0.0069
Arsenic As	mg/L	0.0021	0.0020	0.0020	0.0017	0.0016	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Barium Ba	mg/L	0.0071	0.0071	0.0071	0.0056	0.0052	0.0046	0.0046	0.0043	0.0043	0.0043	0.0043	0.0042
Beryllium Be	mg/L	0.00055	0.00055	0.00055	0.00046	0.00044	0.00038	0.00038	0.00035	0.00035	0.00035	0.00035	0.00035
Bismuth Bi	mg/L	0.01275	0.01268	0.01261	0.00943	0.00840	0.00733	0.00714	0.00662	0.00666	0.00662	0.00658	0.00656
Boron B	mg/L	0.033	0.033	0.032	0.031	0.032	0.029	0.030	0.028	0.028	0.028	0.028	0.028
Cadmium Cd	mg/L	0.0000433	0.0000431	0.0000428	0.0000365	0.0000353	0.0000317	0.0000322	0.0000303	0.0000305	0.0000302	0.0000301	0.0000300
Calcium Ca	mg/L	201	200	199	150	134	118	115	106	107	106	106	105
Chromium Cr	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002
Cobalt Co	mg/L	0.0062	0.0062	0.0061	0.0046	0.0041	0.0036	0.0035	0.0033	0.0033	0.0033	0.0033	0.0032
Copper Cu	mg/L	0.0060	0.0059	0.0059	0.0047	0.0044	0.0039	0.0038	0.0035	0.0036	0.0035	0.0035	0.0035
Iron Fe	mg/L	0.10	0.10	0.10	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.11
Lead Pb	mg/L	0.00035	0.00035	0.00035	0.00029	0.00027	0.00024	0.00024	0.00023	0.00023	0.00023	0.00022	0.00022
Lithium Li	mg/L	0.0050	0.0050	0.0050	0.0047	0.0047	0.0043	0.0043	0.0041	0.0041	0.0041	0.0040	0.0040
Magnesium Mg	mg/L	8.5	8.5	8.4	7.6	7.4	6.7	6.8	6.4	6.4	6.4	6.3	6.3
Manganese Mn	mg/L	0.019	0.018	0.018	0.015	0.013	0.012	0.012	0.011	0.011	0.011	0.011	0.011
Mercury Hg	mg/L	0.0000083	0.0000083	0.0000082	0.0000092	0.0000097	0.0000089	0.0000093	0.0000088	0.0000088	0.0000088	0.0000087	0.0000087
Molybdenum Mo	mg/L	0.00519	0.00516	0.00513	0.00389	0.00350	0.00306	0.00299	0.00277	0.00279	0.00277	0.00276	0.00275
Nickel Ni	mg/L	0.0056	0.0055	0.0055	0.0043	0.0039	0.0034	0.0033	0.0031	0.0031	0.0031	0.0031	0.0031
Phosphorus P	mg/L	0.212	0.211	0.210	0.160	0.144	0.126	0.123	0.115	0.115	0.115	0.114	0.114
Potassium K	mg/L	24.4	24.3	24.2	18.7	17.0	14.9	14.7	13.6	13.7	13.6	13.6	13.5
Selenium Se	mg/L	0.00067	0.00067	0.00067	0.00073	0.00076	0.00070	0.00072	0.00068	0.00068	0.00068	0.00068	0.00067
Silicon SiO2	mg/L	2.87	2.85	2.84	2.41	2.30	2.05	2.05	1.92	1.93	1.92	1.91	1.90
Silver Ag	mg/L	0.0001181	0.0001175	0.0001168	0.0001130	0.0001140	0.0001006	0.0000996	0.0000929	0.0000935	0.0000928	0.0000923	0.0000920
Sodium Na	mg/L	370	368	366	282	256	225	221	205	206	205	204	203
Strontium Sr	mg/L	0.066	0.065	0.065	0.055	0.053	0.047	0.048	0.045	0.045	0.045	0.044	0.044
Tellurium Te	mg/L	0.038	0.037	0.037	0.038	0.039	0.036	0.037	0.034	0.035	0.034	0.034	0.034
Thallium Tl	mg/L	0.000041	0.000041	0.000041	0.000038	0.000038	0.000034	0.000035	0.000033	0.000033	0.000033	0.000033	0.000032
Thorium Th	mg/L	0.000043	0.000043	0.000043	0.000047	0.000051	0.000047	0.000050	0.000047	0.000048	0.000047	0.000047	0.000047
Tin Sn	mg/L	0.00210	0.00209	0.00208	0.00159	0.00145	0.00128	0.00126	0.00117	0.00118	0.00117	0.00117	0.00116
Titanium Ti	mg/L	0.0081	0.0081	0.0081	0.0092	0.0097	0.0089	0.0093	0.0088	0.0088	0.0088	0.0087	0.0087
Uranium U	mg/L	0.000072	0.000071	0.000071	0.000075	0.000079	0.000071	0.000073	0.000069	0.000069	0.000069	0.000068	0.000068
Vanadium V	mg/L	0.0033	0.0033	0.0033	0.0029	0.0027	0.0024	0.0024	0.0023	0.0023	0.0023	0.0023	0.0023
Zinc Zn	mg/L	0.0153	0.0152	0.0151	0.0117	0.0106	0.0094	0.0095	0.0089	0.0089	0.0089	0.0088	0.0088
Zirconium Zr	mg/L	0.0043	0.0043	0.0043	0.0044	0.0045	0.0041	0.0042	0.0040	0.0040	0.0040	0.0039	0.0039

Table I-2-b-A.2
Scenario 3 - ENHANCED Degradati

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	806	802	797	624	570	589	534	494	483	480	477	475
TSS	mg/L	3.2	3.2	3.2	3.3	3.5	3.7	3.6	3.3	3.3	3.2	3.2	3.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.028	0.028	0.028	0.021	0.019	0.019	0.017	0.016	0.016	0.016	0.016	0.015
Sulphate	mg/L	31.0	30.9	30.7	23.7	21.5	22.2	20.1	18.6	18.1	18.0	17.9	17.8
Chloride	mg/L	538	535	532	418	383	396	359	333	325	323	321	320
Total Ammonia	mg/L	0.004	0.004	0.004	0.033	0.017	0.009	0.013	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L				0.26	0.41	0.50	0.55	0.54				
Nitrite	mg/L	0.002	0.002	0.002	0.006	0.007	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	30	30	30	27	28	29	27	25	25	25	25	24
OrthoPhosphate-P	mg/L	0.0751	0.0748	0.0743	0.0565	0.0508	0.0522	0.0470	0.0434	0.0424	0.0421	0.0419	0.0418
Phosphate-P	mg/L	0.0839	0.0834	0.0830	0.0668	0.0615	0.0638	0.0579	0.0536	0.0524	0.0520	0.0517	0.0516
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.8	4.6	4.3	4.2	4.1	4.1	4.1
Hardness CaCO3	mg/L	50	50	50	44	44	46	43	40	39	39	39	39
Total Metals													
Aluminum Al	mg/L	0.11	0.11	0.11	0.12	0.12	0.13	0.13	0.12	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0069	0.0068	0.0068	0.0052	0.0047	0.0048	0.0044	0.0040	0.0039	0.0039	0.0039	0.0039
Arsenic As	mg/L	0.0013	0.0013	0.0013	0.0011	0.0011	0.0012	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010
Barium Ba	mg/L	0.0042	0.0042	0.0042	0.0035	0.0033	0.0035	0.0032	0.0030	0.0030	0.0029	0.0029	0.0029
Beryllium Be	mg/L	0.00035	0.00035	0.00034	0.00031	0.00030	0.00032	0.00029	0.00027	0.00026	0.00026	0.00026	0.00026
Bismuth Bi	mg/L	0.00653	0.00650	0.00646	0.00490	0.00440	0.00452	0.00406	0.00375	0.00367	0.00364	0.00362	0.00361
Boron B	mg/L	0.028	0.028	0.027	0.028	0.029	0.031	0.029	0.027	0.027	0.027	0.026	0.026
Cadmium Cd	mg/L	0.0000299	0.0000297	0.0000295	0.0000267	0.0000265	0.0000284	0.0000269	0.0000253	0.0000247	0.0000245	0.0000244	0.0000243
Calcium Ca	mg/L	105	104	104	80	72	75	67	62	61	61	60	60
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0032	0.0032	0.0032	0.0025	0.0022	0.0023	0.0021	0.0019	0.0019	0.0019	0.0019	0.0018
Copper Cu	mg/L	0.0035	0.0035	0.0035	0.0029	0.0028	0.0029	0.0026	0.0025	0.0024	0.0024	0.0024	0.0024
Iron Fe	mg/L	0.11	0.11	0.11	0.12	0.13	0.14	0.14	0.13	0.13	0.13	0.12	0.12
Lead Pb	mg/L	0.00022	0.00022	0.00022	0.00019	0.00019	0.00020	0.00019	0.00017	0.00017	0.00017	0.00017	0.00017
Lithium Li	mg/L	0.0040	0.0040	0.0040	0.0040	0.0040	0.0043	0.0041	0.0038	0.0037	0.0037	0.0037	0.0037
Magnesium Mg	mg/L	6.3	6.3	6.2	5.9	6.0	6.4	6.1	5.7	5.5	5.5	5.5	5.4
Manganese Mn	mg/L	0.011	0.011	0.011	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008	0.008
Mercury Hg	mg/L	0.0000087	0.0000086	0.0000086	0.0000094	0.0000099	0.0000107	0.0000102	0.0000096	0.0000094	0.0000093	0.0000093	0.0000093
Molybdenum Mo	mg/L	0.00273	0.00272	0.00271	0.00210	0.00192	0.00198	0.00179	0.00165	0.00161	0.00160	0.00160	0.00159
Nickel Ni	mg/L	0.0031	0.0030	0.0030	0.0024	0.0023	0.0023	0.0021	0.0020	0.0019	0.0019	0.0019	0.0019
Phosphorus P	mg/L	0.113	0.113	0.112	0.088	0.080	0.083	0.075	0.070	0.068	0.068	0.067	0.067
Potassium K	mg/L	13.5	13.4	13.3	10.7	9.9	10.3	9.4	8.7	8.5	8.5	8.4	8.4
Selenium Se	mg/L	0.00067	0.00067	0.00066	0.00072	0.00076	0.00081	0.00078	0.00073	0.00071	0.00071	0.00070	0.00070
Silicon SiO2	mg/L	1.90	1.89	1.88	1.70	1.67	1.76	1.65	1.54	1.50	1.49	1.48	1.48
Silver Ag	mg/L	0.0000916	0.0000912	0.0000907	0.0000933	0.0000964	0.0001003	0.0000920	0.0000855	0.0000835	0.0000829	0.0000825	0.0000822
Sodium Na	mg/L	202	201	200	160	148	154	140	130	127	126	126	125
Strontium Sr	mg/L	0.044	0.044	0.044	0.039	0.039	0.041	0.039	0.036	0.035	0.035	0.035	0.035
Tellurium Te	mg/L	0.034	0.034	0.034	0.035	0.037	0.039	0.037	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000032	0.000032	0.000032	0.000031	0.000032	0.000034	0.000032	0.000030	0.000030	0.000030	0.000029	0.000029
Thorium Th	mg/L	0.000047	0.000046	0.000046	0.000050	0.000053	0.000057	0.000056	0.000052	0.000051	0.000051	0.000051	0.000050
Tin Sn	mg/L	0.00116	0.00115	0.00115	0.00090	0.00085	0.00088	0.00081	0.00075	0.00074	0.00073	0.00073	0.00072
Titanium Ti	mg/L	0.0086	0.0086	0.0086	0.0095	0.0100	0.0108	0.0103	0.0097	0.0095	0.0094	0.0093	0.0093
Uranium U	mg/L	0.000068	0.000067	0.000067	0.000072	0.000076	0.000081	0.000076	0.000072	0.000070	0.000069	0.000069	0.000069
Vanadium V	mg/L	0.0023	0.0022	0.0022	0.0021	0.0020	0.0022	0.0020	0.0019	0.0018	0.0018	0.0018	0.0018
Zinc Zn	mg/L	0.0088	0.0087	0.0087	0.0069	0.0064	0.0067	0.0064	0.0060	0.0059	0.0059	0.0058	0.0058
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0040	0.0042	0.0045	0.0043	0.0040	0.0039	0.0039	0.0039	0.0039

Table I-2-b-A.2
Scenario 3 - ENHANCED Degradati

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	473	471	468	374	345	305	301	306	299	297	295	294
TSS	mg/L	3.2	3.2	3.2	3.4	3.5	3.2	3.3	3.4	3.3	3.3	3.3	3.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.015	0.015	0.015	0.011	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008
Sulphate	mg/L	17.8	17.7	17.6	13.6	12.4	10.9	10.7	10.8	10.6	10.5	10.5	10.4
Chloride	mg/L	318	317	315	252	234	207	205	208	203	202	201	200
Total Ammonia	mg/L	0.004	0.004	0.004	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	24	24	24	23	24	22	22	22	22	22	22	22
OrthoPhosphate-P	mg/L	0.0416	0.0414	0.0411	0.0313	0.0281	0.0246	0.0240	0.0243	0.0237	0.0236	0.0234	0.0233
Phosphate-P	mg/L	0.0514	0.0511	0.0508	0.0424	0.0395	0.0351	0.0347	0.0352	0.0344	0.0342	0.0340	0.0338
Org. Carbon	mg/L	4.1	4.1	4.0	4.2	4.5	4.1	4.2	4.3	4.2	4.2	4.1	4.1
Hardness CaCO3	mg/L	39	38	38	35	36	32	33	34	33	33	33	32
Total Metals													
Aluminum Al	mg/L	0.12	0.12	0.12	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0039	0.0038	0.0038	0.0029	0.0026	0.0023	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022
Arsenic As	mg/L	0.0010	0.0010	0.0010	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Barium Ba	mg/L	0.0029	0.0029	0.0029	0.0025	0.0024	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022
Beryllium Be	mg/L	0.00026	0.00025	0.00025	0.00023	0.00023	0.00020	0.00019	0.00019	0.00019	0.00019	0.00019	0.00019
Bismuth Bi	mg/L	0.00359	0.00358	0.00356	0.00267	0.00239	0.00209	0.00204	0.00206	0.00201	0.00199	0.00198	0.00198
Boron B	mg/L	0.026	0.026	0.026	0.026	0.027	0.024	0.025	0.026	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000242	0.0000241	0.0000239	0.0000197	0.0000184	0.0000163	0.0000162	0.0000165	0.0000161	0.0000160	0.0000159	0.0000158
Calcium Ca	mg/L	60	59	59	46	41	37	36	36	35	35	35	35
Chromium Cr	mg/L	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0018	0.0018	0.0018	0.0014	0.0013	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Copper Cu	mg/L	0.0023	0.0023	0.0023	0.0020	0.0020	0.0018	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017
Iron Fe	mg/L	0.12	0.12	0.12	0.13	0.14	0.13	0.13	0.14	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00017	0.00016	0.00016	0.00014	0.00013	0.00012	0.00012	0.00012	0.00012	0.00011	0.00011	0.00011
Lithium Li	mg/L	0.0037	0.0036	0.0036	0.0037	0.0038	0.0035	0.0036	0.0036	0.0036	0.0035	0.0035	0.0035
Magnesium Mg	mg/L	5.4	5.4	5.4	5.3	5.4	4.9	5.1	5.2	5.1	5.0	5.0	5.0
Manganese Mn	mg/L	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Mercury Hg	mg/L	0.0000092	0.0000092	0.0000091	0.0000096	0.0000099	0.0000091	0.0000094	0.0000096	0.0000094	0.0000093	0.0000093	0.0000092
Molybdenum Mo	mg/L	0.00158	0.00157	0.00157	0.00124	0.00114	0.00100	0.00099	0.00100	0.00097	0.00097	0.00096	0.00096
Nickel Ni	mg/L	0.0019	0.0019	0.0019	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012
Phosphorus P	mg/L	0.067	0.067	0.066	0.051	0.046	0.041	0.040	0.040	0.039	0.039	0.039	0.039
Potassium K	mg/L	8.3	8.3	8.3	6.9	6.5	5.7	5.7	5.8	5.7	5.6	5.6	5.6
Selenium Se	mg/L	0.00070	0.00069	0.00069	0.00073	0.00076	0.00069	0.00071	0.00073	0.00071	0.00071	0.00070	0.00070
Silicon SiO2	mg/L	1.47	1.47	1.46	1.36	1.34	1.21	1.23	1.25	1.22	1.22	1.21	1.20
Silver Ag	mg/L	0.0000819	0.0000814	0.0000810	0.0000824	0.0000842	0.0000739	0.0000723	0.0000731	0.0000714	0.0000709	0.0000705	0.0000703
Sodium Na	mg/L	125	124	123	102	96	85	85	86	84	83	83	83
Strontium Sr	mg/L	0.035	0.035	0.034	0.032	0.033	0.030	0.030	0.031	0.030	0.030	0.030	0.030
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000029	0.000029	0.000029	0.000028	0.000028	0.000026	0.000026	0.000027	0.000026	0.000026	0.000026	0.000026
Thorium Th	mg/L	0.000050	0.000050	0.000050	0.000047	0.000046	0.000042	0.000043	0.000044	0.000043	0.000042	0.000042	0.000042
Tin Sn	mg/L	0.00072	0.00072	0.00071	0.00056	0.00053	0.00048	0.00048	0.00048	0.00047	0.00047	0.00047	0.00046
Titanium Ti	mg/L	0.0093	0.0092	0.0092	0.0100	0.0104	0.0096	0.0099	0.0102	0.0099	0.0098	0.0098	0.0098
Uranium U	mg/L	0.000069	0.000068	0.000068	0.000067	0.000068	0.000061	0.000060	0.000061	0.000060	0.000059	0.000059	0.000059
Vanadium V	mg/L	0.0018	0.0018	0.0018	0.0017	0.0017	0.0015	0.0015	0.0016	0.0015	0.0015	0.0015	0.0015
Zinc Zn	mg/L	0.0058	0.0058	0.0057	0.0046	0.0043	0.0039	0.0041	0.0042	0.0041	0.0041	0.0041	0.0041
Zirconium Zr	mg/L	0.0039	0.0038	0.0038	0.0039	0.0040	0.0036	0.0037	0.0038	0.0037	0.0037	0.0037	0.0037

Table I-2-b-A.2
Scenario 3 - ENHANCED Degradati

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	293	291	289	239	225	199	198	185	186	185	184	183
TSS	mg/L	3.2	3.2	3.2	3.4	3.5	3.2	3.3	3.1	3.1	3.1	3.1	3.1
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.008	0.008	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Sulphate	mg/L	10.4	10.3	10.3	8.1	7.4	6.5	6.5	6.0	6.1	6.0	6.0	6.0
Chloride	mg/L	199	198	197	163	155	137	137	128	129	128	127	127
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	21	21	21	21	22	20	20	19	19	19	19	19
OrthoPhosphate-P	mg/L	0.0233	0.0231	0.0230	0.0176	0.0158	0.0139	0.0136	0.0126	0.0127	0.0126	0.0125	0.0125
Phosphate-P	mg/L	0.0337	0.0335	0.0334	0.0292	0.0278	0.0247	0.0246	0.0230	0.0231	0.0230	0.0229	0.0228
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.1	4.2	3.9	4.0	3.9	3.9	3.9
Hardness CaCO3	mg/L	32	32	32	31	32	29	29	28	28	28	28	27
Total Metals													
Aluminum Al	mg/L	0.12	0.12	0.12	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.11	0.11
Antimony Sb	mg/L	0.0022	0.0022	0.0022	0.0017	0.0015	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012
Arsenic As	mg/L	0.0007	0.0007	0.0007	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Barium Ba	mg/L	0.0022	0.0022	0.0021	0.0019	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017
Beryllium Be	mg/L	0.00019	0.00019	0.00018	0.00018	0.00018	0.00016	0.00015	0.00014	0.00014	0.00014	0.00014	0.00014
Bismuth Bi	mg/L	0.00197	0.00196	0.00195	0.00146	0.00130	0.00114	0.00111	0.00103	0.00103	0.00102	0.00102	0.00102
Boron B	mg/L	0.025	0.024	0.024	0.025	0.026	0.023	0.024	0.023	0.023	0.023	0.023	0.023
Cadmium Cd	mg/L	0.0000158	0.0000157	0.0000156	0.0000134	0.0000128	0.0000114	0.0000114	0.0000107	0.0000107	0.0000107	0.0000106	0.0000106
Calcium Ca	mg/L	35	35	34	27	25	22	22	20	20	20	20	20
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0011	0.0010	0.0010	0.0008	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Copper Cu	mg/L	0.0017	0.0017	0.0017	0.0016	0.0015	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Iron Fe	mg/L	0.13	0.13	0.13	0.14	0.14	0.13	0.14	0.13	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00011	0.00011	0.00011	0.00010	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008	0.00008
Lithium Li	mg/L	0.0035	0.0035	0.0035	0.0036	0.0037	0.0034	0.0035	0.0033	0.0033	0.0033	0.0032	0.0032
Magnesium Mg	mg/L	5.0	4.9	4.9	5.0	5.1	4.7	4.8	4.5	4.5	4.5	4.5	4.5
Manganese Mn	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Mercury Hg	mg/L	0.0000092	0.0000091	0.0000091	0.0000096	0.0000099	0.0000091	0.0000094	0.0000088	0.0000089	0.0000088	0.0000088	0.0000087
Molybdenum Mo	mg/L	0.00096	0.00095	0.00094	0.00077	0.00072	0.00063	0.00063	0.00058	0.00059	0.00058	0.00058	0.00058
Nickel Ni	mg/L	0.0012	0.0012	0.0012	0.0011	0.0010	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008
Phosphorus P	mg/L	0.038	0.038	0.038	0.030	0.027	0.024	0.024	0.022	0.022	0.022	0.022	0.022
Potassium K	mg/L	5.6	5.5	5.5	4.8	4.6	4.1	4.1	3.9	3.9	3.9	3.8	3.8
Selenium Se	mg/L	0.00070	0.00070	0.00069	0.00073	0.00076	0.00069	0.00071	0.00067	0.00068	0.00067	0.00067	0.00067
Silicon SiO2	mg/L	1.20	1.19	1.19	1.15	1.16	1.05	1.07	1.01	1.01	1.01	1.00	1.00
Silver Ag	mg/L	0.0000700	0.0000696	0.0000692	0.0000737	0.0000765	0.0000669	0.0000655	0.0000608	0.0000612	0.0000608	0.0000605	0.0000602
Sodium Na	mg/L	82	82	81	70	67	60	60	57	57	56	56	56
Strontium Sr	mg/L	0.030	0.030	0.029	0.029	0.029	0.027	0.027	0.026	0.026	0.026	0.026	0.026
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.032	0.032	0.032	0.032	0.032
Thallium Tl	mg/L	0.000025	0.000025	0.000025	0.000025	0.000026	0.000023	0.000024	0.000023	0.000023	0.000023	0.000022	0.000022
Thorium Th	mg/L	0.000042	0.000042	0.000041	0.000040	0.000041	0.000037	0.000038	0.000035	0.000036	0.000035	0.000035	0.000035
Tin Sn	mg/L	0.00046	0.00046	0.00046	0.00037	0.00036	0.00032	0.00033	0.00031	0.00031	0.00031	0.00030	0.00030
Titanium Ti	mg/L	0.0097	0.0097	0.0096	0.0103	0.0107	0.0098	0.0101	0.0096	0.0096	0.0095	0.0095	0.0095
Uranium U	mg/L	0.000059	0.000058	0.000058	0.000060	0.000062	0.000055	0.000055	0.000051	0.000051	0.000051	0.000051	0.000051
Vanadium V	mg/L	0.0015	0.0015	0.0015	0.0015	0.0015	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Zinc Zn	mg/L	0.0041	0.0040	0.0040	0.0033	0.0031	0.0028	0.0031	0.0030	0.0030	0.0030	0.0030	0.0030
Zirconium Zr	mg/L	0.0037	0.0036	0.0036	0.0037	0.0038	0.0035	0.0036	0.0034	0.0034	0.0034	0.0034	0.0034

Table I-2-b-A.2
Scenario 3 - ENHANCED Degradati

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	182	181	180	158	153	161	149	139	136	135	134	134
TSS	mg/L	3.1	3.1	3.1	3.3	3.4	3.7	3.5	3.3	3.2	3.2	3.2	3.1
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Sulphate	mg/L	5.9	5.9	5.9	4.8	4.6	4.8	4.4	4.1	4.0	4.0	4.0	3.9
Chloride	mg/L	126	126	125	110	107	113	105	98	96	95	95	94
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	19	19	19	19	20	22	20	19	19	19	18	18
OrthoPhosphate-P	mg/L	0.0124	0.0124	0.0123	0.0097	0.0088	0.0091	0.0083	0.0077	0.0075	0.0075	0.0074	0.0074
Phosphate-P	mg/L	0.0227	0.0226	0.0224	0.0211	0.0206	0.0217	0.0202	0.0188	0.0183	0.0182	0.0181	0.0180
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.4	4.7	4.4	4.1	4.0	4.0	4.0	4.0
Hardness CaCO3	mg/L	27	27	27	27	28	30	29	27	26	26	26	26
Total Metals													
Aluminum Al	mg/L	0.11	0.11	0.11	0.12	0.12	0.14	0.13	0.12	0.12	0.12	0.12	0.12
Antimony Sb	mg/L	0.0012	0.0012	0.0012	0.0009	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008
Arsenic As	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004
Barium Ba	mg/L	0.0017	0.0017	0.0017	0.0016	0.0016	0.0017	0.0017	0.0016	0.0015	0.0015	0.0015	0.0015
Beryllium Be	mg/L	0.00014	0.00014	0.00014	0.00014	0.00015	0.00015	0.00014	0.00013	0.00012	0.00012	0.00012	0.00012
Bismuth Bi	mg/L	0.00101	0.00101	0.00100	0.00076	0.00069	0.00071	0.00063	0.00059	0.00057	0.00057	0.00057	0.00056
Boron B	mg/L	0.022	0.022	0.022	0.023	0.024	0.026	0.025	0.023	0.023	0.023	0.022	0.022
Cadmium Cd	mg/L	0.0000105	0.0000105	0.0000104	0.0000095	0.0000094	0.0000099	0.0000093	0.0000086	0.0000084	0.0000084	0.0000083	0.0000083
Calcium Ca	mg/L	20	20	20	16	15	16	15	14	13	13	13	13
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0006	0.0006	0.0006	0.0005	0.0004	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Copper Cu	mg/L	0.0013	0.0013	0.0013	0.0012	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011
Iron Fe	mg/L	0.13	0.13	0.13	0.13	0.14	0.15	0.14	0.14	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007
Lithium Li	mg/L	0.0032	0.0032	0.0032	0.0034	0.0035	0.0037	0.0036	0.0033	0.0033	0.0032	0.0032	0.0032
Magnesium Mg	mg/L	4.5	4.4	4.4	4.6	4.8	5.1	4.9	4.6	4.5	4.5	4.4	4.4
Manganese Mn	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Mercury Hg	mg/L	0.0000087	0.0000086	0.0000086	0.0000092	0.0000096	0.0000103	0.0000098	0.0000092	0.0000090	0.0000089	0.0000089	0.0000088
Molybdenum Mo	mg/L	0.00058	0.00057	0.00057	0.00049	0.00047	0.00049	0.00045	0.00042	0.00041	0.00041	0.00041	0.00041
Nickel Ni	mg/L	0.0008	0.0008	0.0008	0.0008	0.0007	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Phosphorus P	mg/L	0.022	0.021	0.021	0.018	0.016	0.017	0.015	0.014	0.014	0.014	0.014	0.014
Potassium K	mg/L	3.8	3.8	3.8	3.5	3.5	3.7	3.4	3.2	3.1	3.1	3.1	3.1
Selenium Se	mg/L	0.00066	0.00066	0.00066	0.00070	0.00074	0.00079	0.00075	0.00070	0.00069	0.00068	0.00068	0.00067
Silicon SiO2	mg/L	0.99	0.99	0.98	1.00	1.02	1.09	1.04	0.97	0.95	0.94	0.94	0.93
Silver Ag	mg/L	0.0000600	0.0000597	0.0000594	0.0000660	0.0000696	0.0000717	0.0000648	0.0000599	0.0000585	0.0000581	0.0000578	0.0000576
Sodium Na	mg/L	56	55	55	51	50	53	50	46	45	45	45	45
Strontium Sr	mg/L	0.026	0.025	0.025	0.025	0.027	0.028	0.027	0.026	0.025	0.025	0.025	0.025
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.038	0.036	0.034	0.033	0.033	0.033	0.032
Thallium Tl	mg/L	0.000022	0.000022	0.000022	0.000023	0.000024	0.000025	0.000024	0.000022	0.000022	0.000022	0.000022	0.000022
Thorium Th	mg/L	0.000035	0.000035	0.000035	0.000035	0.000036	0.000039	0.000037	0.000035	0.000034	0.000034	0.000033	0.000033
Tin Sn	mg/L	0.00030	0.00030	0.00030	0.00025	0.00026	0.00027	0.00026	0.00024	0.00024	0.00024	0.00023	0.00023
Titanium Ti	mg/L	0.0094	0.0094	0.0093	0.0101	0.0105	0.0113	0.0108	0.0101	0.0099	0.0098	0.0098	0.0097
Uranium U	mg/L	0.000050	0.000050	0.000050	0.000054	0.000056	0.000059	0.000054	0.000050	0.000049	0.000049	0.000049	0.000048
Vanadium V	mg/L	0.0013	0.0013	0.0013	0.0013	0.0014	0.0014	0.0014	0.0013	0.0012	0.0012	0.0012	0.0012
Zinc Zn	mg/L	0.0029	0.0029	0.0029	0.0025	0.0024	0.0026	0.0027	0.0026	0.0025	0.0025	0.0025	0.0025
Zirconium Zr	mg/L	0.0033	0.0033	0.0033	0.0035	0.0036	0.0039	0.0037	0.0035	0.0034	0.0034	0.0034	0.0034

Table I-2-b-A.2
Scenario 3 - ENHANCED Degradati

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	133	133	132	121	120	108	110	103	104	103	102
TSS	mg/L	3.1	3.1	3.1	3.3	3.5	3.2	3.3	3.1	3.1	3.1	3.1
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Sulphate	mg/L	3.9	3.9	3.9	3.3	3.2	2.9	2.9	2.7	2.7	2.7	2.7
Chloride	mg/L	94	93	93	86	86	77	79	74	74	74	73
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	18	18	18	19	20	18	19	17	18	17	17
OrthoPhosphate-P	mg/L	0.0074	0.0073	0.0073	0.0059	0.0054	0.0048	0.0048	0.0044	0.0045	0.0044	0.0044
Phosphate-P	mg/L	0.0180	0.0179	0.0178	0.0176	0.0174	0.0157	0.0159	0.0149	0.0150	0.0149	0.0148
Org. Carbon	mg/L	4.0	3.9	3.9	4.2	4.4	4.0	4.1	3.9	3.9	3.9	3.8
Hardness CaCO3	mg/L	26	26	26	26	27	25	26	24	25	24	24
Total Metals												
Aluminum Al	mg/L	0.12	0.12	0.11	0.12	0.13	0.12	0.12	0.11	0.11	0.11	0.11
Antimony Sb	mg/L	0.0008	0.0008	0.0008	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic As	mg/L	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Barium Ba	mg/L	0.0015	0.0015	0.0015	0.0014	0.0015	0.0014	0.0014	0.0013	0.0014	0.0013	0.0013
Beryllium Be	mg/L	0.00012	0.00012	0.00012	0.00013	0.00014	0.00012	0.00012	0.00011	0.00011	0.00011	0.00011
Bismuth Bi	mg/L	0.00056	0.00056	0.00056	0.00042	0.00038	0.00033	0.00033	0.00030	0.00031	0.00030	0.00030
Boron B	mg/L	0.022	0.022	0.022	0.023	0.024	0.022	0.023	0.022	0.022	0.022	0.021
Cadmium Cd	mg/L	0.0000083	0.0000082	0.0000082	0.0000079	0.0000079	0.0000071	0.0000073	0.0000068	0.0000069	0.0000068	0.0000068
Calcium Ca	mg/L	13	13	13	11	11	9	10	9	9	9	9
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
Copper Cu	mg/L	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.0010	0.0010
Iron Fe	mg/L	0.13	0.13	0.13	0.14	0.14	0.13	0.14	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00007	0.00007	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Lithium Li	mg/L	0.0032	0.0032	0.0032	0.0034	0.0035	0.0032	0.0033	0.0031	0.0031	0.0031	0.0031
Magnesium Mg	mg/L	4.4	4.4	4.3	4.5	4.7	4.3	4.5	4.2	4.3	4.2	4.2
Manganese Mn	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
Mercury Hg	mg/L	0.0000088	0.0000088	0.0000087	0.0000093	0.0000097	0.0000088	0.0000091	0.0000086	0.0000087	0.0000086	0.0000086
Molybdenum Mo	mg/L	0.00040	0.00040	0.00040	0.00036	0.00036	0.00032	0.00032	0.00030	0.00030	0.00030	0.00030
Nickel Ni	mg/L	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005
Phosphorus P	mg/L	0.014	0.014	0.014	0.012	0.011	0.010	0.010	0.009	0.009	0.009	0.009
Potassium K	mg/L	3.1	3.1	3.0	2.9	3.0	2.7	2.8	2.6	2.6	2.6	2.6
Selenium Se	mg/L	0.00067	0.00067	0.00067	0.00071	0.00074	0.00068	0.00070	0.00066	0.00066	0.00066	0.00065
Silicon SiO2	mg/L	0.93	0.92	0.92	0.95	0.98	0.89	0.92	0.87	0.87	0.87	0.86
Silver Ag	mg/L	0.0000574	0.0000571	0.0000568	0.0000642	0.0000681	0.0000597	0.0000585	0.0000544	0.0000547	0.0000544	0.0000541
Sodium Na	mg/L	44	44	44	42	43	39	40	37	37	37	37
Strontium Sr	mg/L	0.024	0.024	0.024	0.025	0.026	0.024	0.025	0.023	0.023	0.023	0.023
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.036	0.033	0.034	0.032	0.032	0.032	0.031
Thallium Tl	mg/L	0.000021	0.000021	0.000021	0.000022	0.000023	0.000021	0.000022	0.000020	0.000021	0.000020	0.000020
Thorium Th	mg/L	0.000033	0.000033	0.000033	0.000034	0.000035	0.000032	0.000033	0.000031	0.000031	0.000031	0.000031
Tin Sn	mg/L	0.00023	0.00023	0.00023	0.00020	0.00021	0.00019	0.00020	0.00019	0.00019	0.00019	0.00019
Titanium Ti	mg/L	0.0097	0.0096	0.0096	0.0103	0.0107	0.0098	0.0101	0.0095	0.0096	0.0095	0.0095
Uranium U	mg/L	0.000048	0.000048	0.000048	0.000052	0.000055	0.000049	0.000049	0.000046	0.000046	0.000046	0.000045
Vanadium V	mg/L	0.0012	0.0012	0.0012	0.0013	0.0013	0.0012	0.0012	0.0011	0.0012	0.0011	0.0011
Zinc Zn	mg/L	0.0025	0.0025	0.0025	0.0022	0.0021	0.0020	0.0023	0.0022	0.0022	0.0022	0.0022
Zirconium Zr	mg/L	0.0033	0.0033	0.0033	0.0035	0.0036	0.0033	0.0034	0.0032	0.0033	0.0032	0.0032

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED Degradation

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	117442	101234	86389	86424	83234	78530	81148	81148	73295
TSS	183	177	183	1239	685	341	375	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18322	17074	15398	15298	14794	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	71048	57314	58180	52622	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15548	12117	8343	8349	7362	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1171.73	314.49	328.91	86.92				
Hardness CaCO3	14992	14508	14992	26182	22190	16931	17008	15652	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.31	12.08	9.26	8.84	5.92	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.00	1.76	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.30	7.39	4.51	4.73	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42156	42169	41159	39995	40733	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.32	1.27	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.53	11.68	9.32	9.43	6.00	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.84	1.15	0.69	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2866	2088	1461	1468	1204	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7119	7036	6794	6630	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	963	773	631	633	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11746	9527	7313	7360	6675	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.74	8.41	2.65	3.32	0.89	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.42	1.22	0.46	0.56	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.10	1.04	0.35	0.44	0.13				

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	117011	101009	86327	86328	83208	78530	81148	81148	73295
TSS	183	177	183	1227	680	339	372	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18314	17069	15397	15295	14793	13840	14302	14302	12918
Chloride	49110	47526	49110	82247	70972	57293	58150	52614	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15450	12059	8326	8329	7357	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2098.99	1158.56	310.77	324.90	85.83				
Hardness CaCO3	14992	14508	14992	26053	22109	16908	16978	15644	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.24	12.06	9.23	8.82	5.92	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.28	2.00	1.75	1.73	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.26	7.36	4.50	4.72	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42136	42158	41155	39990	40731	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.31	1.26	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.36	11.62	9.28	9.38	5.99	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.83	1.14	0.69	0.73	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2850	2079	1458	1464	1203	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7113	7032	6793	6629	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	960	771	630	632	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11684	9492	7302	7346	6671	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.54	8.31	2.62	3.28	0.88	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.39	1.21	0.46	0.55	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.08	1.03	0.35	0.44	0.12				

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	87387	70473	55832	56817	52721	49028	50662	50662	45759
TSS				1046	495	155	195	51				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5619	3993	2358	2669	1769	1247	1289	1289	1164
Chloride	49110	47526	49110	82214	70956	57290	58148	52614	47526	49110	49110	44357
Total Ammonia	25	24	25	153	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1036	654	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				8718	5118	1396	1623	429				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2092.35	1155.64	310.19	324.55	85.81				
Hardness CaCO3				11508	7099	1913	2467	652				
Total Metals												
Aluminum Al	0.81	0.78	0.81	12.73	6.56	4.79	4.29	1.91	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.55	3.32	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.27	0.18	0.09	0.10	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.82	0.49	0.25	0.27	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.20	0.13	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.52	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.43	4.73	2.12	2.36	1.15	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	3033	1827	888	1007	489	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.38	0.30	0.16	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.28	0.19	0.11	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.43	0.25	0.09	0.10	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	16.37	6.78	4.69	4.89	1.51	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.42	0.73	0.28	0.34	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1899	1106	493	529	240	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.89	0.56	0.40	0.49	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.65	0.43	0.24	0.26	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	33	29	25	25	24	22	23	23	21
Potassium K	25	24	25	651	358	120	171	66	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.16	0.08	0.02	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	397	204	76	93	34	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5526	3140	958	1206	329	12	12	12	11
Strontium Sr	0	0	0	9	5	2	3	1	0	0	0	0
Tellurium Te				17.46	8.27	2.59	3.25	0.86				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.55	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.34	1.17	0.42	0.51	0.19	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.88	0.59	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.2	0.8	0.5	1.0	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.94	0.95	0.31	0.39	0.11				

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				417065	398294	383460	386128	380307				
TSS				1718	814	255	321	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				843	516	146	241	68				
Chloride				258472	245537	234827	236164	231920				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8830	5188	1417	1649	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2119.25	1171.42	314.86	329.81	87.29				
Hardness CaCO3				11656	7196	1942	2507	663				
Total Metals												
Aluminum Al				67.17	31.63	11.99	13.55	3.71				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.60	0.33	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.35	6.50	2.15	2.57	0.71				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				24897	23661	22797	22895	22446				
Chromium Cr				0.26	0.19	0.07	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.52	0.27	0.07	0.09	0.02				
Iron Fe				71.30	32.59	12.63	14.92	3.98				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.74	0.83	0.26	0.33	0.09				
Magnesium Mg				2224	1148	401	446	119				
Manganese Mn				1.63	0.76	0.32	0.44	0.12				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1159	575	167	236	63				
Selenium Se				0.39	0.19	0.06	0.07	0.02				
Silicon SiO2				504	246	80	101	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				141685	133712	128070	128725	126387				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.68	8.38	2.63	3.31	0.88				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.38	2.55	0.80	1.01	0.27				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.69	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.98	0.97	0.32	0.40	0.11				

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				39489	20419	5256	7929	2081				
TSS				1746	828	256	321	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				854	523	146	241	68				
Chloride				28539	15399	4442	5782	1517				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8975	5275	1419	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2153.97	1191.12	315.39	330.38	86.71				
Hardness CaCO3				11847	7317	1945	2511	659				
Total Metals												
Aluminum Al				68.20	32.12	12.01	13.57	3.68				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.27	0.15	0.05	0.06	0.02				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.54	6.60	2.15	2.57	0.70				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2661	1407	523	621	170				
Chromium Cr				0.27	0.19	0.07	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.53	0.27	0.07	0.09	0.02				
Iron Fe				72.45	33.13	12.65	14.95	3.95				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.76	0.84	0.26	0.33	0.09				
Magnesium Mg				2260	1167	402	447	118				
Manganese Mn				1.66	0.77	0.32	0.44	0.12				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.27	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1178	585	167	237	62				
Selenium Se				0.40	0.19	0.06	0.07	0.02				
Silicon SiO2				512	250	80	101	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16405	8304	2529	3186	836				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.97	8.52	2.63	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.46	2.59	0.80	1.01	0.27				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.70	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				2.01	0.98	0.32	0.40	0.11				

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				39345	20343	5320	7972	2092				
TSS				1739	824	259	323	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				852	522	147	242	68				
Chloride				28435	15342	4496	5813	1525				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8942	5255	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2146.11	1186.67	319.23	332.17	87.16				
Hardness CaCO3				11804	7290	1969	2525	662				
Total Metals												
Aluminum Al				67.96	32.01	12.15	13.63	3.70				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.27	0.15	0.05	0.06	0.02				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.50	6.58	2.17	2.58	0.71				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2652	1402	529	624	171				
Chromium Cr				0.27	0.19	0.07	0.04	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.53	0.27	0.07	0.09	0.02				
Iron Fe				72.19	33.00	12.80	15.03	3.97				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.76	0.84	0.26	0.33	0.09				
Magnesium Mg				2251	1162	406	449	119				
Manganese Mn				1.65	0.77	0.33	0.44	0.12				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.27	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1173	582	169	238	63				
Selenium Se				0.40	0.19	0.06	0.07	0.02				
Silicon SiO2				510	249	81	102	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16345	8273	2560	3203	841				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.91	8.49	2.67	3.33	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.44	2.58	0.81	1.01	0.27				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.69	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				2.00	0.98	0.32	0.40	0.11				

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				39433	20389	5249	7918	2096				
TSS				1743	826	255	321	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	51				
Chloride				28499	15377	4436	5773	1528				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8962	5267	1417	1650	437				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2150.88	1189.37	314.97	329.92	87.32				
Hardness CaCO3				11830	7306	1942	2507	664				
Total Metals												
Aluminum Al				63.82	29.42	10.88	12.12	3.21				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.52	5.97	1.89	2.23	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2406	1249	457	536	142				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.06	0.08	0.02				
Iron Fe				71.35	32.46	12.37	14.59	3.86				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.83	0.25	0.32	0.08				
Magnesium Mg				2231	1149	394	438	116				
Manganese Mn				1.63	0.76	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1169	580	165	234	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				464	220	68	85	23				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16375	8288	2524	3179	841				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.93	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.44	2.58	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.26	0.33	0.09				

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				39503	20426	5258	7932	2082				
TSS				1746	828	256	321	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				707	432	108	192	50				
Chloride				28549	15405	4443	5784	1518				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8978	5277	1420	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2154.72	1191.54	315.49	330.49	86.74				
Hardness CaCO3				11851	7319	1946	2512	659				
Total Metals												
Aluminum Al				63.93	29.47	10.90	12.14	3.19				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.54	5.98	1.89	2.24	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2410	1251	458	537	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.07	0.08	0.02				
Iron Fe				71.48	32.52	12.39	14.62	3.84				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.83	0.26	0.32	0.08				
Magnesium Mg				2235	1151	395	438	115				
Manganese Mn				1.63	0.76	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1172	581	165	235	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				465	220	68	86	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16404	8303	2528	3185	836				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.96	8.51	2.63	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.45	2.58	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.27	0.33	0.09				

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				39358	20350	5322	7975	2093				
TSS				1740	825	259	323	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				705	431	109	193	51				
Chloride				28444	15347	4497	5815	1526				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8945	5257	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2146.79	1187.06	319.34	332.29	87.19				
Hardness CaCO3				11807	7292	1969	2525	663				
Total Metals												
Aluminum Al				63.70	29.36	11.03	12.20	3.20				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.59	0.33	0.15	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.50	5.96	1.91	2.25	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2402	1247	463	540	142				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.50	0.26	0.07	0.08	0.02				
Iron Fe				71.21	32.39	12.54	14.70	3.86				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.82	0.26	0.32	0.08				
Magnesium Mg				2227	1147	400	441	116				
Manganese Mn				1.63	0.75	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1167	579	167	236	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				463	219	69	86	23				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16344	8272	2559	3202	840				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.89	8.48	2.66	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.43	2.57	0.81	1.01	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.65	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.27	0.34	0.09				

Appendix 1

Table I-2-b-A.3
Scenario 3 - ENHANCED

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				39445	20396	5251	7920	2079				
TSS				1744	827	255	321	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	50				
Chloride				28508	15382	4437	5775	1516				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8965	5269	1418	1650	433				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2151.56	1189.76	315.06	330.02	86.62				
Hardness CaCO3				11834	7309	1943	2508	658				
Total Metals												
Aluminum Al				63.84	29.43	10.88	12.12	3.18				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.53	5.97	1.89	2.23	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2407	1250	457	536	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.06	0.08	0.02				
Iron Fe				71.37	32.47	12.37	14.60	3.83				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.83	0.26	0.32	0.08				
Magnesium Mg				2232	1150	395	438	115				
Manganese Mn				1.63	0.76	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1170	580	165	234	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				464	220	68	85	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16380	8291	2525	3180	835				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.93	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.44	2.58	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.27	0.33	0.09				

Table I-2-b-B.1
Scenario 3 - ENHANCED Degradation

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Enhanced		Tail Lk Cu < CME Year		8			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.7	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1051	113	91	
Total Ammonia	mg/L		0.97	1.31	0.084	0.045	9%
Nitrate	mg/L		2.9	3.6	0.20	0.11	7%
Nitrite	mg/L		0.018	0.40	0.025	0.014	138%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0315	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.14	0.08	0.25	83%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00071	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.034	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000067	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.15	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000107	0.0000012	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.305	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00081	0.00089	0.00084	89%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000088	0.0000073	9%
Sodium Na	mg/L			386	58	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.002001	4%
Thorium Th	mg/L			0.000057	0.0000044	0.0000023	
Tin Sn	mg/L			0.00296	0.00054	0.00009	
Titanium Ti	mg/L			0.0115	0.0063	0.0063	
Uranium U	mg/L			0.000081	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0045	0.0050	0.0051	

Table I-2-b-B.2
Scenario 3 - ENHANCED Degradation

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	151	153				
TSS	mg/L				3.9	5.6	5.8	6.7	6.7				
Free CN	mg/L				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.09	0.01	0.03	0.03	0.03				
SCN	mg/L				0.001	0.001	0.002	0.002	0.002				
Sulphate	mg/L				3.8	3.9	4.3	4.9	5.2				
Chloride	mg/L				61	62	62	67	69				
Total Ammonia	mg/L				0.019	0.044	0.022	0.030	0.030				
Nitrate	mg/L				0.05	0.10	0.13	0.16	0.19				
Nitrite	mg/L				0.011	0.005	0.009	0.006	0.007				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P	mg/L				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon	mg/L				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi	mg/L				0.00012	0.00021	0.00028	0.00033	0.00039				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000040	0.0000038	0.0000040	0.0000043				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.021	0.027	0.024	0.025				
Potassium K	mg/L				3.2	2.9	3.0	3.1	3.3				
Selenium Se	mg/L				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.55	0.57	0.58	0.60				
Silver Ag	mg/L				0.0000049	0.0000058	0.0000060	0.0000064	0.0000065				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-B.2
Scenario 3 - ENHANCED D

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				160	139	143	165	166				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00020		0.00003	0.00003	0.00003				
Total CN	mg/L				0.004	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0003		0.0000	0.0000	0.0000				
CNO	mg/L				0.22		0.03	0.03	0.03				
SCN	mg/L				0.005	0.004	0.004	0.005	0.005				
Sulphate	mg/L				7.3	6.7	6.9	7.5	7.7				
Chloride	mg/L				74	73	71	77	78				
Total Ammonia	mg/L				0.044	0.084	0.016	0.031	0.030				
Nitrate	mg/L				0.05	0.11	0.14	0.18	0.20				
Nitrite	mg/L				0.025	0.005	0.013	0.005	0.007				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P	mg/L				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi	mg/L				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000059	0.0000057	0.0000053	0.0000056	0.0000058				
Calcium Ca	mg/L				21	18	18	19	20				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo	mg/L				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P	mg/L				0.027	0.027	0.033	0.030	0.030				
Potassium K	mg/L				4.8	4.1	4.1	4.3	4.4				
Selenium Se	mg/L				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2	mg/L				0.68	0.66	0.66	0.68	0.69				
Silver Ag	mg/L				0.0000070	0.0000074	0.0000075	0.0000079	0.0000080				
Sodium Na	mg/L				39	33	35	33	33				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.043				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-B.2
Scenario 3 - ENHANCED D

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				171	148	150	171	172				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00013								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0002								
CNO	mg/L				0.14								
SCN	mg/L				0.006	0.005	0.005	0.005	0.005				
Sulphate	mg/L				8.7	7.5	7.4	7.7	7.6				
Chloride	mg/L				82	80	78	83	84				
Total Ammonia	mg/L				0.036	0.057	0.016	0.017	0.017				
Nitrate	mg/L				0.03	0.07	0.09	0.10	0.11				
Nitrite	mg/L				0.022	0.004	0.009	0.004	0.004				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P	mg/L				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				50	46	46	47	47				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000067	0.0000062	0.0000055	0.0000056	0.0000056				
Calcium Ca	mg/L				24	20	19	19	19				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0007	0.0007	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.5	6.7	6.8	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni	mg/L				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P	mg/L				0.032	0.031	0.036	0.033	0.033				
Potassium K	mg/L				5.3	4.4	4.3	4.2	4.2				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.73	0.69	0.68	0.69	0.68				
Silver Ag	mg/L				0.0000082	0.0000083	0.0000082	0.0000085	0.0000085				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.044	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00051	0.00050	0.00051	0.00052	0.00052				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-2-b-B.2
Scenario 3 - ENHANCED D

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				173	158	169	201	212				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.005	0.004	0.003	0.003	0.003				
Sulphate	mg/L				7.4	6.3	6.1	6.4	6.3				
Chloride	mg/L				88	89	91	103	110				
Total Ammonia	mg/L				0.012	0.012	0.017	0.016	0.016				
Nitrate	mg/L				0.03	0.05	0.06	0.06	0.07				
Nitrite	mg/L				0.011	0.002	0.003	0.003	0.003				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P	mg/L				0.0276	0.0265	0.0315	0.0275	0.0273				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000060	0.0000056	0.0000050	0.0000052	0.0000052				
Calcium Ca	mg/L				20	17	17	17	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.031	0.035	0.031	0.031				
Potassium K	mg/L				4.6	3.8	3.7	3.7	3.6				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00056	0.00057				
Silicon SiO2	mg/L				0.68	0.65	0.64	0.65	0.65				
Silver Ag	mg/L				0.0000088	0.0000086	0.0000083	0.0000086	0.0000085				
Sodium Na	mg/L				39	37	42	44	48				
Strontium Sr	mg/L				0.043	0.043	0.037	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00054	0.00051	0.00050	0.00050	0.00050				
Titanium Ti	mg/L				0.0059	0.0060	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0039	0.0036	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-2-b-B.2
Scenario 3 - ENHANCED D

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				216	179	176	187	186				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.1	4.9	4.8	4.7				
Chloride	mg/L				113	100	94	93	92				
Total Ammonia	mg/L				0.008	0.013	0.017	0.016	0.016				
Nitrate	mg/L				0.03	0.05	0.05	0.06	0.06				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P	mg/L				0.0241	0.0235	0.0286	0.0237	0.0236				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.08				
Antimony Sb	mg/L				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00074	0.00056	0.00050	0.00044	0.00043				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000055	0.0000052	0.0000047	0.0000045	0.0000045				
Calcium Ca	mg/L				19	16	15	14	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000012	0.0000011	0.0000012				
Molybdenum Mo	mg/L				0.00044	0.00036	0.00037	0.00032	0.00032				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.028	0.026	0.031	0.026	0.026				
Potassium K	mg/L				4.0	3.3	3.2	3.0	3.0				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.64	0.62	0.61	0.59	0.59				
Silver Ag	mg/L				0.0000084	0.0000083	0.0000081	0.0000073	0.0000073				
Sodium Na	mg/L				58	47	47	43	43				
Strontium Sr	mg/L				0.042	0.043	0.037	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.0000004	0.0000004	0.0000004	0.0000004	0.0000004				
Tin Sn	mg/L				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000029	0.000034	0.000042	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0037	0.0033	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-2-b-B.2
Scenario 3 - ENHANCED D

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				177	150	150	170	167				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.4	3.9	3.9	4.1	3.9				
Chloride	mg/L				87	81	77	81	79				
Total Ammonia	mg/L				0.005	0.009	0.014	0.013	0.013				
Nitrate	mg/L				0.01	0.02	0.03	0.03	0.04				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P	mg/L				0.0202	0.0206	0.0261	0.0220	0.0217				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000040	0.0000039	0.0000034	0.0000035	0.0000034				
Calcium Ca	mg/L				14	12	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo	mg/L				0.00030	0.00026	0.00028	0.00026	0.00025				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.022	0.022	0.027	0.023	0.023				
Potassium K	mg/L				3.4	2.9	2.8	2.8	2.7				
Selenium Se	mg/L				0.00088	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.58	0.57	0.57	0.57	0.56				
Silver Ag	mg/L				0.0000059	0.0000062	0.0000060	0.0000063	0.0000058				
Sodium Na	mg/L				48	40	41	39	38				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0063	0.0062				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0002	0.0003	0.0003	0.0002				
Zinc Zn	mg/L				0.0013	0.0034	0.0030	0.0020	0.0020				
Zirconium Zr	mg/L				0.0049	0.0049	0.0050	0.0050	0.0050				

Table I-2-b-B.2
Scenario 3 - ENHANCED D

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				158	135	137	154	154				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.000				
Sulphate	mg/L				3.6	3.3	3.4	3.4	3.4				
Chloride	mg/L				75	71	68	71	71				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P	mg/L				0.0184	0.0193	0.0249	0.0204	0.0204				
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi	mg/L				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000035	0.0000029	0.0000028	0.0000028				
Calcium Ca	mg/L				11	10	10	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0029	0.0029	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00024	0.00021	0.00024	0.00021	0.00021				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.020	0.025	0.021	0.021				
Potassium K	mg/L				3.1	2.7	2.6	2.5	2.5				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.54	0.54				
Silver Ag	mg/L				0.0000053	0.0000056	0.0000053	0.0000048	0.0000047				
Sodium Na	mg/L				44	37	38	35	35				
Strontium Sr	mg/L				0.040	0.041	0.036	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000002	0.000002				
Tin Sn	mg/L				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-B.2
Scenario 3 - ENHANCED D

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				148	128	131	148	148				
TSS	mg/L				4.0	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.2	3.0	3.1	3.2	3.2				
Chloride	mg/L				68	66	64	67	67				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P	mg/L				0.0174	0.0185	0.0242	0.0198	0.0198				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000032	0.0000031	0.0000026	0.0000025	0.0000025				
Calcium Ca	mg/L				10	9	9	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00020	0.00019	0.00021	0.00019	0.00019				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.018	0.019	0.024	0.020	0.020				
Potassium K	mg/L				3.0	2.6	2.5	2.4	2.4				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.53	0.53				
Silver Ag	mg/L				0.0000047	0.0000051	0.0000049	0.0000044	0.0000043				
Sodium Na	mg/L				42	35	36	34	34				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti	mg/L				0.0062	0.0062	0.0063	0.0062	0.0062				
Uranium U	mg/L				0.000027	0.000031	0.000039	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-B.2
Scenario 3 - ENHANCED D

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				142	123	127	146	145				
TSS	mg/L				3.9	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.0	2.8	2.9	3.1	3.1				
Chloride	mg/L				64	63	61	65	65				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P	mg/L				0.0168	0.0181	0.0238	0.0196	0.0195				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				44	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.022				
Cadmium Cd	mg/L				0.0000029	0.0000029	0.0000024	0.0000024	0.0000024				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0029	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00018	0.00017	0.00020	0.00018	0.00018				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0004				
Phosphorus P	mg/L				0.017	0.018	0.024	0.019	0.019				
Potassium K	mg/L				2.9	2.5	2.5	2.4	2.4				
Selenium Se	mg/L				0.00088	0.00058	0.00062	0.00057	0.00057				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000041	0.0000046	0.0000045	0.0000046	0.0000043				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti	mg/L				0.0062	0.0062	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000033	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-B.2
Scenario 3 - ENHANCED D

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				140	121	125	143	143			
TSS	mg/L				3.9	5.7	5.9	6.8	6.8			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				2.9	2.7	2.9	3.0	3.0			
Chloride	mg/L				62	62	60	63	63			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				27	25	27	26	26			
OrthoPhosphate-P	mg/L				0.0011	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0166	0.0179	0.0236	0.0193	0.0193			
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0			
Hardness CaCO3	mg/L				44	42	42	43	43			
Total Metals												
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005			
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000028	0.0000028	0.0000023	0.0000023	0.0000023			
Calcium Ca	mg/L				9	8	8	7	7			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015			
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4			
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011			
Molybdenum Mo	mg/L				0.00017	0.00016	0.00019	0.00017	0.00017			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.016	0.018	0.023	0.019	0.019			
Potassium K	mg/L				2.8	2.4	2.4	2.4	2.4			
Selenium Se	mg/L				0.00088	0.00058	0.00063	0.00056	0.00056			
Silicon SiO2	mg/L				0.52	0.53	0.53	0.52	0.52			
Silver Ag	mg/L				0.0000040	0.0000045	0.0000044	0.0000040	0.0000039			
Sodium Na	mg/L				40	34	35	33	33			
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039			
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000029	0.000030			
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002			
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039			
Titanium Ti	mg/L				0.0062	0.0062	0.0063	0.0062	0.0062			
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000032	0.000032			
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002			
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017			
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049			

Table I-2-b-B.3
Scenario 3 - ENHANCED Degradation

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1073956	586904	257660	384118	135770				
TSS				29483	26699	11501	17154	5992				
Free CN				0.60	0.05	0.05	0.07	0.02				
Total CN				21	9	4	5	2				
WAD CN				0.81	0.07	0.07	0.09	0.03				
CNO				665	55	57	77	27				
SCN				9	6	3	5	2				
Sulphate				28611	18314	8584	12413	4649				
Chloride				468083	295283	123233	171437	61017				
Total Ammonia				143	209	44	77	27				
Nitrate				371	454	251	412	169				
Nitrite				83	25	18	15	6				
Alkalinity				206688	119301	53699	68141	23935				
OrthoPhosphate-P				17	12	6	9	3				
Phosphate-P				132	89	50	54	19				
Org. Carbon				40778	23698	14478	12543	4379				
Hardness CaCO3				342229	200983	84935	113548	39956				
Total Metals												
Aluminum Al				250	275	156	179	63				
Antimony Sb				3.4	4.6	5.9	1.9	0.7				
Arsenic As				3.8	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.09	0.04	0.06	0.02				
Bismuth Bi				0.92	0.99	0.55	0.85	0.35				
Boron B				253	104	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				84525	51177	22658	31216	11723				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.30	1.29	2.02	0.75	0.30				
Copper Cu				10	8	3	4	1				
Iron Fe				379	566	163	223	78				
Lead Pb				0.19	0.32	0.09	0.12	0.04				
Lithium Li				21	13	6	7	3				
Magnesium Mg				53966	30305	12948	16335	5728				
Manganese Mn				50	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.96	1.26	0.64	0.87	0.33				
Nickel Ni				3.73	3.14	1.18	1.54	0.56				
Phosphorus P				142	97	54	61	22				
Potassium K				24293	13560	5932	7916	2900				
Selenium Se				6.59	2.64	1.20	1.39	0.49				
Silicon SiO2				4141	2613	1126	1487	532				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				289400	152276	66908	80717	28310				
Strontium Sr				303	195	71	102	36				
Tellurium Te				370	230	97	125	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.02	1.94	0.84	1.10	0.39				
Titanium Ti				44	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.09	0.03				
Vanadium V				4.30	0.49	0.59	0.57	0.21				
Zinc Zn				8.69	15.69	6.16	5.40	1.97				
Zirconium Zr				37	23	10	13	4				

Table I-2-b-B.3
Scenario 3 - ENHANCED

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1220165	658674	285400	420123	147948				
TSS				29841	26873	11568	17241	6021				
Free CN				1.54		0.05	0.07	0.02				
Total CN				29	9	4	5	2				
WAD CN				2.06		0.07	0.09	0.03				
CNO				1699		58	76	26				
SCN				38	21	9	13	5				
Sulphate				55480	31510	13684	19031	6887				
Chloride				564931	342809	141595	195266	69076				
Total Ammonia				335	399	33	79	27				
Nitrate				369	504	270	448	180				
Nitrite				192	24	26	13	6				
Alkalinity				219476	125568	56119	71284	24998				
OrthoPhosphate-P				55	30	13	18	7				
Phosphate-P				170	108	57	64	23				
Org. Carbon				40852	23731	14490	12559	4385				
Hardness CaCO3				369674	214447	90137	120301	42240				
Total Metals												
Aluminum Al				261	280	158	182	64				
Antimony Sb				6.9	6.3	6.5	2.8	1.0				
Arsenic As				4.6	2.4	1.0	1.3	0.5				
Barium Ba				25	16	7	9	3				
Beryllium Be				0.26	0.15	0.07	0.09	0.03				
Bismuth Bi				4.27	2.63	1.18	1.68	0.62				
Boron B				259	107	47	58	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.01				
Calcium Ca				157237	86903	36468	49138	17785				
Chromium Cr				7	3	1	1	1				
Cobalt Co				4.35	2.79	2.60	1.51	0.55				
Copper Cu				12	9	3	5	2				
Iron Fe				389	571	165	226	79				
Lead Pb				0.30	0.37	0.11	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56099	31350	13351	16859	5905				
Manganese Mn				59	99	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.61	2.56	1.14	1.52	0.55				
Nickel Ni				6.10	4.31	1.63	2.12	0.76				
Phosphorus P				205	128	66	76	27				
Potassium K				36288	19454	8210	10872	3899				
Selenium Se				6.66	2.67	1.22	1.41	0.49				
Silicon SiO2				5179	3122	1323	1743	618				
Silver Ag				0.05	0.04	0.01	0.02	0.01				
Sodium Na				301047	157988	69115	83582	29279				
Strontium Sr				326	207	76	108	38				
Tellurium Te				370	230	97	125	44				
Thallium Tl				0.23	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.54	2.20	0.94	1.23	0.43				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.14	0.91	0.75	0.77	0.28				
Zinc Zn				15.33	18.96	7.42	7.03	2.53				
Zirconium Zr				37	23	10	13	4				

Table I-2-b-B.3
Scenario 3 - ENHANCED

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1300322	697522	299220	436673	153011				
TSS				30001	26945	11589	17259	6024				
Free CN				0.98								
Total CN				24	9	4	5	2				
WAD CN				1.31								
CNO				1077								
SCN				49	24	9	12	4				
Sulphate				65965	35656	14686	19545	6776				
Chloride				628689	376026	154662	212713	75121				
Total Ammonia				274	267	33	43	15				
Nitrate				236	342	170	259	99				
Nitrite				168	18	18	10	4				
Alkalinity				224269	127428	56526	71400	24887				
OrthoPhosphate-P				80	43	18	25	9				
Phosphate-P				195	121	62	71	25				
Org. Carbon				40952	23797	14519	12600	4400				
Hardness CaCO3				379716	218247	90921	120414	41950				
Total Metals												
Aluminum Al				267	283	158	183	64				
Antimony Sb				9.1	7.5	7.0	3.4	1.2				
Arsenic As				4.9	2.6	1.0	1.3	0.5				
Barium Ba				26	17	7	9	3				
Beryllium Be				0.33	0.18	0.08	0.11	0.04				
Bismuth Bi				6.45	3.77	1.63	2.27	0.83				
Boron B				262	109	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.01				
Calcium Ca				182881	96201	38181	48879	16801				
Chromium Cr				8	3	2	1	1				
Cobalt Co				5.47	3.20	2.69	1.52	0.52				
Copper Cu				13	9	3	5	2				
Iron Fe				393	573	166	226	79				
Lead Pb				0.35	0.40	0.12	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				57003	31733	13457	16940	5913				
Manganese Mn				62	100	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				5.54	2.90	1.20	1.51	0.52				
Nickel Ni				7.04	4.68	1.72	2.17	0.75				
Phosphorus P				241	145	72	84	30				
Potassium K				40505	20981	8489	10824	3735				
Selenium Se				6.70	2.69	1.22	1.42	0.49				
Silicon SiO2				5567	3268	1354	1749	608				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				305334	159620	69457	83643	29161				
Strontium Sr				335	210	76	108	38				
Tellurium Te				371	231	97	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.88	2.37	1.01	1.32	0.47				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.60	1.12	0.83	0.86	0.31				
Zinc Zn				17.88	19.95	7.65	7.13	2.48				
Zirconium Zr				38	23	10	13	4				

Table I-2-b-B.3
Scenario 3 - ENHANCED

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1316091	745342	336198	512442	188653				
TSS				29982	27023	11637	17334	6054				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				34	17	6	8	3				
Sulphate				56656	29974	12240	16246	5592				
Chloride				672180	418703	181111	262564	97524				
Total Ammonia				88	55	34	40	14				
Nitrate				231	244	116	160	60				
Nitrite				86	12	5	7	2				
Alkalinity				219552	124925	55549	70173	24476				
OrthoPhosphate-P				96	47	18	24	8				
Phosphate-P				211	125	63	70	24				
Org. Carbon				41238	23954	14584	12693	4433				
Hardness CaCO3				368526	212290	88579	117438	40947				
Total Metals												
Aluminum Al				266	289	162	189	66				
Antimony Sb				10.8	7.7	6.9	3.1	1.1				
Arsenic As				4.6	2.4	0.9	1.2	0.4				
Barium Ba				25	16	6	9	3				
Beryllium Be				0.36	0.19	0.07	0.10	0.03				
Bismuth Bi				8.14	4.00	1.54	2.02	0.69				
Boron B				262	109	47	59	21				
Cadmium Cd				0.05	0.03	0.01	0.01	0.00				
Calcium Ca				148759	80827	33292	44379	15911				
Chromium Cr				7	2	1	1	0				
Cobalt Co				4.16	2.48	2.39	1.13	0.39				
Copper Cu				12	9	3	5	2				
Iron Fe				392	580	169	232	81				
Lead Pb				0.34	0.38	0.11	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56558	31527	13378	16842	5879				
Manganese Mn				58	98	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.30	2.24	0.94	1.17	0.40				
Nickel Ni				6.26	4.20	1.51	1.90	0.65				
Phosphorus P				251	145	70	80	28				
Potassium K				34847	18029	7329	9333	3229				
Selenium Se				6.69	2.71	1.24	1.44	0.50				
Silicon SiO2				5157	3062	1274	1648	574				
Silver Ag				0.07	0.04	0.02	0.02	0.01				
Sodium Na				300688	174807	82729	111256	42294				
Strontium Sr				326	206	75	106	37				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.02	0.01	0.01	0.00				
Tin Sn				4.15	2.41	1.00	1.29	0.45				
Titanium Ti				45	29	12	16	5				
Uranium U				0.21	0.16	0.08	0.09	0.03				
Vanadium V				5.72	1.15	0.82	0.85	0.29				
Zinc Zn				15.46	18.57	7.08	6.38	2.22				
Zirconium Zr				38	23	10	13	4				

Table I-2-b-B.3
Scenario 3 - ENHANCED

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1649633	844341	350162	477954	165786				
TSS				30237	27156	11690	17323	6050				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				23	11	4	5	2				
Sulphate				45483	23970	9841	12218	4223				
Chloride				861833	471715	186704	236436	81855				
Total Ammonia				61	59	34	40	14				
Nitrate				231	215	107	140	53				
Nitrite				19	13	6	7	2				
Alkalinity				216162	123072	54813	68410	23877				
OrthoPhosphate-P				67	32	12	14	5				
Phosphate-P				184	111	57	60	21				
Org. Carbon				41509	24095	14641	12662	4422				
Hardness CaCO3				360257	207793	86790	113734	39688				
Total Metals												
Aluminum Al				285	299	166	191	67				
Antimony Sb				8.2	6.3	6.3	2.2	0.8				
Arsenic As				4.4	2.3	0.9	1.1	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.30	0.15	0.06	0.07	0.02				
Bismuth Bi				5.64	2.65	1.00	1.13	0.39				
Boron B				263	109	47	58	20				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				146558	74925	29424	34556	11916				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.99	1.85	2.14	0.71	0.24				
Copper Cu				11	8	3	4	1				
Iron Fe				412	590	174	234	82				
Lead Pb				0.30	0.36	0.11	0.13	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56154	31303	13288	16560	5783				
Manganese Mn				55	97	27	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				3.33	1.72	0.73	0.82	0.28				
Nickel Ni				5.30	3.69	1.31	1.54	0.53				
Phosphorus P				212	125	62	66	23				
Potassium K				30661	15779	6430	7776	2700				
Selenium Se				6.77	2.76	1.25	1.45	0.51				
Silicon SiO2				4871	2908	1212	1516	529				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				439549	222767	93396	109606	38034				
Strontium Sr				320	202	73	103	36				
Tellurium Te				376	233	98	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.79	2.22	0.92	1.15	0.40				
Titanium Ti				47	29	12	16	6				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.42	0.99	0.76	0.70	0.24				
Zinc Zn				13.07	17.28	6.56	5.46	1.91				
Zirconium Zr				38	24	10	13	4				

Table I-2-b-B.3
Scenario 3 - ENHANCED

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1348988	706899	298900	433395	148496				
TSS				30130	27104	11670	17381	6056				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				12	6	2	3	1				
Sulphate				33344	18395	7756	10360	3510				
Chloride				663314	380959	152853	207156	70462				
Total Ammonia				38	44	28	33	12				
Nitrate				43	96	57	86	33				
Nitrite				15	11	4	5	2				
Alkalinity				210537	120486	53843	67953	23617				
OrthoPhosphate-P				37	18	7	9	3				
Phosphate-P				154	98	52	56	19				
Org. Carbon				41323	24005	14607	12727	4427				
Hardness CaCO3				348734	202509	84813	112518	39109				
Total Metals												
Aluminum Al				284	298	166	193	67				
Antimony Sb				5.5	5.1	5.9	1.8	0.6				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.19	0.10	0.04	0.05	0.02				
Bismuth Bi				2.99	1.44	0.55	0.72	0.23				
Boron B				259	108	47	58	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				105469	56097	22395	28301	9516				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.70	1.26	1.92	0.51	0.17				
Copper Cu				10	8	3	4	1				
Iron Fe				415	591	174	238	83				
Lead Pb				0.22	0.32	0.09	0.11	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55187	30852	13118	16507	5742				
Manganese Mn				52	95	26	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.29	1.24	0.56	0.67	0.22				
Nickel Ni				4.20	3.18	1.12	1.38	0.47				
Phosphorus P				167	103	54	59	20				
Potassium K				25994	13643	5633	7107	2435				
Selenium Se				6.74	2.74	1.25	1.45	0.51				
Silicon SiO2				4401	2683	1127	1456	502				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				368595	190314	81290	99399	34005				
Strontium Sr				311	198	72	102	36				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.37	2.02	0.85	1.09	0.38				
Titanium Ti				47	29	12	16	6				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				4.91	0.75	0.67	0.64	0.22				
Zinc Zn				10.20	15.95	6.06	5.04	1.75				
Zirconium Zr				38	23	10	13	4				

Table I-2-b-B.3
Scenario 3 - ENHANCED

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1208037	640342	273705	392674	136850				
TSS				30133	27107	11671	17303	6043				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				7	3	1	1	0				
Sulphate				27718	15715	6735	8744	3042				
Chloride				570344	337059	136236	180144	62754				
Total Ammonia				38	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				15	9	4	5	2				
Alkalinity				208170	119375	53425	66867	23353				
OrthoPhosphate-P				23	12	5	5	2				
Phosphate-P				140	91	50	52	18				
Org. Carbon				41302	23998	14604	12622	4409				
Hardness CaCO3				343689	200134	83917	110534	38602				
Total Metals												
Aluminum Al				288	299	166	190	67				
Antimony Sb				4.2	4.5	5.6	1.4	0.5				
Arsenic As				3.8	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.15	0.07	0.03	0.04	0.01				
Bismuth Bi				1.74	0.84	0.32	0.37	0.13				
Boron B				259	107	47	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				86269	46990	18936	22838	7936				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.11	0.97	1.81	0.34	0.12				
Copper Cu				10	7	3	4	1				
Iron Fe				420	593	175	236	83				
Lead Pb				0.20	0.31	0.08	0.10	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54818	30676	13051	16295	5692				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.80	1.01	0.47	0.53	0.18				
Nickel Ni				3.71	2.94	1.03	1.23	0.43				
Phosphorus P				147	93	50	53	18				
Potassium K				23827	12620	5245	6454	2251				
Selenium Se				6.76	2.74	1.25	1.44	0.50				
Silicon SiO2				4222	2591	1090	1377	481				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				335557	174720	75387	89521	31218				
Strontium Sr				307	196	71	100	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.18	1.93	0.81	1.03	0.36				
Titanium Ti				47	29	12	16	6				
Uranium U				0.21	0.15	0.08	0.08	0.03				
Vanadium V				4.72	0.65	0.63	0.55	0.19				
Zinc Zn				8.93	15.33	5.82	4.63	1.63				
Zirconium Zr				38	23	10	13	4				

Table I-2-b-B.3
Scenario 3 - ENHANCED

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1131301	604436	260169	377448	131677				
TSS				30150	27116	11675	17306	6044				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				4	2	1	1	0				
Sulphate				24580	14245	6181	8121	2831				
Chloride				519760	313389	127314	170108	59344				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				206962	118815	53216	66627	23272				
OrthoPhosphate-P				15	8	3	4	1				
Phosphate-P				133	88	48	50	18				
Org. Carbon				41310	24003	14607	12623	4409				
Hardness CaCO3				341047	198903	83456	110009	38424				
Total Metals												
Aluminum Al				289	300	166	191	67				
Antimony Sb				3.5	4.1	5.5	1.3	0.5				
Arsenic As				3.7	1.9	0.7	0.9	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.12	0.06	0.03	0.03	0.01				
Bismuth Bi				1.05	0.52	0.20	0.24	0.08				
Boron B				258	107	46	57	20				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				75673	42030	17066	20736	7222				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.78	0.82	1.75	0.27	0.09				
Copper Cu				9	7	3	4	1				
Iron Fe				422	594	175	236	83				
Lead Pb				0.17	0.30	0.08	0.10	0.03				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54625	30587	13018	16256	5679				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.53	0.89	0.42	0.48	0.17				
Nickel Ni				3.43	2.81	0.98	1.17	0.41				
Phosphorus P				135	88	48	50	18				
Potassium K				22650	12069	5038	6221	2172				
Selenium Se				6.76	2.74	1.25	1.44	0.50				
Silicon SiO2				4106	2537	1070	1354	473				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				317634	166338	72228	85964	30010				
Strontium Sr				305	195	71	100	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.07	1.88	0.79	1.01	0.35				
Titanium Ti				47	30	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.59	0.59	0.61	0.53	0.19				
Zinc Zn				8.20	14.99	5.69	4.49	1.58				
Zirconium Zr				38	23	10	13	4				

Table I-2-b-B.3
Scenario 3 - ENHANCED

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1084533	583016	252171	371986	129241				
TSS				30085	27083	11662	17371	6053				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				2	1	0	0	0				
Sulphate				22703	13388	5861	7867	2727				
Chloride				488787	299202	122015	166630	57754				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205842	118288	53015	66865	23276				
OrthoPhosphate-P				11	6	2	3	1				
Phosphate-P				128	85	47	50	17				
Org. Carbon				41221	23958	14589	12704	4420				
Hardness CaCO3				338932	197919	83082	110244	38396				
Total Metals												
Aluminum Al				287	298	166	193	67				
Antimony Sb				3.1	3.9	5.4	1.2	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				0.64	0.34	0.13	0.17	0.06				
Boron B				257	107	46	57	20				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				69344	39137	15987	19874	6871				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.58	0.73	1.72	0.25	0.08				
Copper Cu				9	7	3	4	1				
Iron Fe				421	593	175	239	83				
Lead Pb				0.16	0.29	0.08	0.10	0.03				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54411	30485	12979	16323	5684				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.37	0.81	0.39	0.46	0.16				
Nickel Ni				3.26	2.73	0.95	1.15	0.40				
Phosphorus P				128	85	47	49	17				
Potassium K				21908	11728	4910	6157	2137				
Selenium Se				6.74	2.74	1.24	1.45	0.50				
Silicon SiO2				4018	2496	1054	1360	472				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				306393	161176	70299	84955	29476				
Strontium Sr				303	194	70	100	35				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.01	1.85	0.78	1.00	0.35				
Titanium Ti				47	29	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.50	0.55	0.59	0.54	0.18				
Zinc Zn				7.72	14.77	5.61	4.45	1.56				
Zirconium Zr				37	23	10	13	4				

Table I-2-b-B.3
Scenario 3 - ENHANCED

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1063722	573231	248476	364428	127259				
TSS				30108	27096	11667	17298	6042				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				1	0	0	0	0				
Sulphate				21843	12983	5708	7594	2652				
Chloride				475104	292769	119586	161504	56424				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205608	118185	52978	66365	23183				
OrthoPhosphate-P				9	5	2	2	1				
Phosphate-P				126	84	47	49	17				
Org. Carbon				41246	23972	14595	12611	4405				
Hardness CaCO3				338340	197648	82983	109487	38247				
Total Metals												
Aluminum Al				288	299	166	190	67				
Antimony Sb				2.9	3.9	5.4	1.2	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.09	0.05	0.02	0.02	0.01				
Bismuth Bi				0.45	0.25	0.10	0.12	0.04				
Boron B				257	107	46	57	20				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				66440	37768	15469	18957	6618				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.49	0.69	1.70	0.22	0.08				
Copper Cu				9	7	3	4	1				
Iron Fe				422	594	175	236	83				
Lead Pb				0.15	0.29	0.08	0.09	0.03				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54382	30474	12975	16209	5663				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.30	0.78	0.38	0.43	0.15				
Nickel Ni				3.18	2.70	0.94	1.12	0.39				
Phosphorus P				125	83	46	48	17				
Potassium K				21594	11582	4855	6017	2103				
Selenium Se				6.75	2.74	1.25	1.43	0.50				
Silicon SiO2				3991	2484	1050	1332	466				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				301610	158935	69453	82877	28962				
Strontium Sr				302	194	70	100	35				
Tellurium Te				373	232	98	125	44				
Thallium Tl				0.22	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				2.98	1.84	0.78	0.99	0.35				
Titanium Ti				47	30	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.47	0.54	0.59	0.50	0.18				
Zinc Zn				7.53	14.68	5.58	4.36	1.54				
Zirconium Zr				37	23	10	13	4				

Table I-2-b-C.1
Scenario 3 - ENHANCED Degradation

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate		1000000 m3/year					
Degradation Enhanced		Tail Lk Cu < CME Year		8			
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.7	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1051	113	91	
Total Ammonia	mg/L		0.97	1.31	0.084	0.045	9%
Nitrate	mg/L		2.9	3.6	0.20	0.11	7%
Nitrite	mg/L		0.018	0.40	0.025	0.014	138%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0315	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.14	0.08	0.25	83%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00071	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.034	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000067	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.15	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000107	0.0000012	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.305	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00081	0.00089	0.00084	89%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000088	0.0000073	9%
Sodium Na	mg/L			386	58	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.002001	4%
Thorium Th	mg/L			0.000057	0.0000044	0.0000023	
Tin Sn	mg/L			0.00296	0.00054	0.00009	
Titanium Ti	mg/L			0.0115	0.0063	0.0063	
Uranium U	mg/L			0.000081	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0045	0.0050	0.0051	

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake Outflow

Date		Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1
		Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08
Parameter												
TDS	mg/L				155	155	146	167	168			
TSS	mg/L				7.0	8.1	4.1	5.1	5.1			
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001			
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000			
CNO	mg/L				0.05	0.01	0.01	0.02	0.02			
SCN	mg/L				0.001	0.001	0.001	0.001	0.001			
Sulphate	mg/L				4.3	4.4	5.5	5.5	5.7			
Chloride	mg/L				63	61	60	69	70			
Total Ammonia	mg/L				0.012	0.024	0.005	0.016	0.016			
Nitrate	mg/L				0.03	0.05	0.06	0.09	0.10			
Nitrite	mg/L				0.007	0.004	0.004	0.004	0.005			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0018	0.0019	0.0021	0.0024	0.0027			
Phosphate-P	mg/L				0.0249	0.0170	0.0082	0.0205	0.0208			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	46	46			
Total Metals												
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0005	0.0005			
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00002			
Bismuth Bi	mg/L				0.00015	0.00019	0.00023	0.00026	0.00029			
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000031	0.0000048	0.0000155	0.0000031	0.0000032			
Calcium Ca	mg/L				9	8	9	10	11			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002			
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0020	0.0020			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.3			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007			
Molybdenum Mo	mg/L				0.00024	0.00023	0.00031	0.00029	0.00031			
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007			
Phosphorus P	mg/L				0.026	0.018	0.009	0.022	0.022			
Potassium K	mg/L				3.0	2.5	2.5	2.9	3.0			
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060			
Silicon SiO2	mg/L				0.54	0.54	0.55	0.56	0.56			
Silver Ag	mg/L				0.0000053	0.0000030	0.0000057	0.0000042	0.0000043			
Sodium Na	mg/L				38	32	34	37	37			
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.047			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00003	0.00003			
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061			
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044			
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0054	0.0054			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				164	163	153	174	175				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00010		0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001		0.0000	0.0000	0.0000				
CNO	mg/L				0.12		0.02	0.02	0.02				
SCN	mg/L				0.003	0.002	0.002	0.003	0.003				
Sulphate	mg/L				6.2	5.8	6.8	6.8	7.0				
Chloride	mg/L				70	66	65	74	75				
Total Ammonia	mg/L				0.025	0.045	0.002	0.017	0.016				
Nitrate	mg/L				0.03	0.06	0.07	0.09	0.11				
Nitrite	mg/L				0.014	0.004	0.006	0.004	0.005				
Alkalinity	mg/L				24	24	25	27	27				
OrthoPhosphate-P	mg/L				0.0044	0.0039	0.0040	0.0043	0.0045				
Phosphate-P	mg/L				0.0275	0.0190	0.0101	0.0224	0.0226				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0020	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00038	0.00037	0.00039	0.00043	0.00045				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000042	0.0000057	0.0000163	0.0000039	0.0000040				
Calcium Ca	mg/L				14	12	12	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.009				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00042	0.00037	0.00044	0.00043	0.00044				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.030	0.021	0.012	0.025	0.025				
Potassium K	mg/L				3.8	3.1	3.1	3.5	3.6				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.60	0.60	0.61	0.62				
Silver Ag	mg/L				0.0000064	0.0000039	0.0000064	0.0000050	0.0000051				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000002				
Tin Sn	mg/L				0.00004	0.00004	0.00005	0.00005	0.00006				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				170	167	157	178	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00007								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.07								
SCN	mg/L				0.003	0.003	0.002	0.003	0.002				
Sulphate	mg/L				6.9	6.3	7.1	6.9	6.9				
Chloride	mg/L				74	70	69	78	78				
Total Ammonia	mg/L				0.021	0.030	0.002	0.009	0.010				
Nitrate	mg/L				0.02	0.04	0.04	0.06	0.06				
Nitrite	mg/L				0.012	0.003	0.004	0.003	0.003				
Alkalinity	mg/L				25	25	25	27	27				
OrthoPhosphate-P	mg/L				0.0061	0.0054	0.0053	0.0057	0.0059				
Phosphate-P	mg/L				0.0292	0.0205	0.0114	0.0238	0.0240				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				47	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00052	0.00050	0.00051	0.00055	0.00057				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000047	0.0000059	0.0000164	0.0000039	0.0000039				
Calcium Ca	mg/L				16	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0016	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	5.3	5.4	7.4	7.4				
Manganese Mn	mg/L				0.025	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00048	0.00041	0.00046	0.00042	0.00042				
Nickel Ni	mg/L				0.0009	0.0007	0.0009	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.023	0.014	0.026	0.027				
Potassium K	mg/L				4.1	3.3	3.2	3.5	3.5				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.63	0.61	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000071	0.0000043	0.0000068	0.0000053	0.0000053				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000002	0.000002				
Tin Sn	mg/L				0.00007	0.00006	0.00007	0.00007	0.00008				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0042	0.0023	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				171	172	166	193	199				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.2	5.6	6.4	6.3	6.2				
Chloride	mg/L				77	74	75	88	91				
Total Ammonia	mg/L				0.009	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.02	0.03	0.03	0.04	0.04				
Nitrite	mg/L				0.007	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0071	0.0058	0.0054	0.0055	0.0054				
Phosphate-P	mg/L				0.0302	0.0210	0.0116	0.0237	0.0236				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0010	0.0021	0.0016	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00064	0.00052	0.00049	0.00050	0.00049				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000043	0.0000056	0.0000161	0.0000037	0.0000037				
Calcium Ca	mg/L				14	12	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00039	0.00033	0.00039	0.00036	0.00035				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.023	0.014	0.026	0.026				
Potassium K	mg/L				3.7	3.0	2.9	3.2	3.2				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.59	0.59	0.59	0.59				
Silver Ag	mg/L				0.0000073	0.0000045	0.0000069	0.0000054	0.0000053				
Sodium Na	mg/L				39	34	38	43	45				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00009	0.00007	0.00006	0.00007	0.00006				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0021	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 5	Year 5	Year 5	Year 5	Year 5	Year 5	Year 5	Year 5	Year 5	Year 5	Year 5
		Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12
Parameter												
TDS	mg/L				194	183	170	186	186			
TSS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.002	0.001	0.001	0.001	0.001			
Sulphate	mg/L				5.5	5.0	5.8	5.5	5.4			
Chloride	mg/L				90	80	77	82	82			
Total Ammonia	mg/L				0.007	0.008	0.002	0.009	0.009			
Nitrate	mg/L				0.02	0.03	0.02	0.03	0.03			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0052	0.0042	0.0038	0.0035	0.0034			
Phosphate-P	mg/L				0.0284	0.0194	0.0101	0.0217	0.0217			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				45	40	42	46	46			
Total Metals												
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0008	0.0020	0.0014	0.0008	0.0008			
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005			
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043			
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002			
Bismuth Bi	mg/L				0.00047	0.00038	0.00035	0.00031	0.00031			
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000041	0.0000054	0.0000159	0.0000033	0.0000033			
Calcium Ca	mg/L				14	11	11	11	11			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002			
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0020			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009			
Molybdenum Mo	mg/L				0.00033	0.00028	0.00034	0.00029	0.00028			
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0007			
Phosphorus P	mg/L				0.030	0.021	0.011	0.023	0.023			
Potassium K	mg/L				3.4	2.7	2.7	2.9	2.9			
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061			
Silicon SiO2	mg/L				0.59	0.57	0.57	0.56	0.56			
Silver Ag	mg/L				0.0000071	0.0000043	0.0000067	0.0000047	0.0000047			
Sodium Na	mg/L				48	39	41	43	42			
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002			
Tin Sn	mg/L				0.00006	0.00005	0.00004	0.00004	0.00004			
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063			
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045			
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004			
Zinc Zn	mg/L				0.0039	0.0020	0.0018	0.0054	0.0054			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				173	168	157	177	176				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.7	4.4	5.3	5.1	5.0				
Chloride	mg/L				76	70	68	77	75				
Total Ammonia	mg/L				0.005	0.006	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.01	0.02	0.02				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0032	0.0026	0.0025	0.0025	0.0024				
Phosphate-P	mg/L				0.0264	0.0179	0.0088	0.0209	0.0207				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0042				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00029	0.00024	0.00023	0.00023	0.00022				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000033	0.0000047	0.0000153	0.0000028	0.0000028				
Calcium Ca	mg/L				11	9	9	10	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00026	0.00023	0.00029	0.00025	0.00025				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.019	0.009	0.021	0.021				
Potassium K	mg/L				3.1	2.5	2.4	2.8	2.7				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00062	0.00061				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000058	0.0000032	0.0000057	0.0000042	0.0000039				
Sodium Na	mg/L				43	36	38	40	40				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00003	0.00003	0.00002	0.00003	0.00002				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				164	161	150	169	169				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.3	4.1	5.0	4.8	4.8				
Chloride	mg/L				70	65	64	71	71				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0022	0.0019	0.0018	0.0017	0.0017				
Phosphate-P	mg/L				0.0255	0.0172	0.0082	0.0200	0.0200				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00020	0.00018	0.00017	0.00016	0.00016				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000045	0.0000150	0.0000025	0.0000025				
Calcium Ca	mg/L				9	8	8	9	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.2	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00023	0.00020	0.00027	0.00023	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.4	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000056	0.0000029	0.0000053	0.0000034	0.0000034				
Sodium Na	mg/L				41	34	36	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				158	157	147	166	166				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.1	3.9	4.9	4.6	4.6				
Chloride	mg/L				67	63	62	69	69				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0015	0.0015	0.0014	0.0014				
Phosphate-P	mg/L				0.0250	0.0169	0.0078	0.0197	0.0197				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00016	0.00014	0.00014	0.00013	0.00013				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000029	0.0000043	0.0000149	0.0000023	0.0000023				
Calcium Ca	mg/L				9	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00021	0.00019	0.00026	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000052	0.0000026	0.0000051	0.0000032	0.0000032				
Sodium Na	mg/L				40	33	35	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				155	155	144	165	164				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.9	3.8	4.8	4.6	4.6				
Chloride	mg/L				65	61	60	68	68				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0013	0.0013	0.0012				
Phosphate-P	mg/L				0.0247	0.0166	0.0076	0.0196	0.0196				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00013	0.00012	0.00012	0.00012	0.00012				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000027	0.0000042	0.0000148	0.0000023	0.0000023				
Calcium Ca	mg/L				8	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00025	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.007	0.019	0.019				
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000049	0.0000024	0.0000049	0.0000033	0.0000031				
Sodium Na	mg/L				39	32	35	38	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-2-b-C.2
Scenario 3 - ENHANCED Degradation

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				154	154	143	163	163			
TSS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.9	3.8	4.8	4.5	4.5			
Chloride	mg/L				64	60	59	67	67			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0012	0.0012	0.0012	0.0011	0.0011			
Phosphate-P	mg/L				0.0245	0.0165	0.0075	0.0195	0.0195			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00012	0.00011	0.00011	0.00011	0.00011			
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000027	0.0000042	0.0000147	0.0000022	0.0000022			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009			
Molybdenum Mo	mg/L				0.00019	0.00017	0.00025	0.00021	0.00021			
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.8	2.3	2.2	2.5	2.5			
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061			
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53			
Silver Ag	mg/L				0.0000049	0.0000024	0.0000049	0.0000030	0.0000030			
Sodium Na	mg/L				39	32	35	37	37			
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063			
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000044	0.000044			
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-2-b-C.3
Scenario 3 - ENHANCED Degradation

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	151	153				
TSS				3.9	5.6	5.8	6.7	6.7				
Free CN				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.09	0.01	0.03	0.03	0.03				
SCN				0.001	0.001	0.002	0.002	0.002				
Sulphate				3.8	3.9	4.3	4.9	5.2				
Chloride				61	62	62	67	69				
Total Ammonia				0.019	0.044	0.022	0.030	0.030				
Nitrate				0.05	0.10	0.13	0.16	0.19				
Nitrite				0.011	0.005	0.009	0.006	0.007				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi				0.00012	0.00021	0.00028	0.00033	0.00039				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000040	0.0000038	0.0000040	0.0000043				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000008	0.0000008				
Molybdenum Mo				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.021	0.027	0.024	0.025				
Potassium K				3.2	2.9	3.0	3.1	3.3				
Selenium Se				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2				0.54	0.55	0.57	0.58	0.60				
Silver Ag				0.0000049	0.0000058	0.0000060	0.0000064	0.0000065				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000020	0.0000022	0.0000023	0.0000025				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-C.3
Scenario 3 - ENHANCED

Loadings in Little Robert **Loadings in Little Roberts Creek Outflow (kg/month)**

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				160	139	143	165	166				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00020		0.00003	0.00003	0.00003				
Total CN				0.004	0.002	0.002	0.002	0.002				
WAD CN				0.0003		0.0000	0.0000	0.0000				
CNO				0.22		0.03	0.03	0.03				
SCN				0.005	0.004	0.004	0.005	0.005				
Sulphate				7.3	6.7	6.9	7.5	7.7				
Chloride				74	73	71	77	78				
Total Ammonia				0.044	0.084	0.016	0.031	0.030				
Nitrate				0.05	0.11	0.14	0.18	0.20				
Nitrite				0.025	0.005	0.013	0.005	0.007				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000059	0.0000057	0.0000053	0.0000056	0.0000058				
Calcium Ca				21	18	18	19	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P				0.027	0.027	0.033	0.030	0.030				
Potassium K				4.8	4.1	4.1	4.3	4.4				
Selenium Se				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2				0.68	0.66	0.66	0.68	0.69				
Silver Ag				0.0000070	0.0000074	0.0000075	0.0000079	0.0000080				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.043				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000023	0.0000026	0.0000028	0.0000029	0.0000030				
Tin Sn				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-C.3
Scenario 3 - ENHANCED

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				171	148	150	171	172				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00013								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0002								
CNO				0.14								
SCN				0.006	0.005	0.005	0.005	0.005				
Sulphate				8.7	7.5	7.4	7.7	7.6				
Chloride				82	80	78	83	84				
Total Ammonia				0.036	0.057	0.016	0.017	0.017				
Nitrate				0.03	0.07	0.09	0.10	0.11				
Nitrite				0.022	0.004	0.009	0.004	0.004				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				50	46	46	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000067	0.0000062	0.0000055	0.0000056	0.0000056				
Calcium Ca				24	20	19	19	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0007	0.0007	0.0013	0.0006	0.0006				
Copper Cu				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.5	6.7	6.8	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P				0.032	0.031	0.036	0.033	0.033				
Potassium K				5.3	4.4	4.3	4.2	4.2				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.73	0.69	0.68	0.69	0.68				
Silver Ag				0.0000082	0.0000083	0.0000082	0.0000085	0.0000085				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.044	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000028	0.0000028	0.0000029	0.0000030	0.0000030				
Tin Sn				0.00051	0.00050	0.00051	0.00052	0.00052				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-2-b-C.3
Scenario 3 - ENHANCED

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				173	158	169	201	212				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.005	0.004	0.003	0.003	0.003				
Sulphate				7.4	6.3	6.1	6.4	6.3				
Chloride				88	89	91	103	110				
Total Ammonia				0.012	0.012	0.017	0.016	0.016				
Nitrate				0.03	0.05	0.06	0.06	0.07				
Nitrite				0.011	0.002	0.003	0.003	0.003				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P				0.0276	0.0265	0.0315	0.0275	0.0273				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000060	0.0000056	0.0000050	0.0000052	0.0000052				
Calcium Ca				20	17	17	17	18				
Chromium Cr				0.001	0.001	0.001	0.000	0.000				
Cobalt Co				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P				0.033	0.031	0.035	0.031	0.031				
Potassium K				4.6	3.8	3.7	3.7	3.6				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00057				
Silicon SiO2				0.68	0.65	0.64	0.65	0.65				
Silver Ag				0.0000088	0.0000086	0.0000083	0.0000086	0.0000085				
Sodium Na				39	37	42	44	48				
Strontium Sr				0.043	0.043	0.037	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000030	0.0000034	0.0000037	0.0000039	0.0000040				
Tin Sn				0.00054	0.00051	0.00050	0.00050	0.00050				
Titanium Ti				0.0059	0.0060	0.0061	0.0061	0.0061				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0039	0.0036	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-2-b-C.3
Scenario 3 - ENHANCED

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				216	179	176	187	186				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.002	0.002	0.002	0.002				
Sulphate				6.0	5.1	4.9	4.8	4.7				
Chloride				113	100	94	93	92				
Total Ammonia				0.008	0.013	0.017	0.016	0.016				
Nitrate				0.03	0.05	0.05	0.06	0.06				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P				0.0241	0.0235	0.0286	0.0237	0.0236				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.08				
Antimony Sb				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00074	0.00056	0.00050	0.00044	0.00043				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000055	0.0000052	0.0000047	0.0000045	0.0000045				
Calcium Ca				19	16	15	14	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000012	0.0000011	0.0000012				
Molybdenum Mo				0.00044	0.00036	0.00037	0.00032	0.00032				
Nickel Ni				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.028	0.026	0.031	0.026	0.026				
Potassium K				4.0	3.3	3.2	3.0	3.0				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.64	0.62	0.61	0.59	0.59				
Silver Ag				0.0000084	0.0000083	0.0000081	0.0000073	0.0000073				
Sodium Na				58	47	47	43	43				
Strontium Sr				0.042	0.043	0.037	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000040	0.0000042	0.0000044	0.0000042	0.0000044				
Tin Sn				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U				0.000029	0.000034	0.000042	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0017	0.0037	0.0033	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-2-b-C.3
Scenario 3 - ENHANCED

Loadings in Little Robert **Loadings in Little Roberts Creek Outflow (kg/month)**

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				177	150	150	170	167				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.4	3.9	3.9	4.1	3.9				
Chloride				87	81	77	81	79				
Total Ammonia				0.005	0.009	0.014	0.013	0.013				
Nitrate				0.01	0.02	0.03	0.03	0.04				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P				0.0202	0.0206	0.0261	0.0220	0.0217				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000040	0.0000039	0.0000034	0.0000035	0.0000034				
Calcium Ca				14	12	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.5	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo				0.00030	0.00026	0.00028	0.00026	0.00025				
Nickel Ni				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.022	0.022	0.027	0.023	0.023				
Potassium K				3.4	2.9	2.8	2.8	2.7				
Selenium Se				0.00088	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.58	0.57	0.57	0.57	0.56				
Silver Ag				0.0000059	0.0000062	0.0000060	0.0000063	0.0000058				
Sodium Na				48	40	41	39	38				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000026	0.0000028	0.0000030	0.0000032	0.0000031				
Tin Sn				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti				0.0061	0.0062	0.0062	0.0063	0.0062				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0002	0.0003	0.0003	0.0002				
Zinc Zn				0.0013	0.0034	0.0030	0.0020	0.0020				
Zirconium Zr				0.0049	0.0049	0.0050	0.0050	0.0050				

Table I-2-b-C.3
Scenario 3 - ENHANCED

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				158	135	137	154	154				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.000				
Sulphate				3.6	3.3	3.4	3.4	3.4				
Chloride				75	71	68	71	71				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P				0.0184	0.0193	0.0249	0.0204	0.0204				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000035	0.0000029	0.0000028	0.0000028				
Calcium Ca				11	10	10	9	9				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0029	0.0029	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.6	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00024	0.00021	0.00024	0.00021	0.00021				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.020	0.025	0.021	0.021				
Potassium K				3.1	2.7	2.6	2.5	2.5				
Selenium Se				0.00089	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2				0.55	0.55	0.55	0.54	0.54				
Silver Ag				0.0000053	0.0000056	0.0000053	0.0000048	0.0000047				
Sodium Na				44	37	38	35	35				
Strontium Sr				0.040	0.041	0.036	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000028	0.0000026	0.0000026	0.0000024	0.0000024				
Tin Sn				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-C.3
Scenario 3 - ENHANCED

Loadings in Little Robert **Loadings in Little Roberts Creek Outflow (kg/month)**

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				148	128	131	148	148				
TSS				4.0	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.2	3.0	3.1	3.2	3.2				
Chloride				68	66	64	67	67				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P				0.0174	0.0185	0.0242	0.0198	0.0198				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000032	0.0000031	0.0000026	0.0000025	0.0000025				
Calcium Ca				10	9	9	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00020	0.00019	0.00021	0.00019	0.00019				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.024	0.020	0.020				
Potassium K				3.0	2.6	2.5	2.4	2.4				
Selenium Se				0.00089	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2				0.54	0.54	0.54	0.53	0.53				
Silver Ag				0.0000047	0.0000051	0.0000049	0.0000044	0.0000043				
Sodium Na				42	35	36	34	34				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000023	0.0000023	0.0000023	0.0000021	0.0000021				
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0062	0.0062	0.0063	0.0062	0.0062				
Uranium U				0.000027	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-C.3
Scenario 3 - ENHANCED

Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

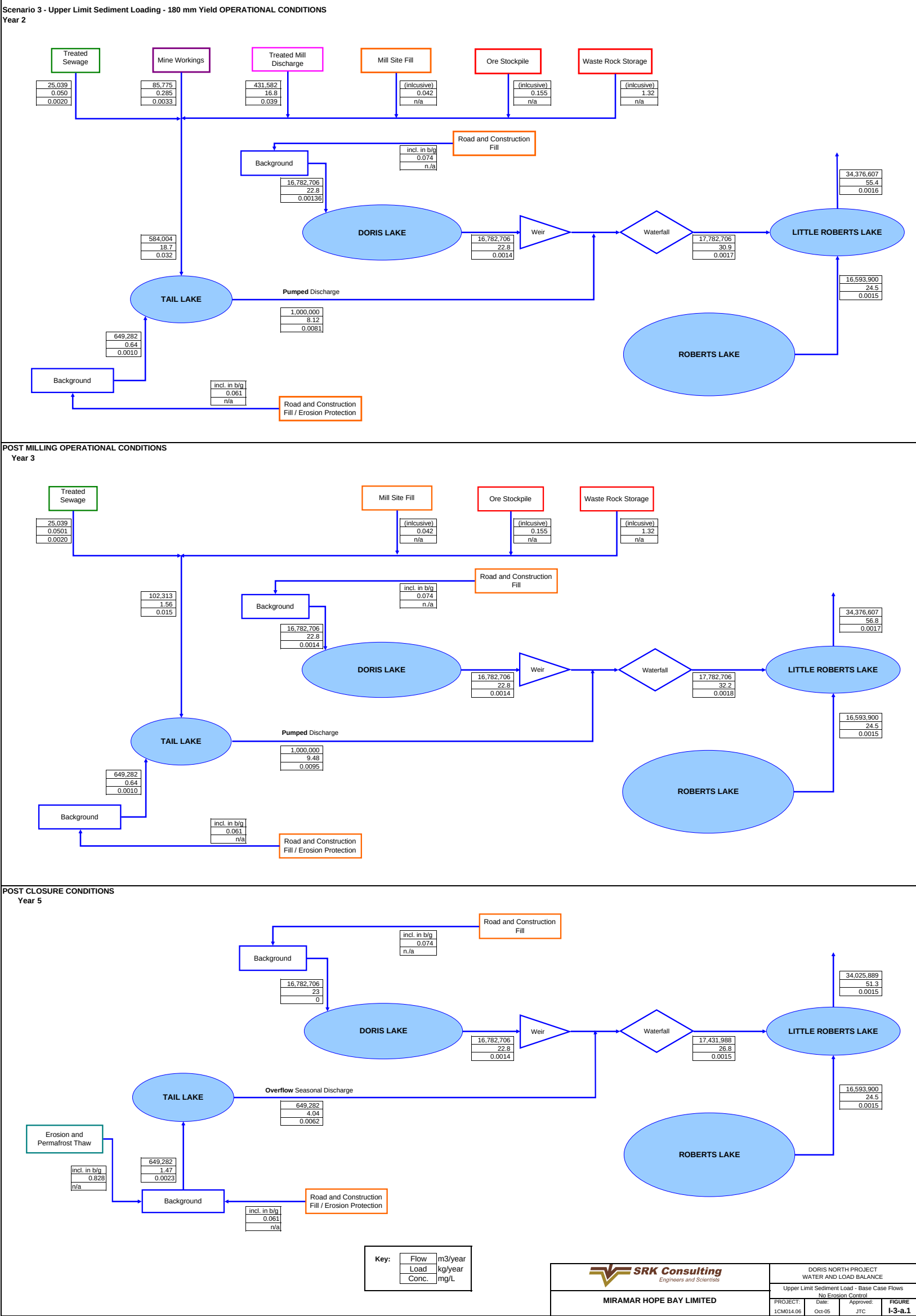
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				142	123	127	146	145				
TSS				3.9	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.0	2.8	2.9	3.1	3.1				
Chloride				64	63	61	65	65				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P				0.0168	0.0181	0.0238	0.0196	0.0195				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B				0.034	0.023	0.023	0.023	0.022				
Cadmium Cd				0.0000029	0.0000029	0.0000024	0.0000024	0.0000024				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0029	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00018	0.00017	0.00020	0.00018	0.00018				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0004				
Phosphorus P				0.017	0.018	0.024	0.019	0.019				
Potassium K				2.9	2.5	2.5	2.4	2.4				
Selenium Se				0.00088	0.00058	0.00062	0.00057	0.00057				
Silicon SiO2				0.53	0.53	0.53	0.53	0.53				
Silver Ag				0.0000041	0.0000046	0.0000045	0.0000046	0.0000043				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000019	0.0000020	0.0000020	0.0000022	0.0000021				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0062	0.0062	0.0063	0.0063	0.0063				
Uranium U				0.000026	0.000031	0.000039	0.000033	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-2-b-C.3
Scenario 3 - ENHANCED

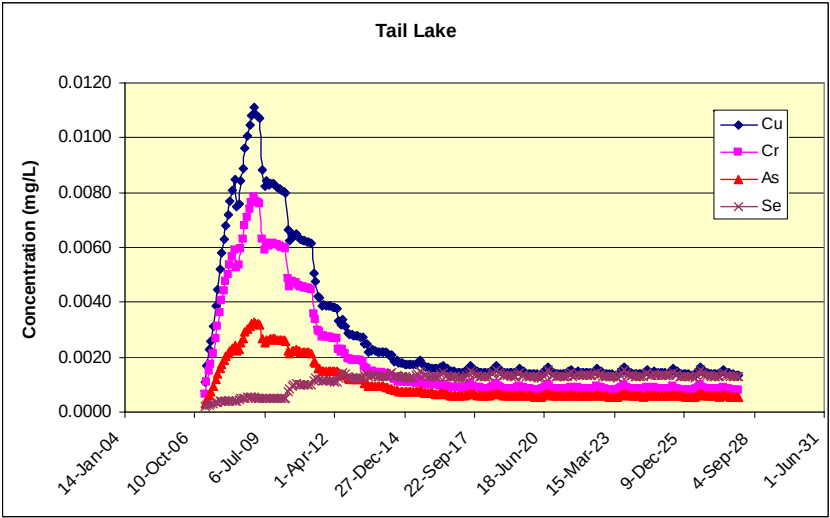
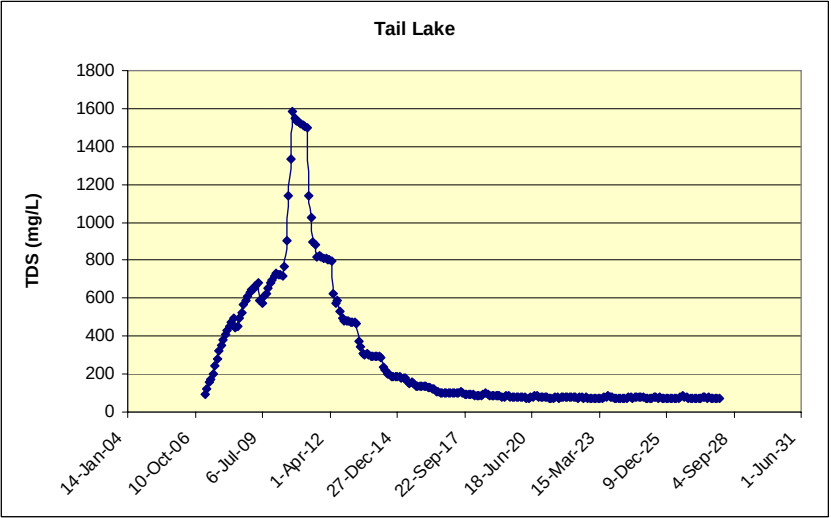
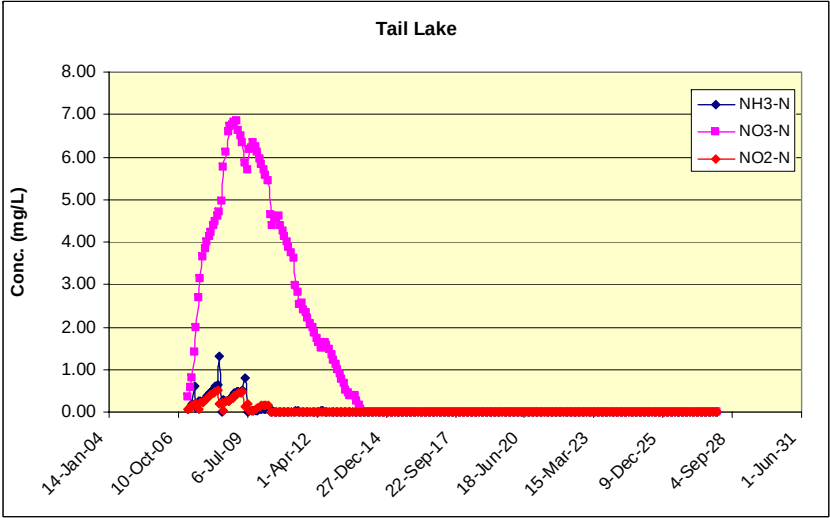
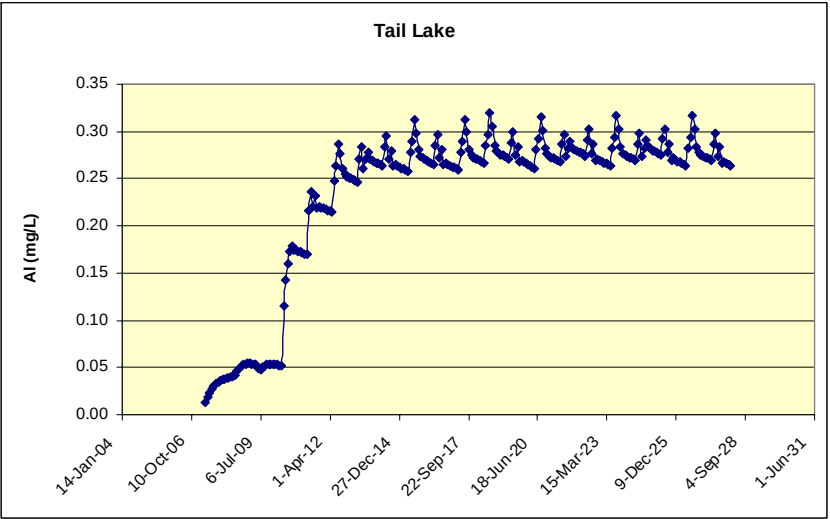
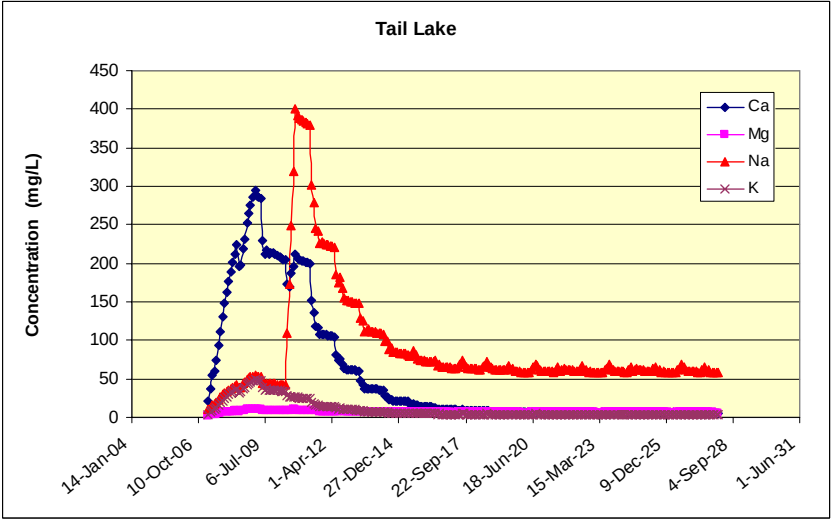
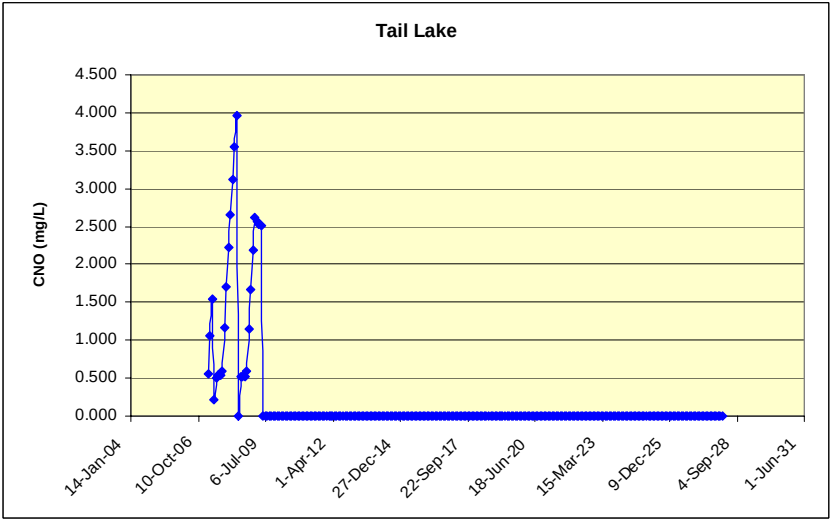
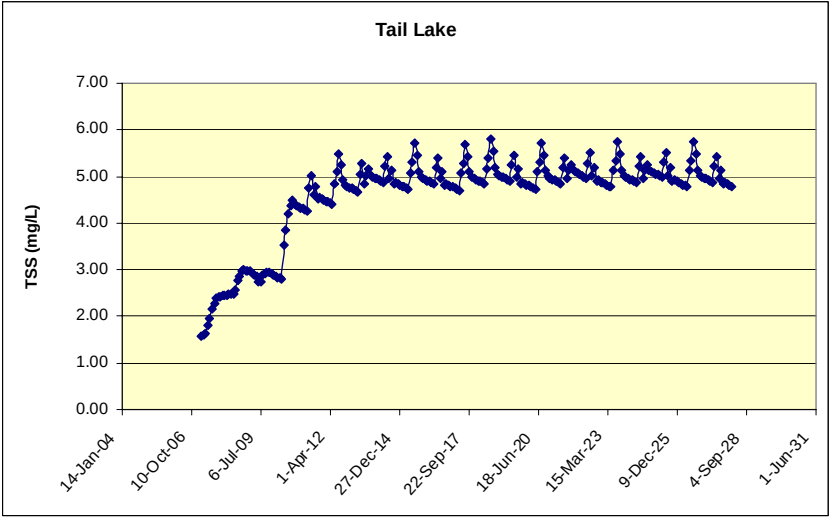
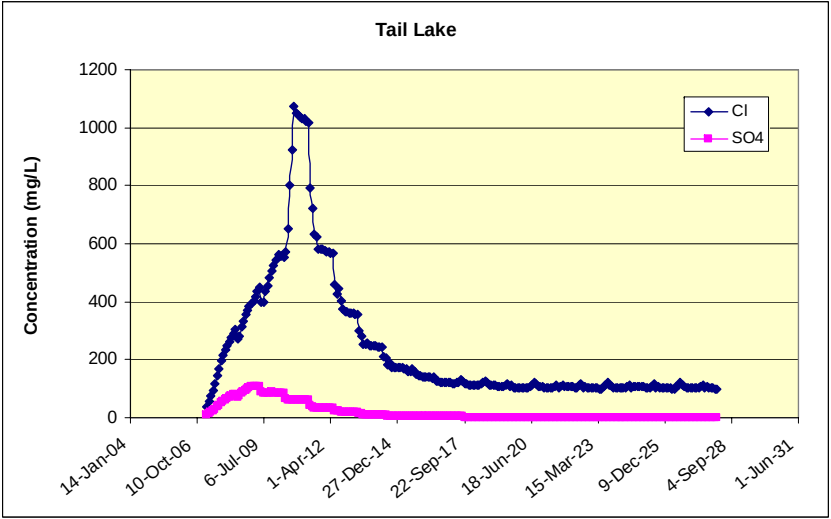
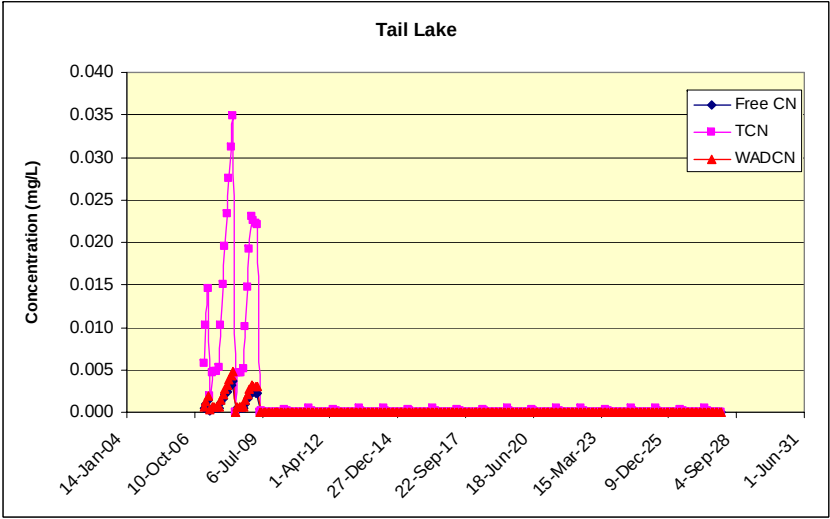
Loadings in Little RobertLoadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				140	121	125	143	143				
TSS				3.9	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				2.9	2.7	2.9	3.0	3.0				
Chloride				62	62	60	63	63				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0011	0.0010	0.0010	0.0010	0.0010				
Phosphate-P				0.0166	0.0179	0.0236	0.0193	0.0193				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00006	0.00005	0.00005	0.00005	0.00005				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000028	0.0000028	0.0000023	0.0000023	0.0000023				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00017	0.00016	0.00019	0.00017	0.00017				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.016	0.018	0.023	0.019	0.019				
Potassium K				2.8	2.4	2.4	2.4	2.4				
Selenium Se				0.00088	0.00058	0.00063	0.00056	0.00056				
Silicon SiO2				0.52	0.53	0.53	0.52	0.52				
Silver Ag				0.0000040	0.0000045	0.0000044	0.0000040	0.0000039				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000029	0.000030				
Thorium Th				0.0000018	0.0000019	0.0000020	0.0000018	0.0000019				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0062	0.0062	0.0063	0.0062	0.0062				
Uranium U				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

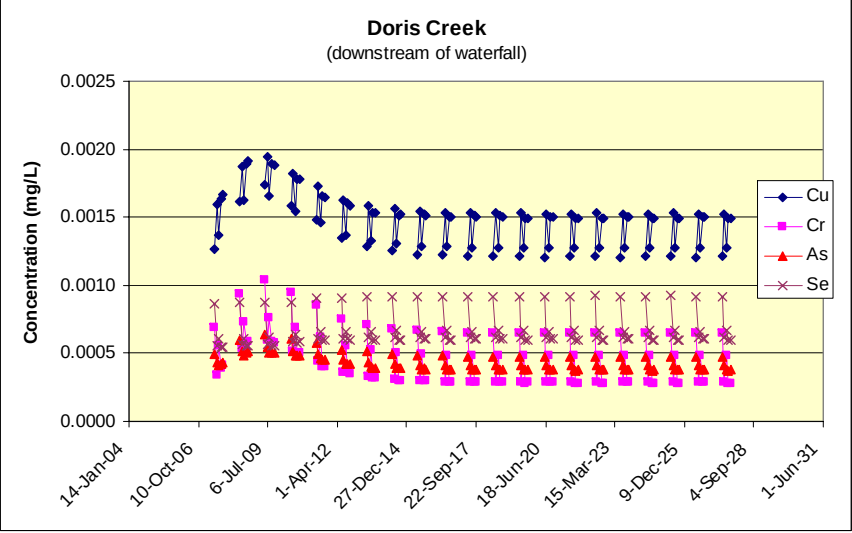
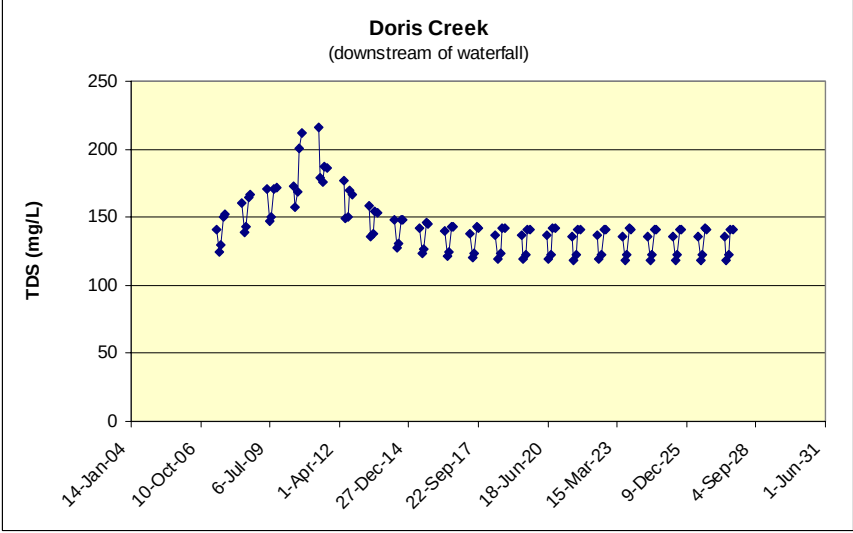
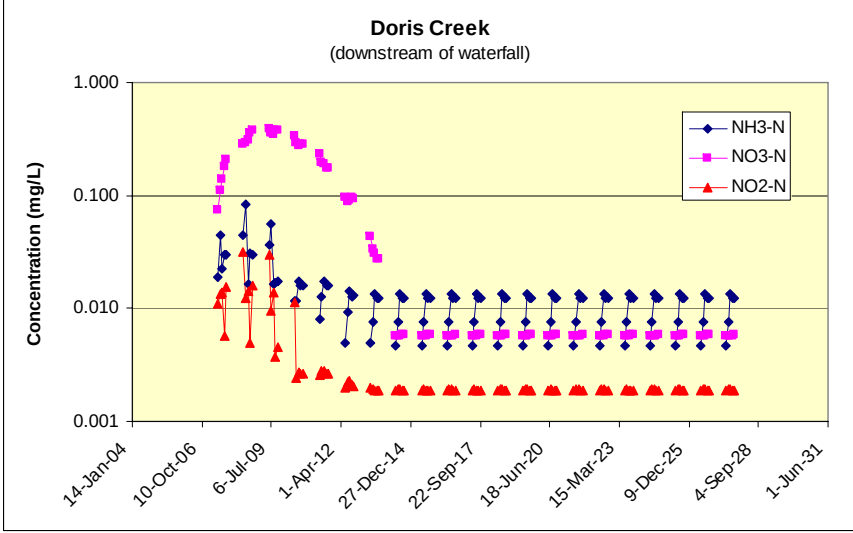
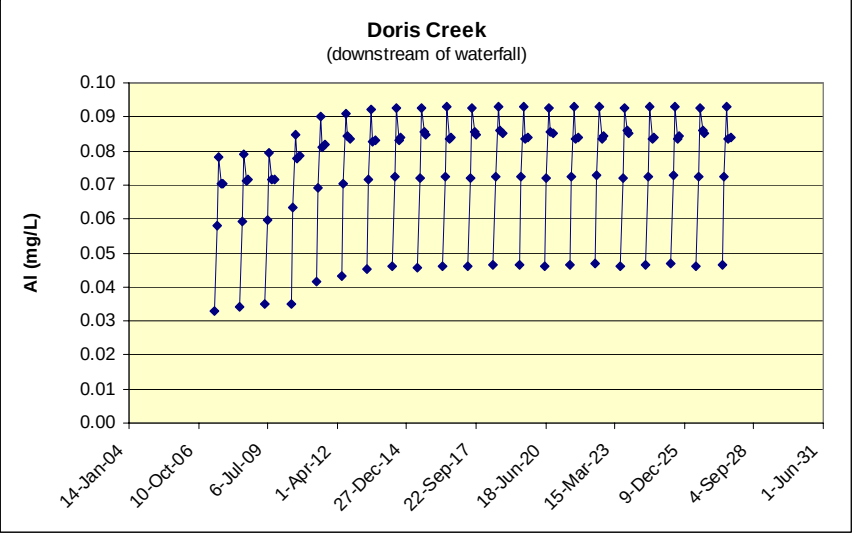
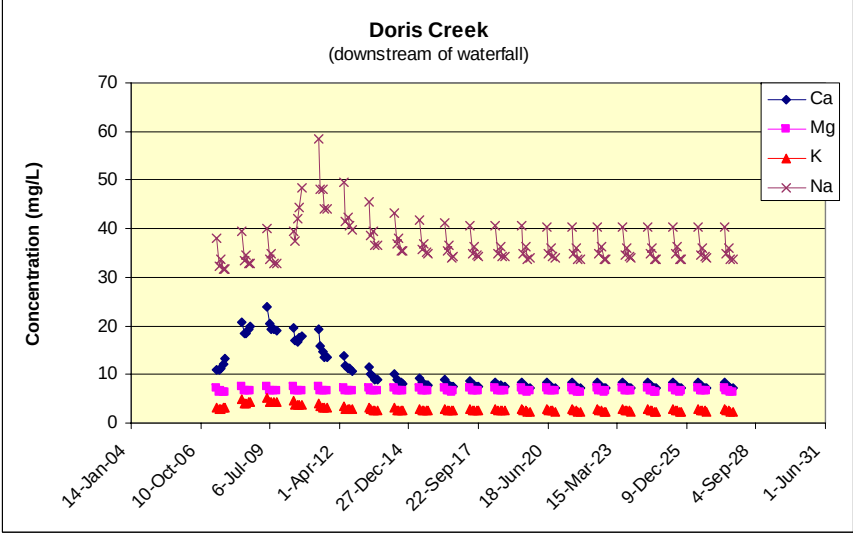
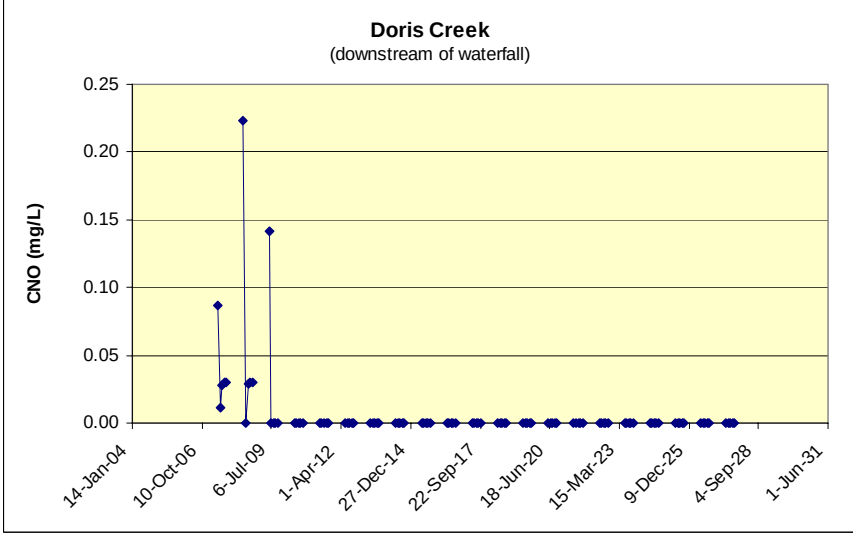
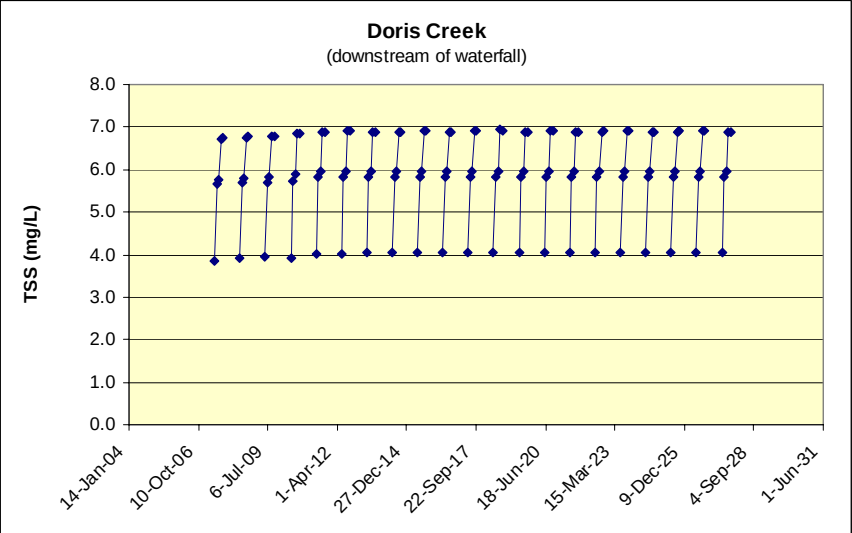
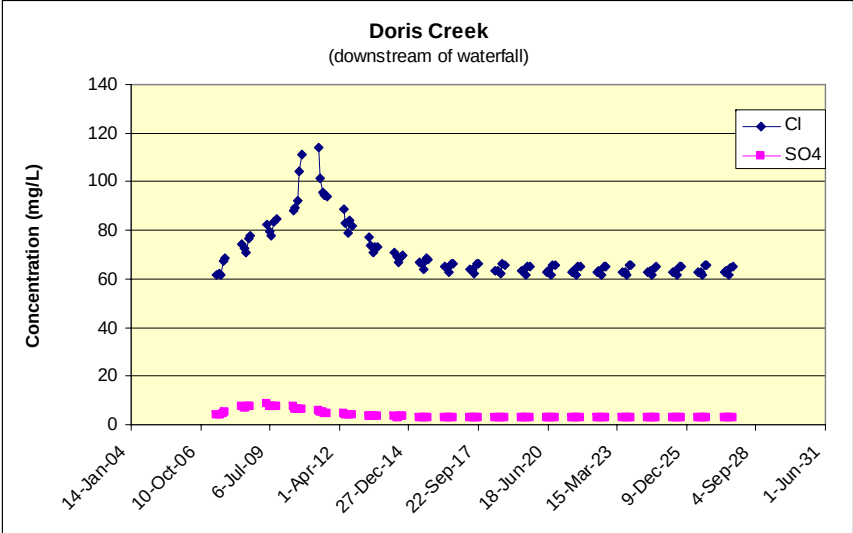
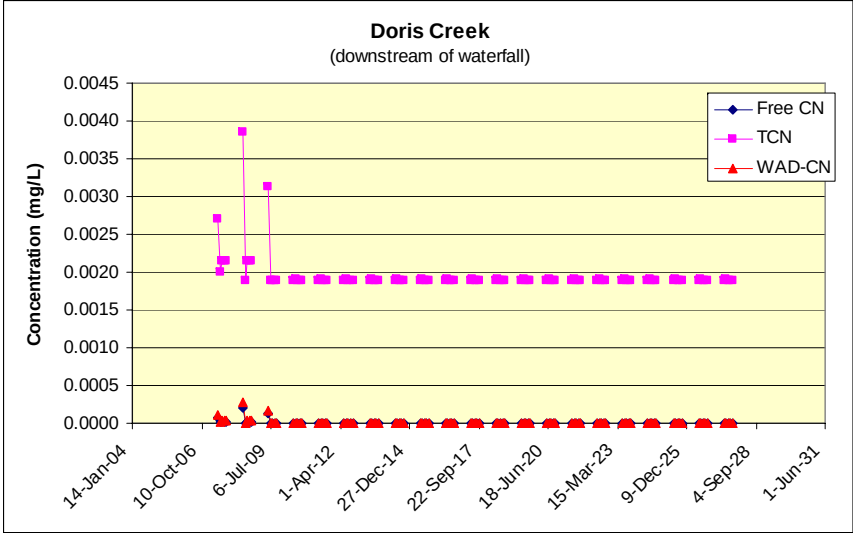
SedLoad1



SedLoad1



SedLoad1



Appendix 1

Table I-3-a-A.1

Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)		
Discharge rate Degradation Base		1000000 m3/year Tail Lk Cu < CME Year		9					
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3			
pH			6 to 9	7 to 8	7 to 8	7 to 8			
TDS	mg/L	1.0	0.005	1583	216	199	4%		
TSS	mg/L			5.8	6.9	8.2			
Free CN	mg/L			0.0036	0.00020	0.00010			
Total CN	mg/L			0.035	0.004	0.003			
WAD CN	mg/L			0.0048	0.0003	0.0001			
CNO	mg/L			4.0	0.22	0.12			
SCN	mg/L			0.118	0.006	0.003			
Sulphate	mg/L			109	8.7	7.1			
Chloride	mg/L			1075	114	92			
Total Ammonia	mg/L			0.97	1.31	0.084		0.045	9%
Nitrate	mg/L	2.9	6.8	0.39	0.20	13%			
Nitrite	mg/L	0.018	0.53	0.032	0.018	175%			
Alkalinity	mg/L		64	29	27				
OrthoPhosphate-P	mg/L		0.2149	0.0126	0.0071				
Phosphate-P	mg/L		0.2183	0.0318	0.0302				
Org. Carbon	mg/L		4.8	7.3	7.1				
Hardness CaCO3	mg/L		127	50	47				
Total Metals									
Aluminum Al	mg/L	0.5	0.1	0.32	0.09	0.25	93%		
Antimony Sb	mg/L		0.005	0.000038	0.0194	0.0035	0.0021	13%	
Arsenic As	mg/L				0.00	0.0006	0.0006		
Barium Ba	mg/L				0.0125	0.0035	0.0054		
Beryllium Be	mg/L				0.00071	0.00005	0.00003		
Bismuth Bi	mg/L				0.01877	0.00107	0.00064		
Boron B	mg/L				0.050	0.035	0.030		
Cadmium Cd	mg/L				0.000066	0.0000067	0.0000164		18%
Calcium Ca	mg/L				295	24	16		103%
Chromium Cr	mg/L				0.0078	0.0010	0.001		
Cobalt Co	mg/L	0.0123			0.0013	0.0006			
Copper Cu	mg/L	0.011	0.00194	0.0021	97%				
Iron Fe	mg/L	0.3	0.3	0.14	0.29	45%			
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%		
Lithium Li	mg/L			0.0060	0.0030	0.0030			
Magnesium Mg	mg/L			10.6	7.5	7.4			
Manganese Mn	mg/L			0.034	0.021	0.025			
Mercury Hg	mg/L		0.0001	0.0000250	0.00000197	0.0000013	2%		
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%		
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%		
Phosphorus P	mg/L			0.305	0.036	0.033			
Potassium K	mg/L			49	5.3	4.1			
Selenium Se	mg/L		0.001	0.00154	0.0009	0.00086	92%		
Silicon SiO2	mg/L			4.6	0.73	0.63			
Silver Ag	mg/L		0.0001	0.00013	0.0000088	0.0000073	9%		
Sodium Na	mg/L			401	58	48			
Strontium Sr	mg/L			0.104	0.044	0.048			
Tellurium Te	mg/L			0.039	0.049	0.051			
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.0020	4%		
Thorium Th	mg/L			0.000101	0.0000064	0.0000033			
Tin Sn	mg/L			0.00296	0.00054	0.00009			
Titanium Ti	mg/L			0.0219	0.0069	0.0066			
Uranium U	mg/L			0.000109	0.000043	0.000046			
Vanadium V	mg/L			0.0041	0.0007	0.0006			
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%		
Zirconium Zr	mg/L			0.0046	0.0050	0.0051			

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	173	202	245	280	321	353	381	407	429
TSS	mg/L	1.6	1.6	1.6	1.8	2.0	2.2	2.3	2.4	2.4	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00141	0.00019	0.00046	0.00049	0.00048	0.00054	0.00105	0.00155	0.00201	0.00241
Total CN	mg/L	0.006	0.010	0.015	0.002	0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0003	0.0006	0.0007	0.0006	0.0007	0.0014	0.0021	0.0027	0.0032
CNO	mg/L	0.55	1.06	1.55	0.21	0.50	0.54	0.53	0.59	1.16	1.70	2.22	2.65
SCN	mg/L	0.008	0.014	0.021	0.023	0.029	0.037	0.043	0.052	0.058	0.064	0.070	0.075
Sulphate	mg/L	7.5	13.4	19.3	22.9	28.5	36.1	42.4	49.8	55.5	60.6	65.5	69.5
Chloride	mg/L	37	57	77	95	118	147	171	197	216	233	248	262
Total Ammonia	mg/L	0.070	0.133	0.194	0.598	0.105	0.264	0.265	0.261	0.327	0.388	0.446	0.495
Nitrate	mg/L	0.35	0.58	0.80	1.42	1.97	2.69	3.15	3.65	3.84	3.99	4.13	4.24
Nitrite	mg/L	0.054	0.102	0.150	0.195	0.202	0.057	0.233	0.234	0.285	0.331	0.375	0.413
Alkalinity	mg/L	16	18	21	23	26	30	34	37	40	42	44	45
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0313	0.0381	0.0486	0.0572	0.0678	0.0765	0.0842	0.0916	0.0978
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0349	0.0416	0.0522	0.0608	0.0714	0.0800	0.0877	0.0949	0.1010
Org. Carbon	mg/L	3.0	2.9	2.8	3.1	3.4	3.6	3.6	3.6	3.6	3.5	3.3	3.3
Hardness CaCO3	mg/L	23	29	35	38	45	53	60	68	74	78	83	87
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0034	0.0046	0.0057	0.0067	0.0076	0.0080	0.0084	0.0088	0.0090
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0019	0.0020	0.0021
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0032	0.0038	0.0046	0.0053	0.0062	0.0068	0.0073	0.0078	0.0082
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00022	0.00027	0.00031	0.00034	0.00037	0.00039	0.00040	0.00041	0.00042
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00318	0.00435	0.00540	0.00636	0.00716	0.00759	0.00794	0.00827	0.00854
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.016	0.018	0.020	0.021	0.021	0.022	0.022
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000152	0.0000196	0.0000244	0.0000286	0.0000328	0.0000356	0.0000381	0.0000404	0.0000423
Calcium Ca	mg/L	21	38	54	61	74	94	111	131	148	162	176	188
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0025	0.0031	0.0039	0.0046	0.0055	0.0062	0.0068	0.0074	0.0078
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0026	0.0031	0.0039	0.0045	0.0052	0.0058	0.0063	0.0068	0.0072
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00012	0.00016	0.00019	0.00022	0.00025	0.00027	0.00028	0.00029	0.00031
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0028	0.0031	0.0034	0.0037	0.0038	0.0039	0.0040	0.0041
Magnesium Mg	mg/L	2.5	2.9	3.3	3.8	4.4	5.2	5.7	6.3	6.7	7.0	7.3	7.5
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.020	0.022
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000017	0.0000021	0.0000026	0.0000030	0.0000035	0.0000037	0.0000040	0.0000042	0.0000044
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00217	0.00265	0.00338	0.00398	0.00472	0.00532	0.00586	0.00638	0.00681
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0022	0.0027	0.0034	0.0040	0.0046	0.0051	0.0056	0.0060	0.0063
Phosphorus P	mg/L	0.020	0.033	0.047	0.056	0.069	0.087	0.102	0.119	0.132	0.144	0.155	0.165
Potassium K	mg/L	3.8	6.6	9.3	10.4	12.6	15.9	18.7	22.0	24.7	27.2	29.5	31.4
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00027	0.00031	0.00034	0.00036	0.00038	0.00039	0.00040	0.00040	0.00041
Silicon SiO2	mg/L	0.70	0.92	1.14	1.30	1.53	1.85	2.10	2.39	2.60	2.79	2.96	3.11
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000682	0.0000773	0.0000833	0.0000866	0.0000906	0.0000915	0.0000915	0.0000916	0.0000915
Sodium Na	mg/L	11	13	16	17	20	24	26	30	32	34	36	38
Strontium Sr	mg/L	0.017	0.021	0.026	0.029	0.035	0.042	0.047	0.054	0.059	0.063	0.067	0.070
Tellurium Te	mg/L	0.025	0.024	0.024	0.026	0.028	0.029	0.030	0.030	0.030	0.029	0.028	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000022	0.000025	0.000028	0.000031	0.000033	0.000034	0.000035	0.000035	0.000036
Thorium Th	mg/L				0.000007	0.000011	0.000013	0.000016	0.000017	0.000016	0.000016	0.000015	0.000015
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00053	0.00073	0.00090	0.00106	0.00118	0.00124	0.00129	0.00133	0.00137
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0033	0.0036	0.0039	0.0040	0.0041	0.0041	0.0040	0.0039	0.0038
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000034	0.000039	0.000042	0.000044	0.000045	0.000044	0.000043	0.000042	0.000041
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0017	0.0020	0.0021	0.0022	0.0023	0.0024
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0057	0.0070	0.0089	0.0107	0.0125	0.0139	0.0152	0.0164	0.0174
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0027	0.0030	0.0032	0.0033	0.0033	0.0033	0.0032	0.0031	0.0030

Appendix 1

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	454	475	497	443	450	496	523	564	589	609	628	643
TSS	mg/L	2.5	2.5	2.5	2.5	2.6	2.8	2.9	3.0	3.0	3.0	3.0	3.0
Free CN	mg/L	0.00284	0.00322	0.00360		0.00047	0.00048	0.00048	0.00053	0.00104	0.00152	0.00198	0.00238
Total CN	mg/L	0.027	0.031	0.035		0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0038	0.0043	0.0048		0.0006	0.0006	0.0006	0.0007	0.0014	0.0020	0.0026	0.0032
CNO	mg/L	3.12	3.55	3.96		0.52	0.53	0.52	0.58	1.14	1.68	2.18	2.61
SCN	mg/L	0.080	0.085	0.090	0.078	0.079	0.087	0.092	0.100	0.106	0.110	0.115	0.118
Sulphate	mg/L	74.1	78.0	81.9	72.6	74.0	82.2	87.1	94.3	99.0	102.6	106.1	108.9
Chloride	mg/L	277	290	302	274	282	313	332	357	372	384	395	404
Total Ammonia	mg/L	0.549	0.596	0.643	1.310		0.275	0.260	0.257	0.322	0.382	0.440	0.488
Nitrate	mg/L	4.38	4.49	4.60	4.71	4.97	5.75	6.11	6.60	6.71	6.77	6.82	6.84
Nitrite	mg/L	0.454	0.490	0.526	0.178	0.208	0.045	0.240	0.240	0.290	0.336	0.379	0.415
Alkalinity	mg/L	47	49	50	46	48	52	55	58	60	62	63	64
OrthoPhosphate-P	mg/L	0.1047	0.1107	0.1167	0.1014	0.1024	0.1138	0.1204	0.1308	0.1379	0.1436	0.1490	0.1535
Phosphate-P	mg/L	0.1079	0.1138	0.1197	0.1048	0.1057	0.1172	0.1237	0.1341	0.1412	0.1467	0.1521	0.1565
Org. Carbon	mg/L	3.2	3.1	3.0	3.2	3.5	3.7	3.7	3.8	3.7	3.6	3.4	3.4
Hardness CaCO3	mg/L	91	95	99	89	91	101	106	113	118	121	124	127
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0094	0.0097	0.0100	0.0099	0.0105	0.0117	0.0125	0.0134	0.0137	0.0139	0.0141	0.0142
Arsenic As	mg/L	0.0022	0.0023	0.0024	0.0022	0.0023	0.0025	0.0027	0.0029	0.0030	0.0031	0.0032	0.0033
Barium Ba	mg/L	0.0087	0.0091	0.0095	0.0085	0.0087	0.0096	0.0102	0.0110	0.0114	0.0118	0.0122	0.0125
Beryllium Be	mg/L	0.00043	0.00044	0.00045	0.00045	0.00048	0.00052	0.00055	0.00058	0.00059	0.00059	0.00060	0.00060
Bismuth Bi	mg/L	0.00887	0.00913	0.00940	0.00934	0.01000	0.01113	0.01191	0.01269	0.01299	0.01316	0.01332	0.01345
Boron B	mg/L	0.023	0.024	0.024	0.023	0.025	0.027	0.029	0.030	0.031	0.031	0.032	0.032
Cadmium Cd	mg/L	0.0000445	0.0000464	0.0000483	0.0000451	0.0000470	0.0000522	0.0000555	0.0000596	0.0000618	0.0000634	0.0000649	0.0000661
Calcium Ca	mg/L	201	213	224	195	197	219	232	252	265	276	286	295
Chromium Cr	mg/L	0.005	0.006	0.006	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.008	0.008
Cobalt Co	mg/L	0.0084	0.0088	0.0093	0.0082	0.0083	0.0092	0.0097	0.0106	0.0111	0.0116	0.0120	0.0123
Copper Cu	mg/L	0.0077	0.0081	0.0085	0.0075	0.0076	0.0084	0.0089	0.0096	0.0101	0.0104	0.0108	0.0111
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00032	0.00033	0.00034	0.00033	0.00034	0.00038	0.00040	0.00043	0.00044	0.00045	0.00046	0.00047
Lithium Li	mg/L	0.0042	0.0043	0.0044	0.0042	0.0044	0.0047	0.0050	0.0052	0.0053	0.0054	0.0054	0.0055
Magnesium Mg	mg/L	7.8	8.0	8.3	7.7	8.0	8.8	9.2	9.8	10.1	10.3	10.5	10.6
Manganese Mn	mg/L	0.023	0.024	0.026	0.023	0.023	0.025	0.027	0.029	0.031	0.032	0.033	0.034
Mercury Hg	mg/L	0.0000046	0.0000048	0.0000050	0.0000047	0.0000049	0.0000054	0.0000057	0.0000061	0.0000063	0.0000065	0.0000067	0.0000068
Molybdenum Mo	mg/L	0.00729	0.00771	0.00812	0.00706	0.00714	0.00793	0.00839	0.00912	0.00961	0.01001	0.01038	0.01069
Nickel Ni	mg/L	0.0067	0.0071	0.0074	0.0066	0.0067	0.0075	0.0079	0.0085	0.0090	0.0093	0.0096	0.0098
Phosphorus P	mg/L	0.175	0.184	0.193	0.172	0.176	0.195	0.206	0.223	0.234	0.242	0.250	0.257
Potassium K	mg/L	33.6	35.4	37.3	32.5	32.9	36.5	38.6	41.9	44.1	45.9	47.6	49.0
Selenium Se	mg/L	0.00041	0.00042	0.00042	0.00042	0.00044	0.00048	0.00049	0.00052	0.00052	0.00052	0.00052	0.00052
Silicon SiO2	mg/L	3.27	3.41	3.56	3.22	3.29	3.63	3.82	4.11	4.28	4.41	4.53	4.63
Silver Ag	mg/L	0.0000918	0.0000918	0.0000918	0.0000972	0.0001037	0.0001103	0.0001128	0.0001168	0.0001170	0.0001162	0.0001154	0.0001147
Sodium Na	mg/L	40	41	43	39	40	44	46	49	51	52	54	55
Strontium Sr	mg/L	0.074	0.077	0.080	0.072	0.074	0.081	0.086	0.092	0.096	0.099	0.101	0.104
Tellurium Te	mg/L	0.026	0.026	0.025	0.027	0.028	0.030	0.031	0.031	0.030	0.029	0.029	0.028
Thallium Tl	mg/L	0.000037	0.000037	0.000038	0.000037	0.000039	0.000042	0.000044	0.000046	0.000047	0.000047	0.000048	0.000048
Thorium Th	mg/L	0.000014	0.000014	0.000014	0.000018	0.000021	0.000023	0.000025	0.000026	0.000026	0.000025	0.000024	0.000023
Tin Sn	mg/L	0.00141	0.00145	0.00149	0.00149	0.00161	0.00179	0.00191	0.00203	0.00207	0.00209	0.00211	0.00213
Titanium Ti	mg/L	0.0038	0.0037	0.0037	0.0039	0.0041	0.0044	0.0045	0.0046	0.0046	0.0045	0.0044	0.0043
Uranium U	mg/L	0.000040	0.000039	0.000038	0.000045	0.000049	0.000053	0.000054	0.000055	0.000054	0.000053	0.000051	0.000050
Vanadium V	mg/L	0.0025	0.0026	0.0027	0.0026	0.0027	0.0030	0.0031	0.0034	0.0034	0.0035	0.0036	0.0036
Zinc Zn	mg/L	0.0185	0.0194	0.0204	0.0180	0.0183	0.0203	0.0217	0.0236	0.0247	0.0256	0.0264	0.0271
Zirconium Zr	mg/L	0.0029	0.0028	0.0027	0.0030	0.0032	0.0034	0.0036	0.0036	0.0035	0.0034	0.0033	0.0032

Appendix 1

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	652	668	684	589	573	612	624	654	679	698	716	733
TSS	mg/L	2.9	2.9	2.9	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L	0.00232	0.00230	0.00228									
Total CN	mg/L	0.022	0.022	0.022		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0031	0.0031	0.0030									
CNO	mg/L	2.56	2.54	2.51									
SCN	mg/L	0.116	0.115	0.114	0.092	0.084	0.086	0.084	0.084	0.084	0.083	0.082	0.082
Sulphate	mg/L	107.1	106.8	106.4	88.2	82.9	85.8	84.9	86.1	86.8	86.5	86.3	86.2
Chloride	mg/L	416	434	451	399	399	435	452	481	506	525	545	563
Total Ammonia	mg/L	0.488	0.495	0.501	0.816		0.028	0.032	0.020	0.032	0.044	0.056	0.067
Nitrate	mg/L	6.61	6.48	6.35	5.86	5.69	6.16	6.21	6.34	6.25	6.10	5.96	5.82
Nitrite	mg/L	0.435	0.458	0.482	0.124	0.200	0.023	0.036	0.037	0.069	0.101	0.133	0.161
Alkalinity	mg/L	63	62	62	53	51	53	53	53	53	52	52	52
OrthoPhosphate-P	mg/L	0.1595	0.1671	0.1749	0.1501	0.1478	0.1611	0.1673	0.1789	0.1895	0.1982	0.2070	0.2149
Phosphate-P	mg/L	0.1624	0.1700	0.1778	0.1535	0.1511	0.1645	0.1707	0.1823	0.1929	0.2016	0.2104	0.2183
Org. Carbon	mg/L	3.3	3.3	3.2	3.5	3.7	4.0	4.0	4.1	4.1	4.0	4.0	4.0
Hardness CaCO3	mg/L	124	123	122	103	98	101	100	101	101	100	99	98
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0144	0.0148	0.0152	0.0142	0.0146	0.0159	0.0166	0.0175	0.0181	0.0185	0.0190	0.0194
Arsenic As	mg/L	0.0032	0.0032	0.0032	0.0027	0.0026	0.0026	0.0026	0.0027	0.0027	0.0027	0.0026	0.0026
Barium Ba	mg/L	0.0122	0.0122	0.0121	0.0101	0.0095	0.0098	0.0097	0.0098	0.0098	0.0098	0.0097	0.0096
Beryllium Be	mg/L	0.00060	0.00061	0.00062	0.00058	0.00059	0.00063	0.00065	0.00067	0.00069	0.00070	0.00070	0.00071
Bismuth Bi	mg/L	0.01369	0.01408	0.01448	0.01361	0.01399	0.01528	0.01603	0.01691	0.01751	0.01794	0.01837	0.01877
Boron B	mg/L	0.031	0.031	0.031	0.029	0.028	0.030	0.030	0.031	0.031	0.031	0.031	0.031
Cadmium Cd	mg/L	0.0000647	0.0000642	0.0000637	0.0000538	0.0000511	0.0000529	0.0000525	0.0000531	0.0000531	0.0000526	0.0000522	0.0000518
Calcium Ca	mg/L	288	286	284	230	213	217	212	213	214	211	209	208
Chromium Cr	mg/L	0.008	0.008	0.008	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0121	0.0120	0.0119	0.0097	0.0090	0.0093	0.0091	0.0092	0.0092	0.0091	0.0091	0.0090
Copper Cu	mg/L	0.0109	0.0108	0.0107	0.0088	0.0082	0.0084	0.0083	0.0083	0.0083	0.0083	0.0082	0.0081
Iron Fe	mg/L	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00046	0.00046	0.00047	0.00041	0.00040	0.00042	0.00043	0.00044	0.00045	0.00045	0.00045	0.00045
Lithium Li	mg/L	0.0054	0.0053	0.0053	0.0049	0.0048	0.0051	0.0051	0.0052	0.0052	0.0052	0.0052	0.0052
Magnesium Mg	mg/L	10.5	10.4	10.4	9.2	9.0	9.4	9.6	9.6	9.6	9.6	9.5	9.5
Manganese Mn	mg/L	0.033	0.033	0.033	0.027	0.025	0.026	0.025	0.025	0.026	0.025	0.025	0.025
Mercury Hg	mg/L	0.0000066	0.0000066	0.0000065	0.0000056	0.0000053	0.0000055	0.0000055	0.0000055	0.0000056	0.0000055	0.0000055	0.0000054
Molybdenum Mo	mg/L	0.01047	0.01038	0.01030	0.00834	0.00770	0.00787	0.00768	0.00772	0.00772	0.00765	0.00758	0.00752
Nickel Ni	mg/L	0.0096	0.0096	0.0096	0.0080	0.0076	0.0078	0.0078	0.0079	0.0079	0.0079	0.0079	0.0079
Phosphorus P	mg/L	0.261	0.269	0.277	0.237	0.231	0.248	0.254	0.268	0.279	0.288	0.297	0.305
Potassium K	mg/L	47.9	47.5	47.1	38.3	35.4	36.2	35.3	35.5	35.5	35.2	34.8	34.5
Selenium Se	mg/L	0.00051	0.00051	0.00050	0.00047	0.00047	0.00049	0.00049	0.00050	0.00050	0.00049	0.00049	0.00049
Silicon SiO2	mg/L	4.53	4.50	4.46	3.77	3.56	3.67	3.62	3.65	3.66	3.62	3.59	3.57
Silver Ag	mg/L	0.0001133	0.0001133	0.0001134	0.0001130	0.0001161	0.0001214	0.0001218	0.0001243	0.0001255	0.0001254	0.0001254	0.0001254
Sodium Na	mg/L	54	53	53	45	43	44	43	44	44	43	43	43
Strontium Sr	mg/L	0.101	0.101	0.100	0.084	0.080	0.083	0.082	0.083	0.083	0.082	0.081	0.081
Tellurium Te	mg/L	0.027	0.027	0.027	0.029	0.030	0.032	0.033	0.034	0.034	0.033	0.033	0.033
Thallium Tl	mg/L	0.000047	0.000046	0.000046	0.000042	0.000042	0.000044	0.000044	0.000044	0.000044	0.000044	0.000044	0.000043
Thorium Th	mg/L	0.000023	0.000023	0.000022	0.000022	0.000023	0.000025	0.000026	0.000027	0.000027	0.000027	0.000026	0.000026
Tin Sn	mg/L	0.00216	0.00222	0.00228	0.00215	0.00222	0.00243	0.00255	0.00269	0.00278	0.00284	0.00290	0.00296
Titanium Ti	mg/L	0.0042	0.0042	0.0042	0.0044	0.0046	0.0048	0.0050	0.0051	0.0051	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000049	0.000049	0.000049	0.000051	0.000054	0.000056	0.000057	0.000058	0.000058	0.000058	0.000058	0.000057
Vanadium V	mg/L	0.0036	0.0037	0.0037	0.0034	0.0034	0.0036	0.0037	0.0038	0.0039	0.0040	0.0040	0.0041
Zinc Zn	mg/L	0.0266	0.0265	0.0263	0.0217	0.0203	0.0210	0.0209	0.0212	0.0213	0.0212	0.0211	0.0210
Zirconium Zr	mg/L	0.0031	0.0031	0.0031	0.0033	0.0035	0.0037	0.0038	0.0039	0.0039	0.0038	0.0038	0.0038

Appendix 1

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	728	724	721	769	903	1140	1337	1583	1546	1535	1527	1521
TSS	mg/L	2.8	2.8	2.8	3.5	3.9	4.2	4.4	4.5	4.4	4.4	4.3	4.3
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.081	0.081	0.080	0.063	0.057	0.059	0.057	0.058	0.057	0.056	0.056	0.056
Sulphate	mg/L	85.5	85.1	84.7	66.8	61.1	62.8	61.3	61.9	60.5	60.0	59.7	59.5
Chloride	mg/L	558	556	553	573	653	803	924	1075	1050	1043	1037	1033
Total Ammonia	mg/L	0.067	0.066	0.066	0.016	0.017	0.008	0.012	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L	5.68	5.56	5.43	4.64	4.37	4.56	4.53	4.61	4.40	4.26	4.13	4.00
Nitrite	mg/L	0.159	0.159	0.158		0.005	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	51	51	51	44	43	45	44	45	44	44	44	43
OrthoPhosphate-P	mg/L	0.2133	0.2123	0.2112	0.1659	0.1513	0.1553	0.1512	0.1528	0.1492	0.1482	0.1474	0.1468
Phosphate-P	mg/L	0.2166	0.2156	0.2144	0.1749	0.1623	0.1676	0.1644	0.1664	0.1625	0.1614	0.1605	0.1599
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.3	4.6	4.7	4.8	4.7	4.6	4.6	4.6
Hardness CaCO3	mg/L	97	97	96	81	77	81	80	81	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.12	0.14	0.16	0.17	0.18	0.17	0.17	0.17	0.17
Antimony Sb	mg/L	0.0192	0.0191	0.0190	0.0150	0.0137	0.0141	0.0137	0.0139	0.0135	0.0134	0.0134	0.0133
Arsenic As	mg/L	0.0026	0.0026	0.0026	0.0022	0.0021	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022
Barium Ba	mg/L	0.0096	0.0095	0.0095	0.0077	0.0072	0.0075	0.0074	0.0075	0.0073	0.0072	0.0072	0.0072
Beryllium Be	mg/L	0.00071	0.00070	0.00070	0.00059	0.00056	0.00058	0.00057	0.00058	0.00056	0.00056	0.00056	0.00055
Bismuth Bi	mg/L	0.01862	0.01853	0.01844	0.01448	0.01319	0.01354	0.01319	0.01332	0.01301	0.01292	0.01285	0.01280
Boron B	mg/L	0.031	0.031	0.031	0.035	0.038	0.041	0.043	0.044	0.043	0.043	0.042	0.042
Cadmium Cd	mg/L	0.0000514	0.0000511	0.0000509	0.0000455	0.0000445	0.0000469	0.0000474	0.0000484	0.0000472	0.0000469	0.0000467	0.0000465
Calcium Ca	mg/L	206	205	204	173	169	187	195	211	206	205	203	203
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0090	0.0089	0.0089	0.0070	0.0064	0.0066	0.0064	0.0065	0.0064	0.0063	0.0063	0.0063
Copper Cu	mg/L	0.0081	0.0080	0.0080	0.0067	0.0063	0.0065	0.0064	0.0065	0.0063	0.0063	0.0063	0.0062
Iron Fe	mg/L	0.06	0.06	0.06	0.12	0.15	0.16	0.18	0.18	0.18	0.18	0.18	0.18
Lead Pb	mg/L	0.00045	0.00045	0.00044	0.00038	0.00036	0.00038	0.00038	0.00038	0.00037	0.00037	0.00037	0.00037
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0052	0.0054	0.0057	0.0058	0.0060	0.0058	0.0058	0.0058	0.0057
Magnesium Mg	mg/L	9.4	9.4	9.4	9.0	9.0	9.6	9.7	9.9	9.7	9.6	9.6	9.5
Manganese Mn	mg/L	0.025	0.025	0.025	0.021	0.020	0.021	0.021	0.021	0.021	0.021	0.020	0.020
Mercury Hg	mg/L	0.0000054	0.0000054	0.0000053	0.0000101	0.0000121	0.0000135	0.0000145	0.0000150	0.0000146	0.0000145	0.0000145	0.0000144
Molybdenum Mo	mg/L	0.00746	0.00743	0.00739	0.00590	0.00543	0.00559	0.00546	0.00552	0.00539	0.00536	0.00533	0.00531
Nickel Ni	mg/L	0.0078	0.0078	0.0078	0.0062	0.0058	0.0060	0.0058	0.0059	0.0058	0.0057	0.0057	0.0057
Phosphorus P	mg/L	0.302	0.301	0.299	0.238	0.218	0.224	0.219	0.221	0.216	0.215	0.214	0.213
Potassium K	mg/L	34.3	34.1	33.9	27.6	25.7	26.5	26.0	26.4	25.7	25.6	25.4	25.3
Selenium Se	mg/L	0.00048	0.00048	0.00048	0.00074	0.00085	0.00093	0.00099	0.00102	0.00100	0.00099	0.00099	0.00098
Silicon SiO2	mg/L	3.54	3.52	3.50	3.10	3.00	3.14	3.13	3.19	3.11	3.09	3.08	3.06
Silver Ag	mg/L	0.0001244	0.0001239	0.0001232	0.0001199	0.0001212	0.0001259	0.0001246	0.0001265	0.0001236	0.0001227	0.0001220	0.0001216
Sodium Na	mg/L	42	42	42	110	172	249	320	401	391	389	387	385
Strontium Sr	mg/L	0.080	0.080	0.079	0.071	0.069	0.072	0.073	0.074	0.072	0.072	0.071	0.071
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.037	0.038	0.039	0.038	0.038	0.038	0.038
Thallium Tl	mg/L	0.000043	0.000043	0.000042	0.000040	0.000040	0.000042	0.000043	0.000044	0.000043	0.000042	0.000042	0.000042
Thorium Th	mg/L	0.000026	0.000026	0.000026	0.000045	0.000054	0.000061	0.000065	0.000068	0.000066	0.000066	0.000066	0.000065
Tin Sn	mg/L	0.00294	0.00292	0.00291	0.00232	0.00215	0.00222	0.00218	0.00220	0.00215	0.00214	0.00213	0.00212
Titanium Ti	mg/L	0.0050	0.0050	0.0050	0.0089	0.0106	0.0117	0.0125	0.0130	0.0127	0.0126	0.0125	0.0124
Uranium U	mg/L	0.000057	0.000057	0.000056	0.000071	0.000078	0.000084	0.000087	0.000090	0.000087	0.000087	0.000086	0.000086
Vanadium V	mg/L	0.0040	0.0040	0.0040	0.0038	0.0038	0.0040	0.0041	0.0041	0.0040	0.0040	0.0040	0.0040
Zinc Zn	mg/L	0.0209	0.0208	0.0207	0.0168	0.0156	0.0161	0.0161	0.0164	0.0160	0.0159	0.0158	0.0158
Zirconium Zr	mg/L	0.0037	0.0037	0.0037	0.0039	0.0040	0.0043	0.0044	0.0046	0.0044	0.0044	0.0044	0.0044

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1515	1507	1499	1141	1028	900	880	817	822	816	812	809
TSS	mg/L	4.3	4.3	4.3	4.8	5.0	4.6	4.8	4.5	4.5	4.5	4.5	4.5
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.055	0.055	0.055	0.041	0.036	0.032	0.031	0.029	0.029	0.029	0.028	0.028
Sulphate	mg/L	59.2	58.9	58.6	44.2	39.7	34.7	33.9	31.5	31.7	31.4	31.3	31.2
Chloride	mg/L	1029	1024	1018	792	722	635	624	580	583	579	576	574
Total Ammonia	mg/L	0.004	0.004	0.004	0.034	0.017	0.008	0.012	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L	3.88	3.75	3.62	2.98	2.83	2.54	2.57	2.41	2.32	2.20	2.08	1.97
Nitrite	mg/L	0.002	0.002	0.002	0.007	0.007	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	43	43	43	37	36	32	32	30	31	30	30	30
OrthoPhosphate-P	mg/L	0.1462	0.1455	0.1446	0.1083	0.0966	0.0844	0.0821	0.0762	0.0766	0.0761	0.0757	0.0754
Phosphate-P	mg/L	0.1593	0.1584	0.1576	0.1257	0.1155	0.1018	0.1003	0.0934	0.0939	0.0933	0.0928	0.0924
Org. Carbon	mg/L	4.6	4.6	4.5	4.6	4.8	4.4	4.5	4.2	4.2	4.2	4.2	4.2
Hardness CaCO3	mg/L	78	77	77	64	61	55	55	51	51	51	51	51
Total Metals													
Aluminum Al	mg/L	0.17	0.17	0.17	0.22	0.24	0.22	0.23	0.22	0.22	0.22	0.22	0.22
Antimony Sb	mg/L	0.0133	0.0132	0.0131	0.0099	0.0088	0.0077	0.0075	0.0070	0.0070	0.0070	0.0070	0.0069
Arsenic As	mg/L	0.0022	0.0022	0.0022	0.0018	0.0018	0.0016	0.0016	0.0015	0.0015	0.0015	0.0015	0.0015
Barium Ba	mg/L	0.0071	0.0071	0.0071	0.0056	0.0052	0.0046	0.0046	0.0043	0.0043	0.0043	0.0043	0.0042
Beryllium Be	mg/L	0.00055	0.00055	0.00055	0.00046	0.00044	0.00038	0.00038	0.00035	0.00035	0.00035	0.00035	0.00035
Bismuth Bi	mg/L	0.01275	0.01268	0.01261	0.00943	0.00841	0.00734	0.00714	0.00662	0.00667	0.00662	0.00658	0.00656
Boron B	mg/L	0.042	0.042	0.042	0.045	0.047	0.043	0.044	0.042	0.042	0.042	0.042	0.041
Cadmium Cd	mg/L	0.0000463	0.0000461	0.0000458	0.0000408	0.0000400	0.0000362	0.0000369	0.0000347	0.0000349	0.0000347	0.0000345	0.0000344
Calcium Ca	mg/L	202	201	200	151	136	119	116	107	108	107	107	106
Chromium Cr	mg/L	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0062	0.0062	0.0062	0.0047	0.0042	0.0037	0.0036	0.0033	0.0034	0.0033	0.0033	0.0033
Copper Cu	mg/L	0.0062	0.0062	0.0061	0.0051	0.0047	0.0042	0.0042	0.0039	0.0039	0.0039	0.0039	0.0038
Iron Fe	mg/L	0.18	0.17	0.17	0.22	0.24	0.22	0.24	0.22	0.22	0.22	0.22	0.22
Lead Pb	mg/L	0.00037	0.00036	0.00036	0.00031	0.00029	0.00026	0.00026	0.00025	0.00025	0.00025	0.00024	0.00024
Lithium Li	mg/L	0.0057	0.0057	0.0057	0.0057	0.0058	0.0053	0.0054	0.0051	0.0051	0.0051	0.0051	0.0050
Magnesium Mg	mg/L	9.5	9.4	9.4	9.0	9.0	8.2	8.4	7.9	7.9	7.8	7.8	7.8
Manganese Mn	mg/L	0.020	0.020	0.020	0.017	0.016	0.015	0.015	0.014	0.014	0.014	0.014	0.014
Mercury Hg	mg/L	0.0000143	0.0000143	0.0000142	0.0000176	0.0000192	0.0000178	0.0000187	0.0000177	0.0000178	0.0000177	0.0000176	0.0000175
Molybdenum Mo	mg/L	0.00528	0.00526	0.00523	0.00403	0.00365	0.00320	0.00314	0.00292	0.00293	0.00291	0.00290	0.00289
Nickel Ni	mg/L	0.0056	0.0056	0.0056	0.0044	0.0040	0.0035	0.0035	0.0032	0.0032	0.0032	0.0032	0.0032
Phosphorus P	mg/L	0.212	0.211	0.210	0.160	0.144	0.126	0.124	0.115	0.115	0.115	0.114	0.114
Potassium K	mg/L	25.2	25.1	25.0	19.8	18.3	16.1	15.9	14.8	14.9	14.8	14.7	14.7
Selenium Se	mg/L	0.00098	0.00097	0.00097	0.00115	0.00125	0.00115	0.00120	0.00113	0.00114	0.00113	0.00112	0.00112
Silicon SiO2	mg/L	3.05	3.04	3.02	2.67	2.59	2.32	2.34	2.19	2.21	2.19	2.18	2.17
Silver Ag	mg/L	0.0001211	0.0001205	0.0001198	0.0001172	0.0001188	0.0001051	0.0001043	0.0000974	0.0000980	0.0000973	0.0000968	0.0000964
Sodium Na	mg/L	384	382	380	302	278	246	243	226	227	226	224	224
Strontium Sr	mg/L	0.071	0.070	0.070	0.062	0.061	0.055	0.055	0.052	0.052	0.052	0.052	0.051
Tellurium Te	mg/L	0.038	0.037	0.037	0.038	0.039	0.036	0.037	0.034	0.035	0.034	0.034	0.034
Thallium Tl	mg/L	0.000042	0.000042	0.000041	0.000039	0.000039	0.000035	0.000036	0.000034	0.000034	0.000034	0.000033	0.000033
Thorium Th	mg/L	0.000065	0.000065	0.000064	0.000078	0.000085	0.000079	0.000084	0.000079	0.000080	0.000079	0.000079	0.000079
Tin Sn	mg/L	0.00211	0.00210	0.00209	0.00160	0.00147	0.00130	0.00128	0.00119	0.00120	0.00119	0.00118	0.00118
Titanium Ti	mg/L	0.0124	0.0123	0.0123	0.0151	0.0165	0.0152	0.0159	0.0151	0.0152	0.0151	0.0150	0.0149
Uranium U	mg/L	0.000086	0.000085	0.000085	0.000095	0.000101	0.000092	0.000095	0.000089	0.000090	0.000089	0.000089	0.000089
Vanadium V	mg/L	0.0040	0.0039	0.0039	0.0037	0.0037	0.0034	0.0034	0.0032	0.0032	0.0032	0.0032	0.0032
Zinc Zn	mg/L	0.0157	0.0156	0.0155	0.0123	0.0113	0.0100	0.0101	0.0095	0.0096	0.0095	0.0094	0.0094
Zirconium Zr	mg/L	0.0044	0.0043	0.0043	0.0044	0.0045	0.0041	0.0042	0.0040	0.0040	0.0040	0.0040	0.0040

Appendix 1

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	806	802	797	624	570	589	534	494	483	480	477	475
TSS	mg/L	4.5	4.4	4.4	4.8	5.1	5.5	5.3	4.9	4.8	4.8	4.8	4.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.028	0.028	0.028	0.021	0.019	0.019	0.017	0.016	0.016	0.016	0.016	0.015
Sulphate	mg/L	31.0	30.9	30.7	23.7	21.5	22.2	20.1	18.6	18.1	18.0	17.9	17.8
Chloride	mg/L	572	569	566	458	427	443	405	376	367	365	363	361
Total Ammonia	mg/L	0.004	0.004	0.004	0.033	0.017	0.009	0.013	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L	1.86	1.74	1.63	1.49	1.51	1.63	1.57	1.48	1.34	1.22	1.11	1.00
Nitrite	mg/L	0.002	0.002	0.002	0.006	0.007	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	30	30	30	27	28	29	27	25	25	25	25	24
OrthoPhosphate-P	mg/L	0.0751	0.0748	0.0743	0.0565	0.0508	0.0522	0.0470	0.0434	0.0424	0.0421	0.0419	0.0418
Phosphate-P	mg/L	0.0921	0.0916	0.0911	0.0766	0.0720	0.0752	0.0689	0.0640	0.0625	0.0621	0.0618	0.0615
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.8	4.6	4.3	4.2	4.1	4.1	4.1
Hardness CaCO3	mg/L	50	50	50	44	44	46	43	40	39	39	39	39
Total Metals													
Aluminum Al	mg/L	0.22	0.22	0.21	0.25	0.26	0.29	0.28	0.26	0.25	0.25	0.25	0.25
Antimony Sb	mg/L	0.0069	0.0069	0.0068	0.0052	0.0047	0.0049	0.0044	0.0041	0.0040	0.0040	0.0039	0.0039
Arsenic As	mg/L	0.0015	0.0015	0.0015	0.0013	0.0013	0.0014	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012
Barium Ba	mg/L	0.0042	0.0042	0.0042	0.0035	0.0033	0.0035	0.0032	0.0030	0.0030	0.0029	0.0029	0.0029
Beryllium Be	mg/L	0.00035	0.00035	0.00034	0.00031	0.00030	0.00032	0.00029	0.00027	0.00026	0.00026	0.00026	0.00026
Bismuth Bi	mg/L	0.00653	0.00650	0.00647	0.00490	0.00440	0.00452	0.00407	0.00376	0.00367	0.00365	0.00363	0.00361
Boron B	mg/L	0.041	0.041	0.041	0.044	0.046	0.050	0.048	0.045	0.044	0.043	0.043	0.043
Cadmium Cd	mg/L	0.0000343	0.0000341	0.0000339	0.0000320	0.0000322	0.0000345	0.0000328	0.0000308	0.0000301	0.0000299	0.0000297	0.0000296
Calcium Ca	mg/L	106	105	105	81	74	76	69	64	62	62	61	61
Chromium Cr	mg/L	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0033	0.0033	0.0033	0.0025	0.0023	0.0024	0.0022	0.0020	0.0019	0.0019	0.0019	0.0019
Copper Cu	mg/L	0.0038	0.0038	0.0038	0.0033	0.0032	0.0034	0.0031	0.0029	0.0028	0.0028	0.0028	0.0028
Iron Fe	mg/L	0.22	0.22	0.22	0.25	0.27	0.29	0.28	0.26	0.26	0.26	0.25	0.25
Lead Pb	mg/L	0.00024	0.00024	0.00024	0.00022	0.00021	0.00023	0.00021	0.00020	0.00019	0.00019	0.00019	0.00019
Lithium Li	mg/L	0.0050	0.0050	0.0050	0.0052	0.0053	0.0057	0.0054	0.0051	0.0050	0.0050	0.0049	0.0049
Magnesium Mg	mg/L	7.7	7.7	7.7	7.7	7.9	8.4	8.0	7.5	7.3	7.3	7.2	7.2
Manganese Mn	mg/L	0.013	0.013	0.013	0.012	0.012	0.013	0.012	0.011	0.011	0.011	0.011	0.011
Mercury Hg	mg/L	0.0000175	0.0000174	0.0000173	0.0000198	0.0000212	0.0000229	0.0000221	0.0000207	0.0000203	0.0000201	0.0000200	0.0000199
Molybdenum Mo	mg/L	0.00288	0.00286	0.00285	0.00227	0.00210	0.00217	0.00198	0.00183	0.00179	0.00178	0.00177	0.00176
Nickel Ni	mg/L	0.0032	0.0032	0.0031	0.0026	0.0024	0.0025	0.0023	0.0021	0.0021	0.0021	0.0020	0.0020
Phosphorus P	mg/L	0.113	0.113	0.112	0.088	0.080	0.083	0.075	0.070	0.068	0.068	0.067	0.067
Potassium K	mg/L	14.6	14.5	14.4	12.1	11.4	11.9	10.9	10.2	9.9	9.9	9.8	9.8
Selenium Se	mg/L	0.00112	0.00111	0.00110	0.00125	0.00133	0.00143	0.00137	0.00129	0.00126	0.00125	0.00125	0.00124
Silicon SiO2	mg/L	2.16	2.15	2.14	2.02	2.01	2.13	2.01	1.88	1.83	1.82	1.81	1.80
Silver Ag	mg/L	0.0000960	0.0000956	0.0000950	0.0000985	0.0001020	0.0001064	0.0000979	0.0000910	0.0000889	0.0000883	0.0000878	0.0000875
Sodium Na	mg/L	223	222	220	184	174	182	168	156	152	151	150	150
Strontium Sr	mg/L	0.051	0.051	0.051	0.048	0.048	0.051	0.048	0.045	0.044	0.044	0.044	0.044
Tellurium Te	mg/L	0.034	0.034	0.034	0.035	0.037	0.039	0.037	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000033	0.000033	0.000033	0.000032	0.000033	0.000035	0.000034	0.000032	0.000031	0.000031	0.000030	0.000030
Thorium Th	mg/L	0.000078	0.000078	0.000077	0.000087	0.000093	0.000101	0.000098	0.000092	0.000090	0.000090	0.000089	0.000089
Tin Sn	mg/L	0.00117	0.00117	0.00116	0.00092	0.00087	0.00091	0.00083	0.00077	0.00076	0.00075	0.00075	0.00074
Titanium Ti	mg/L	0.0149	0.0148	0.0147	0.0169	0.0179	0.0194	0.0187	0.0175	0.0171	0.0170	0.0169	0.0169
Uranium U	mg/L	0.000088	0.000088	0.000087	0.000096	0.000102	0.000109	0.000104	0.000098	0.000095	0.000095	0.000094	0.000094
Vanadium V	mg/L	0.0032	0.0032	0.0031	0.0032	0.0032	0.0034	0.0032	0.0030	0.0030	0.0029	0.0029	0.0029
Zinc Zn	mg/L	0.0094	0.0093	0.0093	0.0077	0.0072	0.0075	0.0072	0.0068	0.0066	0.0066	0.0066	0.0065
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0041	0.0042	0.0045	0.0043	0.0041	0.0040	0.0039	0.0039	0.0039

Appendix 1

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	473	471	468	374	345	305	301	306	299	297	295	294
TSS	mg/L	4.7	4.7	4.7	5.1	5.3	4.8	5.0	5.1	5.0	5.0	5.0	4.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.015	0.015	0.015	0.011	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008
Sulphate	mg/L	17.8	17.7	17.6	13.6	12.4	10.9	10.7	10.8	10.6	10.5	10.5	10.4
Chloride	mg/L	360	358	356	299	283	252	252	256	250	248	247	246
Total Ammonia	mg/L	0.004	0.004	0.004	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	0.89	0.78	0.67	0.50	0.45	0.39	0.38	0.39	0.27	0.16	0.05	
Nitrite	mg/L	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	24	24	24	23	24	22	22	22	22	22	22	22
OrthoPhosphate-P	mg/L	0.0416	0.0414	0.0411	0.0313	0.0281	0.0246	0.0240	0.0243	0.0237	0.0236	0.0234	0.0233
Phosphate-P	mg/L	0.0613	0.0610	0.0606	0.0534	0.0512	0.0458	0.0459	0.0467	0.0456	0.0453	0.0451	0.0449
Org. Carbon	mg/L	4.1	4.1	4.0	4.2	4.5	4.1	4.2	4.3	4.2	4.2	4.1	4.1
Hardness CaCO3	mg/L	39	38	38	35	36	32	33	34	33	33	33	32
Total Metals													
Aluminum Al	mg/L	0.25	0.25	0.25	0.27	0.28	0.26	0.27	0.28	0.27	0.27	0.27	0.27
Antimony Sb	mg/L	0.0039	0.0039	0.0039	0.0029	0.0027	0.0024	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
Arsenic As	mg/L	0.0012	0.0012	0.0012	0.0011	0.0010	0.0009	0.0009	0.0010	0.0009	0.0009	0.0009	0.0009
Barium Ba	mg/L	0.0029	0.0029	0.0029	0.0025	0.0024	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022
Beryllium Be	mg/L	0.00026	0.00025	0.00025	0.00023	0.00023	0.00020	0.00019	0.00019	0.00019	0.00019	0.00019	0.00019
Bismuth Bi	mg/L	0.00360	0.00358	0.00356	0.00268	0.00240	0.00210	0.00204	0.00206	0.00201	0.00200	0.00199	0.00198
Boron B	mg/L	0.043	0.043	0.042	0.044	0.046	0.042	0.044	0.045	0.044	0.043	0.043	0.043
Cadmium Cd	mg/L	0.0000295	0.0000294	0.0000292	0.0000256	0.0000247	0.0000221	0.0000222	0.0000226	0.0000221	0.0000220	0.0000218	0.0000218
Calcium Ca	mg/L	61	61	60	47	43	38	37	38	37	37	36	36
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0019	0.0019	0.0019	0.0015	0.0013	0.0012	0.0012	0.0012	0.0012	0.0011	0.0011	0.0011
Copper Cu	mg/L	0.0028	0.0028	0.0027	0.0025	0.0025	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022
Iron Fe	mg/L	0.25	0.25	0.25	0.28	0.29	0.27	0.28	0.28	0.28	0.28	0.27	0.27
Lead Pb	mg/L	0.00019	0.00019	0.00019	0.00017	0.00016	0.00015	0.00014	0.00015	0.00014	0.00014	0.00014	0.00014
Lithium Li	mg/L	0.0049	0.0049	0.0048	0.0051	0.0052	0.0048	0.0049	0.0051	0.0049	0.0049	0.0049	0.0049
Magnesium Mg	mg/L	7.2	7.1	7.1	7.2	7.5	6.8	7.0	7.2	7.1	7.0	7.0	6.9
Manganese Mn	mg/L	0.011	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Mercury Hg	mg/L	0.0000199	0.0000198	0.0000196	0.0000214	0.0000225	0.0000206	0.0000214	0.0000219	0.0000214	0.0000213	0.0000211	0.0000211
Molybdenum Mo	mg/L	0.00175	0.00174	0.00173	0.00143	0.00134	0.00119	0.00118	0.00119	0.00117	0.00116	0.00115	0.00115
Nickel Ni	mg/L	0.0020	0.0020	0.0020	0.0017	0.0016	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Phosphorus P	mg/L	0.067	0.067	0.066	0.052	0.046	0.041	0.040	0.040	0.039	0.039	0.039	0.039
Potassium K	mg/L	9.7	9.7	9.6	8.4	8.1	7.2	7.3	7.4	7.2	7.2	7.2	7.1
Selenium Se	mg/L	0.00124	0.00123	0.00122	0.00133	0.00140	0.00128	0.00132	0.00135	0.00132	0.00131	0.00131	0.00130
Silicon SiO2	mg/L	1.80	1.79	1.78	1.71	1.72	1.56	1.59	1.63	1.59	1.58	1.57	1.56
Silver Ag	mg/L	0.0000872	0.0000867	0.0000862	0.0000883	0.0000905	0.0000796	0.0000783	0.0000793	0.0000774	0.0000769	0.0000765	0.0000762
Sodium Na	mg/L	149	148	148	129	125	112	112	114	112	111	110	110
Strontium Sr	mg/L	0.043	0.043	0.043	0.042	0.043	0.039	0.040	0.041	0.040	0.040	0.040	0.039
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000030	0.000030	0.000030	0.000029	0.000029	0.000027	0.000027	0.000028	0.000027	0.000027	0.000027	0.000027
Thorium Th	mg/L	0.000089	0.000088	0.000088	0.000089	0.000092	0.000083	0.000086	0.000088	0.000086	0.000085	0.000085	0.000084
Tin Sn	mg/L	0.00074	0.00074	0.00073	0.00058	0.00056	0.00050	0.00050	0.00051	0.00049	0.00049	0.00049	0.00049
Titanium Ti	mg/L	0.0168	0.0167	0.0166	0.0183	0.0193	0.0177	0.0184	0.0188	0.0184	0.0183	0.0182	0.0181
Uranium U	mg/L	0.000093	0.000093	0.000092	0.000095	0.000097	0.000087	0.000088	0.000090	0.000088	0.000087	0.000087	0.000087
Vanadium V	mg/L	0.0029	0.0029	0.0029	0.0029	0.0030	0.0027	0.0028	0.0029	0.0028	0.0028	0.0028	0.0027
Zinc Zn	mg/L	0.0065	0.0065	0.0064	0.0054	0.0052	0.0046	0.0049	0.0051	0.0050	0.0049	0.0049	0.0049
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0039	0.0040	0.0037	0.0038	0.0039	0.0038	0.0037	0.0037	0.0037

Appendix 1

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	293	291	289	239	225	199	198	185	186	185	184	183
TSS	mg/L	4.9	4.9	4.9	5.2	5.4	5.0	5.1	4.8	4.9	4.8	4.8	4.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.008	0.008	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Sulphate	mg/L	10.4	10.3	10.3	8.1	7.4	6.5	6.5	6.0	6.1	6.0	6.0	6.0
Chloride	mg/L	245	244	242	213	207	185	186	174	175	174	173	173
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	21	21	21	21	22	20	20	19	19	19	19	19
OrthoPhosphate-P	mg/L	0.0233	0.0231	0.0230	0.0176	0.0158	0.0139	0.0136	0.0126	0.0127	0.0126	0.0125	0.0125
Phosphate-P	mg/L	0.0447	0.0445	0.0442	0.0411	0.0402	0.0361	0.0364	0.0341	0.0343	0.0341	0.0339	0.0338
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.1	4.2	3.9	4.0	3.9	3.9	3.9
Hardness CaCO3	mg/L	32	32	32	31	32	29	29	28	28	28	28	27
Total Metals													
Aluminum Al	mg/L	0.27	0.26	0.26	0.28	0.29	0.27	0.28	0.26	0.27	0.26	0.26	0.26
Antimony Sb	mg/L	0.0022	0.0022	0.0022	0.0017	0.0016	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Arsenic As	mg/L	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007
Barium Ba	mg/L	0.0022	0.0022	0.0021	0.0019	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017
Beryllium Be	mg/L	0.00019	0.00019	0.00018	0.00018	0.00018	0.00016	0.00015	0.00014	0.00014	0.00014	0.00014	0.00014
Bismuth Bi	mg/L	0.00197	0.00196	0.00195	0.00146	0.00131	0.00114	0.00111	0.00103	0.00104	0.00103	0.00102	0.00102
Boron B	mg/L	0.043	0.043	0.042	0.045	0.046	0.042	0.044	0.041	0.041	0.041	0.041	0.041
Cadmium Cd	mg/L	0.0000217	0.0000216	0.0000214	0.0000198	0.0000195	0.0000175	0.0000177	0.0000166	0.0000167	0.0000166	0.0000165	0.0000165
Calcium Ca	mg/L	36	36	36	29	26	23	23	22	22	21	21	21
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0011	0.0011	0.0011	0.0009	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Copper Cu	mg/L	0.0022	0.0022	0.0021	0.0021	0.0021	0.0019	0.0019	0.0018	0.0018	0.0018	0.0018	0.0017
Iron Fe	mg/L	0.27	0.27	0.27	0.29	0.30	0.28	0.29	0.27	0.27	0.27	0.27	0.27
Lead Pb	mg/L	0.00014	0.00014	0.00014	0.00013	0.00013	0.00012	0.00012	0.00011	0.00011	0.00011	0.00011	0.00011
Lithium Li	mg/L	0.0048	0.0048	0.0048	0.0050	0.0052	0.0048	0.0049	0.0046	0.0046	0.0046	0.0046	0.0046
Magnesium Mg	mg/L	6.9	6.9	6.8	7.1	7.3	6.7	6.9	6.5	6.5	6.5	6.5	6.4
Manganese Mn	mg/L	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Mercury Hg	mg/L	0.0000210	0.0000209	0.0000207	0.0000223	0.0000233	0.0000213	0.0000220	0.0000207	0.0000208	0.0000207	0.0000206	0.0000205
Molybdenum Mo	mg/L	0.00114	0.00114	0.00113	0.00097	0.00093	0.00083	0.00083	0.00077	0.00078	0.00077	0.00077	0.00077
Nickel Ni	mg/L	0.0014	0.0014	0.0014	0.0012	0.0012	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010
Phosphorus P	mg/L	0.039	0.038	0.038	0.030	0.027	0.024	0.024	0.022	0.022	0.022	0.022	0.022
Potassium K	mg/L	7.1	7.1	7.0	6.4	6.3	5.7	5.8	5.4	5.4	5.4	5.4	5.4
Selenium Se	mg/L	0.00130	0.00129	0.00128	0.00138	0.00144	0.00131	0.00135	0.00127	0.00128	0.00127	0.00127	0.00126
Silicon SiO2	mg/L	1.56	1.55	1.54	1.54	1.56	1.42	1.46	1.37	1.38	1.37	1.36	1.35
Silver Ag	mg/L	0.0000759	0.0000755	0.0000751	0.0000800	0.0000832	0.0000730	0.0000718	0.0000668	0.0000672	0.0000667	0.0000664	0.0000661
Sodium Na	mg/L	110	109	108	100	98	88	90	84	85	84	84	83
Strontium Sr	mg/L	0.039	0.039	0.039	0.039	0.040	0.037	0.038	0.036	0.036	0.036	0.035	0.035
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.032	0.033	0.032	0.032	0.032
Thallium Tl	mg/L	0.000027	0.000027	0.000026	0.000027	0.000027	0.000025	0.000025	0.000024	0.000024	0.000024	0.000024	0.000023
Thorium Th	mg/L	0.000084	0.000084	0.000083	0.000086	0.000089	0.000081	0.000083	0.000078	0.000079	0.000078	0.000078	0.000078
Tin Sn	mg/L	0.00049	0.00048	0.00048	0.00039	0.00039	0.00035	0.00035	0.00033	0.00033	0.00033	0.00033	0.00033
Titanium Ti	mg/L	0.0180	0.0179	0.0178	0.0193	0.0202	0.0184	0.0191	0.0180	0.0181	0.0180	0.0179	0.0178
Uranium U	mg/L	0.000086	0.000086	0.000085	0.000090	0.000093	0.000083	0.000084	0.000079	0.000079	0.000079	0.000078	0.000078
Vanadium V	mg/L	0.0027	0.0027	0.0027	0.0028	0.0029	0.0026	0.0027	0.0025	0.0025	0.0025	0.0025	0.0025
Zinc Zn	mg/L	0.0049	0.0048	0.0048	0.0042	0.0041	0.0037	0.0040	0.0038	0.0038	0.0038	0.0038	0.0038
Zirconium Zr	mg/L	0.0037	0.0037	0.0037	0.0038	0.0039	0.0035	0.0037	0.0034	0.0035	0.0034	0.0034	0.0034

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	182	181	180	158	153	161	149	139	136	135	134	134
TSS	mg/L	4.8	4.7	4.7	5.1	5.3	5.7	5.5	5.1	5.0	5.0	4.9	4.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Sulphate	mg/L	5.9	5.9	5.9	4.8	4.6	4.8	4.4	4.1	4.0	4.0	4.0	3.9
Chloride	mg/L	172	171	170	159	159	169	158	148	144	143	143	142
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	19	19	19	19	20	22	20	19	19	19	18	18
OrthoPhosphate-P	mg/L	0.0124	0.0124	0.0123	0.0097	0.0088	0.0091	0.0083	0.0077	0.0075	0.0075	0.0074	0.0074
Phosphate-P	mg/L	0.0336	0.0335	0.0333	0.0329	0.0330	0.0350	0.0329	0.0307	0.0300	0.0298	0.0296	0.0295
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.4	4.7	4.4	4.1	4.0	4.0	4.0	4.0
Hardness CaCO3	mg/L	27	27	27	27	28	30	29	27	26	26	26	26
Total Metals													
Aluminum Al	mg/L	0.26	0.26	0.26	0.28	0.29	0.31	0.30	0.28	0.27	0.27	0.27	0.27
Antimony Sb	mg/L	0.0013	0.0013	0.0012	0.0010	0.0009	0.0010	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008
Arsenic As	mg/L	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Barium Ba	mg/L	0.0017	0.0017	0.0017	0.0016	0.0016	0.0017	0.0017	0.0016	0.0015	0.0015	0.0015	0.0015
Beryllium Be	mg/L	0.00014	0.00014	0.00014	0.00014	0.00015	0.00015	0.00014	0.00013	0.00012	0.00012	0.00012	0.00012
Bismuth Bi	mg/L	0.00102	0.00101	0.00101	0.00077	0.00069	0.00071	0.00064	0.00059	0.00058	0.00058	0.00057	0.00057
Boron B	mg/L	0.041	0.040	0.040	0.043	0.045	0.048	0.046	0.043	0.042	0.042	0.042	0.041
Cadmium Cd	mg/L	0.0000164	0.0000163	0.0000162	0.0000159	0.0000160	0.0000171	0.0000161	0.0000150	0.0000147	0.0000146	0.0000145	0.0000145
Calcium Ca	mg/L	21	21	21	18	17	18	16	15	15	15	15	14
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0007	0.0007	0.0007	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Copper Cu	mg/L	0.0017	0.0017	0.0017	0.0017	0.0018	0.0019	0.0018	0.0017	0.0016	0.0016	0.0016	0.0016
Iron Fe	mg/L	0.27	0.27	0.27	0.29	0.30	0.32	0.31	0.29	0.28	0.28	0.28	0.28
Lead Pb	mg/L	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00010	0.00010	0.00010	0.00010	0.00010
Lithium Li	mg/L	0.0046	0.0045	0.0045	0.0048	0.0050	0.0054	0.0051	0.0048	0.0047	0.0047	0.0046	0.0046
Magnesium Mg	mg/L	6.4	6.4	6.3	6.7	6.9	7.5	7.1	6.7	6.5	6.5	6.5	6.4
Manganese Mn	mg/L	0.008	0.008	0.008	0.008	0.008	0.009	0.008	0.008	0.008	0.007	0.007	0.007
Mercury Hg	mg/L	0.0000204	0.0000203	0.0000202	0.0000218	0.0000228	0.0000245	0.0000234	0.0000220	0.0000215	0.0000213	0.0000212	0.0000211
Molybdenum Mo	mg/L	0.00076	0.00076	0.00076	0.00069	0.00068	0.00072	0.00067	0.00063	0.00061	0.00061	0.00060	0.00060
Nickel Ni	mg/L	0.0010	0.0010	0.0010	0.0009	0.0009	0.0010	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008
Phosphorus P	mg/L	0.022	0.021	0.021	0.018	0.017	0.017	0.016	0.014	0.014	0.014	0.014	0.014
Potassium K	mg/L	5.3	5.3	5.3	5.1	5.2	5.5	5.2	4.9	4.8	4.7	4.7	4.7
Selenium Se	mg/L	0.00126	0.00125	0.00124	0.00135	0.00141	0.00151	0.00144	0.00135	0.00132	0.00131	0.00130	0.00130
Silicon SiO2	mg/L	1.35	1.34	1.33	1.38	1.42	1.53	1.45	1.36	1.33	1.32	1.31	1.31
Silver Ag	mg/L	0.0000659	0.0000655	0.0000652	0.0000723	0.0000762	0.0000788	0.0000716	0.0000663	0.0000648	0.0000643	0.0000640	0.0000638
Sodium Na	mg/L	83	82	82	80	81	86	81	76	74	74	73	73
Strontium Sr	mg/L	0.035	0.035	0.035	0.036	0.037	0.040	0.038	0.036	0.035	0.035	0.035	0.035
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.038	0.036	0.034	0.033	0.033	0.033	0.032
Thallium Tl	mg/L	0.000023	0.000023	0.000023	0.000024	0.000025	0.000027	0.000025	0.000024	0.000023	0.000023	0.000023	0.000023
Thorium Th	mg/L	0.000077	0.000077	0.000076	0.000081	0.000084	0.000090	0.000086	0.000081	0.000079	0.000078	0.000078	0.000077
Tin Sn	mg/L	0.00032	0.00032	0.00032	0.00027	0.00028	0.00030	0.00029	0.00027	0.00026	0.00026	0.00026	0.00026
Titanium Ti	mg/L	0.0177	0.0176	0.0175	0.0190	0.0198	0.0214	0.0204	0.0191	0.0187	0.0186	0.0185	0.0184
Uranium U	mg/L	0.000078	0.000077	0.000077	0.000083	0.000087	0.000092	0.000086	0.000080	0.000078	0.000078	0.000077	0.000077
Vanadium V	mg/L	0.0025	0.0025	0.0025	0.0026	0.0027	0.0029	0.0028	0.0026	0.0025	0.0025	0.0025	0.0025
Zinc Zn	mg/L	0.0037	0.0037	0.0037	0.0034	0.0033	0.0036	0.0036	0.0035	0.0034	0.0034	0.0034	0.0033
Zirconium Zr	mg/L	0.0034	0.0034	0.0034	0.0036	0.0037	0.0040	0.0038	0.0035	0.0035	0.0034	0.0034	0.0034

Appendix 1

Table I-3-a-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	133	133	132	121	120	108	110	103	104	103	102
TSS	mg/L	4.9	4.9	4.8	5.2	5.4	4.9	5.1	4.8	4.8	4.8	4.8
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Sulphate	mg/L	3.9	3.9	3.9	3.3	3.2	2.9	2.9	2.7	2.7	2.7	2.7
Chloride	mg/L	142	141	140	137	139	126	129	121	122	121	120
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	18	18	18	19	20	18	19	17	18	17	17
OrthoPhosphate-P	mg/L	0.0074	0.0073	0.0073	0.0059	0.0054	0.0048	0.0048	0.0044	0.0045	0.0044	0.0044
Phosphate-P	mg/L	0.0294	0.0292	0.0291	0.0298	0.0301	0.0274	0.0279	0.0263	0.0264	0.0262	0.0261
Org. Carbon	mg/L	4.0	3.9	3.9	4.2	4.4	4.0	4.1	3.9	3.9	3.9	3.8
Hardness CaCO3	mg/L	26	26	26	26	27	25	26	24	25	24	24
Total Metals												
Aluminum Al	mg/L	0.27	0.27	0.27	0.28	0.30	0.27	0.28	0.27	0.27	0.26	0.26
Antimony Sb	mg/L	0.0008	0.0008	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005
Arsenic As	mg/L	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007	0.0006	0.0006	0.0006	0.0006
Barium Ba	mg/L	0.0015	0.0015	0.0015	0.0014	0.0015	0.0014	0.0014	0.0013	0.0014	0.0013	0.0013
Beryllium Be	mg/L	0.00012	0.00012	0.00012	0.00013	0.00014	0.00012	0.00012	0.00011	0.00011	0.00011	0.00011
Bismuth Bi	mg/L	0.00057	0.00056	0.00056	0.00043	0.00039	0.00034	0.00033	0.00031	0.00031	0.00031	0.00031
Boron B	mg/L	0.041	0.041	0.041	0.043	0.045	0.042	0.043	0.040	0.041	0.040	0.040
Cadmium Cd	mg/L	0.0000144	0.0000143	0.0000142	0.0000144	0.0000147	0.0000134	0.0000137	0.0000129	0.0000130	0.0000129	0.0000128
Calcium Ca	mg/L	14	14	14	13	12	11	11	10	10	10	10
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Copper Cu	mg/L	0.0016	0.0016	0.0016	0.0016	0.0017	0.0015	0.0016	0.0015	0.0015	0.0015	0.0015
Iron Fe	mg/L	0.28	0.28	0.28	0.29	0.31	0.28	0.29	0.28	0.28	0.27	0.27
Lead Pb	mg/L	0.00009	0.00009	0.00009	0.00010	0.00010	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008
Lithium Li	mg/L	0.0046	0.0046	0.0046	0.0049	0.0051	0.0046	0.0048	0.0045	0.0045	0.0045	0.0045
Magnesium Mg	mg/L	6.4	6.4	6.3	6.7	7.0	6.4	6.6	6.2	6.3	6.2	6.2
Manganese Mn	mg/L	0.007	0.007	0.007	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.007
Mercury Hg	mg/L	0.0000210	0.0000209	0.0000208	0.0000223	0.0000233	0.0000213	0.0000220	0.0000208	0.0000209	0.0000207	0.0000206
Molybdenum Mo	mg/L	0.00060	0.00060	0.00059	0.00057	0.00057	0.00052	0.00053	0.00050	0.00050	0.00049	0.00049
Nickel Ni	mg/L	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Phosphorus P	mg/L	0.014	0.014	0.014	0.012	0.011	0.010	0.010	0.009	0.009	0.009	0.009
Potassium K	mg/L	4.7	4.6	4.6	4.6	4.7	4.3	4.4	4.2	4.2	4.2	4.1
Selenium Se	mg/L	0.00129	0.00129	0.00128	0.00137	0.00143	0.00131	0.00135	0.00127	0.00128	0.00127	0.00127
Silicon SiO2	mg/L	1.30	1.29	1.29	1.35	1.39	1.27	1.31	1.24	1.24	1.24	1.23
Silver Ag	mg/L	0.0000635	0.0000632	0.0000628	0.0000707	0.0000749	0.0000659	0.0000650	0.0000605	0.0000608	0.0000604	0.0000601
Sodium Na	mg/L	73	72	72	72	74	67	69	65	66	65	65
Strontium Sr	mg/L	0.034	0.034	0.034	0.035	0.037	0.034	0.035	0.033	0.033	0.033	0.033
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.036	0.033	0.034	0.032	0.032	0.032	0.031
Thallium Tl	mg/L	0.000023	0.000023	0.000022	0.000024	0.000024	0.000022	0.000023	0.000022	0.000022	0.000022	0.000022
Thorium Th	mg/L	0.000077	0.000077	0.000076	0.000081	0.000084	0.000077	0.000079	0.000075	0.000075	0.000075	0.000074
Tin Sn	mg/L	0.00026	0.00026	0.00025	0.00022	0.00024	0.00022	0.00022	0.00021	0.00021	0.00021	0.00021
Titanium Ti	mg/L	0.0183	0.0182	0.0181	0.0195	0.0203	0.0186	0.0192	0.0181	0.0182	0.0181	0.0180
Uranium U	mg/L	0.000077	0.000076	0.000076	0.000083	0.000086	0.000078	0.000079	0.000074	0.000075	0.000074	0.000074
Vanadium V	mg/L	0.0025	0.0025	0.0025	0.0026	0.0027	0.0025	0.0026	0.0024	0.0024	0.0024	0.0024
Zinc Zn	mg/L	0.0033	0.0033	0.0033	0.0031	0.0031	0.0028	0.0031	0.0030	0.0030	0.0030	0.0030
Zirconium Zr	mg/L	0.0034	0.0034	0.0033	0.0036	0.0037	0.0034	0.0035	0.0033	0.0033	0.0033	0.0033

Appendix 1

Table I-3-a-A.3

Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	117442	101234	86389	86424	83234	78530	81148	81148	73295
TSS	183	177	183	1239	685	341	375	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18322	17074	15398	15298	14794	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	71048	57314	58180	52622	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15548	12117	8343	8349	7362	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1171.73	314.49	328.91	86.92				
Hardness CaCO3	14992	14508	14992	26182	22190	16931	17008	15652	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.31	12.08	9.26	8.84	5.92	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.00	1.76	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.30	7.39	4.51	4.73	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42156	42169	41159	39995	40733	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.32	1.27	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.53	11.68	9.32	9.43	6.00	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.84	1.15	0.69	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2866	2088	1461	1468	1204	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7119	7036	6794	6630	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	963	773	631	633	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11746	9527	7313	7360	6675	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.74	8.41	2.65	3.32	0.89	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.42	1.22	0.46	0.56	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.10	1.04	0.35	0.44	0.13				

Appendix 1

Table I-3-a-A.3
Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	117011	101009	86327	86328	83208	78530	81148	81148	73295
TSS	183	177	183	1227	680	339	372	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18314	17069	15397	15295	14793	13840	14302	14302	12918
Chloride	49110	47526	49110	82247	70972	57293	58150	52614	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15450	12059	8326	8329	7357	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2098.99	1158.56	310.77	324.90	85.83				
Hardness CaCO3	14992	14508	14992	26053	22109	16908	16978	15644	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.24	12.06	9.23	8.82	5.92	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.28	2.00	1.75	1.73	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.26	7.36	4.50	4.72	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42136	42158	41155	39990	40731	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.31	1.26	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.36	11.62	9.28	9.38	5.99	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.83	1.14	0.69	0.73	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2850	2079	1458	1464	1203	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7113	7032	6793	6629	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	960	771	630	632	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11684	9492	7302	7346	6671	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.54	8.31	2.62	3.28	0.88	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.39	1.21	0.46	0.55	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.08	1.03	0.35	0.44	0.12				

Appendix 1

Table I-3-a-A.3
Scenario 3 - Upper Limit !

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	87387	70473	55832	56817	52721	49028	50662	50662	45759
TSS				1046	495	155	195	51				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5619	3993	2358	2669	1769	1247	1289	1289	1164
Chloride	49110	47526	49110	82214	70956	57290	58148	52614	47526	49110	49110	44357
Total Ammonia	25	24	25	153	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1036	654	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				8718	5118	1396	1623	429				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2092.35	1155.64	310.19	324.55	85.81				
Hardness CaCO3				11508	7099	1913	2467	652				
Total Metals												
Aluminum Al	0.81	0.78	0.81	12.73	6.56	4.79	4.29	1.91	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.55	3.32	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.27	0.18	0.09	0.10	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.82	0.49	0.25	0.27	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.20	0.13	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.52	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.43	4.73	2.12	2.36	1.15	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	3033	1827	888	1007	489	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.38	0.30	0.16	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.28	0.19	0.11	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.43	0.25	0.09	0.10	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	16.37	6.78	4.69	4.89	1.51	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.42	0.73	0.28	0.34	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1899	1106	493	529	240	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.89	0.56	0.40	0.49	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.65	0.43	0.24	0.26	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	33	29	25	25	24	22	23	23	21
Potassium K	25	24	25	651	358	120	171	66	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.16	0.08	0.02	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	397	204	76	93	34	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5526	3140	958	1206	329	12	12	12	11
Strontium Sr	0	0	0	9	5	2	3	1	0	0	0	0
Tellurium Te				17.46	8.27	2.59	3.25	0.86				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.55	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.34	1.17	0.42	0.51	0.19	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.88	0.59	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.2	0.8	0.5	1.0	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.94	0.95	0.31	0.39	0.11				

Appendix 1

Table I-3-a-A.3
Scenario 3 - Upper Limit !

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				417065	398294	383460	386128	380307				
TSS				2706	1282	402	505	134				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				843	516	146	241	68				
Chloride				285245	258222	238805	241164	233244				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8830	5188	1417	1649	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				14	6	2	2	1				
Org. Carbon				2119.25	1171.42	314.86	329.81	87.29				
Hardness CaCO3				11656	7196	1942	2507	663				
Total Metals												
Aluminum Al				152.80	72.20	24.72	29.54	7.94				
Antimony Sb				0.10	0.07	0.04	0.06	0.02				
Arsenic As				0.41	0.22	0.07	0.09	0.03				
Barium Ba				0.60	0.33	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.04	0.02	0.01	0.01	0.00				
Boron B				23.04	11.56	3.73	4.56	1.24				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				25709	24046	22918	23046	22486				
Chromium Cr				0.43	0.27	0.09	0.07	0.02				
Cobalt Co				0.13	0.06	0.02	0.03	0.01				
Copper Cu				0.79	0.40	0.11	0.14	0.04				
Iron Fe				154.55	72.03	25.00	30.47	8.09				
Lead Pb				0.06	0.03	0.01	0.01	0.00				
Lithium Li				2.52	1.20	0.38	0.47	0.13				
Magnesium Mg				3360	1686	570	658	175				
Manganese Mn				3.62	1.70	0.62	0.81	0.21				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.22	0.11	0.03	0.04	0.01				
Nickel Ni				0.35	0.17	0.05	0.06	0.02				
Phosphorus P				6	3	1	1	0				
Potassium K				2051	998	299	403	107				
Selenium Se				0.74	0.35	0.11	0.14	0.04				
Silicon SiO2				713	345	111	140	38				
Silver Ag				0.05	0.02	0.00	0.00	0.00				
Sodium Na				157579	141242	130431	131693	127172				
Strontium Sr				17	9	3	4	1				
Tellurium Te				17.69	8.38	2.63	3.31	0.88				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.05	0.03	0.01	0.01	0.00				
Tin Sn				0.08	0.07	0.02	0.03	0.01				
Titanium Ti				10.24	4.85	1.52	1.91	0.51				
Uranium U				0.05	0.03	0.01	0.01	0.00				
Vanadium V				1.40	0.67	0.20	0.24	0.06				
Zinc Zn				1.2	0.6	0.3	0.7	0.2				
Zirconium Zr				2.01	0.98	0.32	0.40	0.11				

Appendix 1

Table I-3-a-A.3
Scenario 3 - Upper Limit !

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				39489	20419	5256	7929	2081				
TSS				2750	1303	403	506	133				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				854	523	146	241	68				
Chloride				55751	28297	8426	10790	2832				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8975	5275	1419	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				14	6	2	2	1				
Org. Carbon				2153.97	1191.12	315.39	330.38	86.71				
Hardness CaCO3				11847	7317	1945	2511	659				
Total Metals												
Aluminum Al				155.24	73.37	24.76	29.59	7.89				
Antimony Sb				0.11	0.07	0.04	0.06	0.02				
Arsenic As				0.41	0.22	0.07	0.09	0.03				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.04	0.02	0.01	0.01	0.00				
Boron B				23.40	11.75	3.74	4.57	1.23				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				3487	1798	644	773	210				
Chromium Cr				0.44	0.27	0.09	0.07	0.02				
Cobalt Co				0.13	0.06	0.02	0.03	0.01				
Copper Cu				0.81	0.40	0.11	0.14	0.04				
Iron Fe				157.07	73.23	25.04	30.52	8.04				
Lead Pb				0.06	0.03	0.01	0.01	0.00				
Lithium Li				2.56	1.22	0.38	0.48	0.13				
Magnesium Mg				3415	1714	571	659	174				
Manganese Mn				3.68	1.73	0.62	0.81	0.21				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.22	0.11	0.03	0.04	0.01				
Nickel Ni				0.36	0.18	0.05	0.06	0.02				
Phosphorus P				6	3	1	1	0				
Potassium K				2084	1014	300	404	106				
Selenium Se				0.75	0.36	0.11	0.14	0.04				
Silicon SiO2				724	350	111	140	38				
Silver Ag				0.05	0.02	0.00	0.00	0.00				
Sodium Na				32559	15961	4894	6159	1617				
Strontium Sr				17	9	3	4	1				
Tellurium Te				17.98	8.52	2.63	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.05	0.03	0.01	0.01	0.00				
Tin Sn				0.08	0.07	0.02	0.03	0.01				
Titanium Ti				10.40	4.93	1.53	1.92	0.50				
Uranium U				0.06	0.03	0.01	0.01	0.00				
Vanadium V				1.42	0.68	0.20	0.24	0.06				
Zinc Zn				1.2	0.6	0.3	0.7	0.2				
Zirconium Zr				2.03	0.99	0.32	0.40	0.11				

Appendix 1

Table I-3-a-A.3
Scenario 3 - Upper Limit !

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				39345	20343	5320	7972	2092				
TSS				2740	1299	408	509	134				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				852	522	147	242	68				
Chloride				55548	28192	8529	10849	2847				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8942	5255	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				14	6	2	2	1				
Org. Carbon				2146.11	1186.67	319.23	332.17	87.16				
Hardness CaCO3				11804	7290	1969	2525	662				
Total Metals												
Aluminum Al				154.69	73.11	25.05	29.74	7.93				
Antimony Sb				0.10	0.07	0.04	0.06	0.02				
Arsenic As				0.41	0.22	0.07	0.09	0.03				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.04	0.02	0.01	0.01	0.00				
Boron B				23.32	11.71	3.78	4.59	1.23				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				3475	1792	651	776	211				
Chromium Cr				0.44	0.27	0.09	0.07	0.02				
Cobalt Co				0.13	0.06	0.02	0.03	0.01				
Copper Cu				0.80	0.40	0.11	0.14	0.04				
Iron Fe				156.50	72.96	25.34	30.68	8.08				
Lead Pb				0.06	0.03	0.01	0.01	0.00				
Lithium Li				2.56	1.21	0.38	0.48	0.13				
Magnesium Mg				3402	1708	578	663	175				
Manganese Mn				3.66	1.72	0.63	0.81	0.21				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.22	0.11	0.03	0.04	0.01				
Nickel Ni				0.35	0.17	0.05	0.06	0.02				
Phosphorus P				6	3	1	1	0				
Potassium K				2076	1011	303	406	107				
Selenium Se				0.75	0.36	0.11	0.14	0.04				
Silicon SiO2				722	349	113	141	38				
Silver Ag				0.05	0.02	0.00	0.00	0.00				
Sodium Na				32440	15901	4954	6192	1625				
Strontium Sr				17	9	3	4	1				
Tellurium Te				17.91	8.49	2.67	3.33	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.05	0.03	0.01	0.01	0.00				
Tin Sn				0.08	0.07	0.02	0.03	0.01				
Titanium Ti				10.37	4.92	1.54	1.93	0.51				
Uranium U				0.05	0.03	0.01	0.01	0.00				
Vanadium V				1.42	0.68	0.20	0.24	0.06				
Zinc Zn				1.2	0.6	0.3	0.7	0.2				
Zirconium Zr				2.03	0.99	0.32	0.41	0.11				

Appendix 1

Table I-3-a-A.3
Scenario 3 - Upper Limit !

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				39433	20389	5249	7918	2096				
TSS				2746	1302	402	505	134				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	51				
Chloride				55671	28256	8415	10775	2852				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8962	5267	1417	1650	437				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				14	6	2	2	1				
Org. Carbon				2150.88	1189.37	314.97	329.92	87.32				
Hardness CaCO3				11830	7306	1942	2507	664				
Total Metals												
Aluminum Al				150.73	70.61	23.61	28.11	7.44				
Antimony Sb				0.09	0.06	0.04	0.05	0.01				
Arsenic As				0.31	0.16	0.05	0.06	0.02				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.02	0.01	0.00	0.00	0.00				
Boron B				22.37	11.11	3.47	4.23	1.12				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				3231	1640	578	688	182				
Chromium Cr				0.42	0.26	0.09	0.06	0.02				
Cobalt Co				0.11	0.05	0.01	0.02	0.01				
Copper Cu				0.78	0.39	0.11	0.13	0.03				
Iron Fe				155.84	72.51	24.74	30.14	7.98				
Lead Pb				0.05	0.02	0.01	0.01	0.00				
Lithium Li				2.54	1.20	0.37	0.47	0.12				
Magnesium Mg				3385	1696	563	650	172				
Manganese Mn				3.65	1.71	0.61	0.80	0.21				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.22	0.11	0.03	0.04	0.01				
Nickel Ni				0.33	0.16	0.05	0.05	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				2075	1009	298	401	106				
Selenium Se				0.73	0.35	0.10	0.13	0.03				
Silicon SiO2				676	320	99	124	33				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				32506	15934	4886	6148	1627				
Strontium Sr				17	9	3	4	1				
Tellurium Te				17.93	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				0.06	0.06	0.02	0.02	0.01				
Titanium Ti				10.37	4.91	1.52	1.91	0.51				
Uranium U				0.05	0.02	0.00	0.01	0.00				
Vanadium V				1.38	0.65	0.19	0.22	0.06				
Zinc Zn				1.1	0.5	0.2	0.7	0.2				
Zirconium Zr				1.84	0.87	0.27	0.34	0.09				

Appendix 1

Table I-3-a-A.3
Scenario 3 - Upper Limit !

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				39503	20426	5258	7932	2082				
TSS				2751	1304	403	506	133				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				707	432	108	192	50				
Chloride				55771	28307	8429	10794	2833				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8978	5277	1420	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				14	6	2	2	1				
Org. Carbon				2154.72	1191.54	315.49	330.49	86.74				
Hardness CaCO3				11851	7319	1946	2512	659				
Total Metals												
Aluminum Al				151.00	70.74	23.65	28.16	7.39				
Antimony Sb				0.09	0.06	0.04	0.05	0.01				
Arsenic As				0.31	0.16	0.05	0.06	0.02				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.02	0.01	0.00	0.00	0.00				
Boron B				22.41	11.13	3.48	4.24	1.11				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				3236	1643	579	689	181				
Chromium Cr				0.42	0.26	0.09	0.06	0.02				
Cobalt Co				0.11	0.05	0.01	0.02	0.00				
Copper Cu				0.78	0.39	0.11	0.13	0.03				
Iron Fe				156.12	72.64	24.78	30.20	7.93				
Lead Pb				0.05	0.02	0.01	0.01	0.00				
Lithium Li				2.55	1.21	0.37	0.47	0.12				
Magnesium Mg				3391	1699	564	651	171				
Manganese Mn				3.65	1.71	0.61	0.80	0.21				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.22	0.11	0.03	0.04	0.01				
Nickel Ni				0.33	0.16	0.05	0.05	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				2078	1011	298	402	105				
Selenium Se				0.73	0.35	0.10	0.13	0.03				
Silicon SiO2				677	321	99	125	33				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				32564	15963	4894	6159	1616				
Strontium Sr				17	9	3	4	1				
Tellurium Te				17.96	8.51	2.63	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				0.06	0.06	0.02	0.02	0.01				
Titanium Ti				10.39	4.92	1.52	1.91	0.50				
Uranium U				0.05	0.02	0.00	0.01	0.00				
Vanadium V				1.38	0.65	0.19	0.22	0.06				
Zinc Zn				1.1	0.5	0.2	0.7	0.2				
Zirconium Zr				1.84	0.87	0.27	0.34	0.09				

Appendix 1

Table I-3-a-A.3
Scenario 3 - Upper Limit !

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				39358	20350	5322	7975	2093				
TSS				2741	1299	408	509	134				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				705	431	109	193	51				
Chloride				55566	28201	8532	10852	2848				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8945	5257	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				14	6	2	2	1				
Org. Carbon				2146.79	1187.06	319.34	332.29	87.19				
Hardness CaCO3				11807	7292	1969	2525	663				
Total Metals												
Aluminum Al				150.45	70.47	23.93	28.32	7.43				
Antimony Sb				0.09	0.06	0.04	0.05	0.01				
Arsenic As				0.31	0.16	0.05	0.06	0.02				
Barium Ba				0.59	0.33	0.15	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.02	0.01	0.00	0.00	0.00				
Boron B				22.32	11.09	3.52	4.26	1.12				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				3224	1637	586	693	182				
Chromium Cr				0.42	0.26	0.09	0.06	0.02				
Cobalt Co				0.11	0.05	0.02	0.02	0.01				
Copper Cu				0.78	0.39	0.11	0.13	0.03				
Iron Fe				155.55	72.37	25.09	30.36	7.97				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				2.54	1.20	0.38	0.47	0.12				
Magnesium Mg				3378	1693	571	655	172				
Manganese Mn				3.64	1.71	0.62	0.81	0.21				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.22	0.11	0.03	0.04	0.01				
Nickel Ni				0.33	0.16	0.05	0.05	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				2071	1007	302	404	106				
Selenium Se				0.73	0.35	0.11	0.13	0.03				
Silicon SiO2				674	320	100	125	33				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				32445	15903	4954	6192	1625				
Strontium Sr				17	9	3	4	1				
Tellurium Te				17.90	8.48	2.66	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				0.06	0.06	0.02	0.02	0.01				
Titanium Ti				10.35	4.90	1.54	1.92	0.50				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				1.38	0.65	0.19	0.23	0.06				
Zinc Zn				1.1	0.5	0.2	0.7	0.2				
Zirconium Zr				1.83	0.87	0.27	0.34	0.09				

Appendix 1

Table I-3-a-A.3
Scenario 3 - Upper Limit !

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				39445	20396	5251	7920	2079				
TSS				2747	1302	402	506	133				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	50				
Chloride				55689	28265	8417	10778	2829				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8965	5269	1418	1650	433				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				14	6	2	2	1				
Org. Carbon				2151.56	1189.76	315.06	330.02	86.62				
Hardness CaCO3				11834	7309	1943	2508	658				
Total Metals												
Aluminum Al				150.78	70.63	23.61	28.12	7.38				
Antimony Sb				0.09	0.06	0.04	0.05	0.01				
Arsenic As				0.31	0.16	0.05	0.06	0.02				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.02	0.01	0.00	0.00	0.00				
Boron B				22.37	11.11	3.48	4.23	1.11				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				3232	1641	578	688	181				
Chromium Cr				0.42	0.26	0.09	0.06	0.02				
Cobalt Co				0.11	0.05	0.01	0.02	0.00				
Copper Cu				0.78	0.39	0.11	0.13	0.03				
Iron Fe				155.89	72.53	24.75	30.15	7.91				
Lead Pb				0.05	0.02	0.01	0.01	0.00				
Lithium Li				2.54	1.21	0.37	0.47	0.12				
Magnesium Mg				3386	1696	564	650	171				
Manganese Mn				3.65	1.71	0.61	0.80	0.21				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.22	0.11	0.03	0.04	0.01				
Nickel Ni				0.33	0.16	0.05	0.05	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				2075	1009	298	401	105				
Selenium Se				0.73	0.35	0.10	0.13	0.03				
Silicon SiO2				676	320	99	124	33				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				32517	15939	4888	6150	1614				
Strontium Sr				17	9	3	4	1				
Tellurium Te				17.94	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				0.06	0.06	0.02	0.02	0.01				
Titanium Ti				10.37	4.92	1.52	1.91	0.50				
Uranium U				0.05	0.02	0.00	0.01	0.00				
Vanadium V				1.38	0.65	0.19	0.22	0.06				
Zinc Zn				1.1	0.5	0.2	0.7	0.2				
Zirconium Zr				1.84	0.87	0.27	0.34	0.09				

SedLoad1

Table I-3-a-B.1
Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)		
Discharge rate Degradation Base		1000000 m3/year Tail Lk Cu < CME Year		9				
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3		
pH			6 to 9	7 to 8	7 to 8	7 to 8		
TDS	mg/L			1583	216	199		
TSS	mg/L			5.8	6.9	8.2		
Free CN	mg/L	1.0	0.005	0.0036	0.00020	0.00010	4%	
Total CN	mg/L			0.035	0.004	0.003		
WAD CN	mg/L			0.0048	0.0003	0.0001		
CNO	mg/L			4.0	0.22	0.12		
SCN	mg/L			0.118	0.006	0.003		
Sulphate	mg/L			109	8.7	7.1		
Chloride	mg/L			1075	114	92		
Total Ammonia	mg/L		0.97	1.31	0.084	0.045	9%	
Nitrate	mg/L		2.9	6.8	0.39	0.20	13%	
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%	
Alkalinity	mg/L			64	29	27		
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071		
Phosphate-P	mg/L			0.2183	0.0318	0.0302		
Org. Carbon	mg/L			4.8	7.3	7.1		
Hardness CaCO3	mg/L			127	50	47		
Total Metals								
Aluminum Al	mg/L		0.1	0.32	0.09	0.25	93%	
Antimony Sb	mg/L			0.0194	0.0035	0.0021		
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%	
Barium Ba	mg/L			0.0125	0.0035	0.0054		
Beryllium Be	mg/L			0.00071	0.00005	0.00003		
Bismuth Bi	mg/L			0.01877	0.00107	0.00064		
Boron B	mg/L			0.050	0.035	0.030		
Cadmium Cd	mg/L		0.000038	0.000066	0.0000067	0.0000164	18%	
Calcium Ca	mg/L			295	24	16		
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	103%	
Cobalt Co	mg/L			0.0123	0.0013	0.0006		
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%	
Iron Fe	mg/L			0.3	0.14	0.29	45%	
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%	
Lithium Li	mg/L			0.0060	0.0030	0.0030		
Magnesium Mg	mg/L			10.6	7.5	7.4		
Manganese Mn	mg/L			0.034	0.021	0.025		
Mercury Hg	mg/L		0.0001	0.0000250	0.0000020	0.0000013	2%	
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%	
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%	
Phosphorus P	mg/L			0.305	0.036	0.033		
Potassium K	mg/L			49	5.3	4.1		
Selenium Se	mg/L			0.001	0.00154	0.00092	0.00086	92%
Silicon SiO2	mg/L			4.6	0.73	0.63		
Silver Ag	mg/L		0.0001	0.00013	0.0000088	0.0000073	9%	
Sodium Na	mg/L			401	58	48		
Strontium Sr	mg/L			0.104	0.044	0.048		
Tellurium Te	mg/L			0.039	0.049	0.051		
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.002001	4%	
Thorium Th	mg/L			0.000101	0.0000064	0.0000033		
Tin Sn	mg/L			0.00296	0.00054	0.00009		
Titanium Ti	mg/L			0.0219	0.0069	0.0066		
Uranium U	mg/L			0.000109	0.000043	0.000046		
Vanadium V	mg/L			0.0041	0.0007	0.0006		
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%	
Zirconium Zr	mg/L			0.0046	0.0050	0.0051		

Table I-3-a-B.2
Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	151	153				
TSS	mg/L				3.9	5.6	5.8	6.7	6.7				
Free CN	mg/L				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.09	0.01	0.03	0.03	0.03				
SCN	mg/L				0.001	0.001	0.002	0.002	0.002				
Sulphate	mg/L				3.8	3.9	4.3	4.9	5.2				
Chloride	mg/L				61	62	62	67	69				
Total Ammonia	mg/L				0.019	0.044	0.022	0.030	0.030				
Nitrate	mg/L				0.08	0.11	0.14	0.18	0.21				
Nitrite	mg/L				0.011	0.013	0.014	0.006	0.016				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P	mg/L				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon	mg/L				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi	mg/L				0.00012	0.00021	0.00028	0.00033	0.00039				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000040	0.0000038	0.0000040	0.0000043				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.021	0.027	0.024	0.025				
Potassium K	mg/L				3.2	2.9	3.0	3.1	3.3				
Selenium Se	mg/L				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.55	0.57	0.58	0.60				
Silver Ag	mg/L				0.0000049	0.0000058	0.0000060	0.0000064	0.0000065				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-3-a-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				160	139	143	165	166				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00020		0.00003	0.00003	0.00003				
Total CN	mg/L				0.004	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0003		0.0000	0.0000	0.0000				
CNO	mg/L				0.22		0.03	0.03	0.03				
SCN	mg/L				0.005	0.004	0.004	0.005	0.005				
Sulphate	mg/L				7.3	6.7	6.9	7.5	7.7				
Chloride	mg/L				74	73	71	77	78				
Total Ammonia	mg/L				0.044	0.084	0.016	0.031	0.030				
Nitrate	mg/L				0.29	0.30	0.31	0.35	0.37				
Nitrite	mg/L				0.032	0.012	0.014	0.005	0.016				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P	mg/L				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi	mg/L				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000059	0.0000057	0.0000053	0.0000056	0.0000058				
Calcium Ca	mg/L				21	18	18	19	20				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo	mg/L				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P	mg/L				0.027	0.027	0.033	0.030	0.030				
Potassium K	mg/L				4.8	4.1	4.1	4.3	4.4				
Selenium Se	mg/L				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2	mg/L				0.68	0.66	0.66	0.68	0.69				
Silver Ag	mg/L				0.0000070	0.0000074	0.0000075	0.0000079	0.0000080				
Sodium Na	mg/L				39	33	35	33	33				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.043				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-3-a-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS mg/L				171	148	150	171	172				
TSS mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN mg/L				0.00013								
Total CN mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0002								
CNO mg/L				0.14								
SCN mg/L				0.006	0.005	0.005	0.005	0.005				
Sulphate mg/L				8.7	7.5	7.4	7.7	7.6				
Chloride mg/L				82	80	78	83	84				
Total Ammonia mg/L				0.036	0.057	0.016	0.017	0.017				
Nitrate mg/L				0.39	0.36	0.35	0.38	0.38				
Nitrite mg/L				0.030	0.009	0.014	0.004	0.004				
Alkalinity mg/L				29	27	28	28	28				
OrthoPhosphate-P mg/L				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P mg/L				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3 mg/L				50	46	46	47	47				
Total Metals												
Aluminum Al mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba mg/L				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi mg/L				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd mg/L				0.0000067	0.0000062	0.0000055	0.0000056	0.0000056				
Calcium Ca mg/L				24	20	19	19	19				
Chromium Cr mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co mg/L				0.0007	0.0007	0.0013	0.0006	0.0006				
Copper Cu mg/L				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb mg/L				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.5	6.7	6.8	6.6	6.6				
Manganese Mn mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg mg/L				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo mg/L				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni mg/L				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P mg/L				0.032	0.031	0.036	0.033	0.033				
Potassium K mg/L				5.3	4.4	4.3	4.2	4.2				
Selenium Se mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2 mg/L				0.73	0.69	0.68	0.69	0.68				
Silver Ag mg/L				0.0000082	0.0000083	0.0000082	0.0000085	0.0000085				
Sodium Na mg/L				40	34	35	33	33				
Strontium Sr mg/L				0.044	0.044	0.038	0.042	0.042				
Tellurium Te mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn mg/L				0.00051	0.00050	0.00051	0.00052	0.00052				
Titanium Ti mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U mg/L				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn mg/L				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-3-a-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				173	158	169	201	212				
TSS	mg/L				3.9	5.7	5.9	6.8	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.005	0.004	0.003	0.003	0.003				
Sulphate	mg/L				7.4	6.3	6.1	6.4	6.3				
Chloride	mg/L				88	89	92	104	111				
Total Ammonia	mg/L				0.012	0.012	0.017	0.016	0.016				
Nitrate	mg/L				0.34	0.29	0.28	0.29	0.29				
Nitrite	mg/L				0.011	0.002	0.003	0.003	0.003				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P	mg/L				0.0276	0.0267	0.0318	0.0278	0.0276				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B	mg/L				0.034	0.023	0.024	0.024	0.024				
Cadmium Cd	mg/L				0.0000060	0.0000057	0.0000052	0.0000053	0.0000053				
Calcium Ca	mg/L				20	17	17	17	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.000				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.10				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0030	0.0030				
Magnesium Mg	mg/L				7.4	6.7	6.8	6.7	6.7				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000012	0.0000013	0.0000014	0.0000014				
Molybdenum Mo	mg/L				0.00056	0.00048	0.00048	0.00047	0.00046				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.031	0.035	0.031	0.031				
Potassium K	mg/L				4.6	3.8	3.7	3.7	3.7				
Selenium Se	mg/L				0.00088	0.00058	0.00063	0.00058	0.00058				
Silicon SiO2	mg/L				0.68	0.65	0.65	0.66	0.66				
Silver Ag	mg/L				0.0000088	0.0000087	0.0000085	0.0000087	0.0000087				
Sodium Na	mg/L				39	37	42	44	48				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000004	0.000005	0.000005	0.000005				
Tin Sn	mg/L				0.00054	0.00051	0.00050	0.00051	0.00050				
Titanium Ti	mg/L				0.0059	0.0062	0.0063	0.0063	0.0064				
Uranium U	mg/L				0.000028	0.000034	0.000042	0.000036	0.000036				
Vanadium V	mg/L				0.0007	0.0003	0.0004	0.0004	0.0004				
Zinc Zn	mg/L				0.0020	0.0039	0.0036	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-3-a-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				216	179	176	187	186				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.1	4.9	4.8	4.7				
Chloride	mg/L				114	102	96	95	94				
Total Ammonia	mg/L				0.008	0.013	0.017	0.016	0.016				
Nitrate	mg/L				0.23	0.20	0.19	0.17	0.17				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P	mg/L				0.0244	0.0239	0.0291	0.0241	0.0240				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.07	0.09	0.08	0.08				
Antimony Sb	mg/L				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00074	0.00056	0.00050	0.00044	0.00043				
Boron B	mg/L				0.035	0.024	0.025	0.024	0.024				
Cadmium Cd	mg/L				0.0000057	0.0000054	0.0000049	0.0000047	0.0000047				
Calcium Ca	mg/L				19	16	15	14	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0017	0.0015	0.0017	0.0017				
Iron Fe	mg/L				0.06	0.13	0.09	0.10	0.10				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0029	0.0030				
Magnesium Mg	mg/L				7.4	6.7	6.8	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000014	0.0000016	0.0000017	0.0000016	0.0000017				
Molybdenum Mo	mg/L				0.00044	0.00037	0.00038	0.00033	0.00033				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.028	0.026	0.031	0.026	0.026				
Potassium K	mg/L				4.1	3.4	3.3	3.1	3.1				
Selenium Se	mg/L				0.00090	0.00061	0.00066	0.00059	0.00059				
Silicon SiO2	mg/L				0.65	0.63	0.62	0.61	0.61				
Silver Ag	mg/L				0.0000086	0.0000086	0.0000083	0.0000076	0.0000075				
Sodium Na	mg/L				58	48	48	44	44				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000005	0.000006	0.000006	0.000006	0.000006				
Tin Sn	mg/L				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti	mg/L				0.0064	0.0065	0.0066	0.0065	0.0066				
Uranium U	mg/L				0.000030	0.000035	0.000043	0.000036	0.000036				
Vanadium V	mg/L				0.0007	0.0003	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0037	0.0033	0.0022	0.0022				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-3-a-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				177	150	150	170	167				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.4	3.9	3.9	4.1	3.9				
Chloride	mg/L				89	83	79	84	82				
Total Ammonia	mg/L				0.005	0.009	0.014	0.013	0.013				
Nitrate	mg/L				0.10	0.09	0.09	0.10	0.09				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P	mg/L				0.0207	0.0212	0.0267	0.0226	0.0223				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.07	0.09	0.08	0.08				
Antimony Sb	mg/L				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B	mg/L				0.035	0.024	0.024	0.024	0.024				
Cadmium Cd	mg/L				0.0000043	0.0000042	0.0000037	0.0000038	0.0000037				
Calcium Ca	mg/L				14	12	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.06	0.13	0.09	0.10	0.10				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0030	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000015	0.0000017	0.0000018	0.0000019	0.0000018				
Molybdenum Mo	mg/L				0.00031	0.00027	0.00029	0.00027	0.00026				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.022	0.022	0.027	0.023	0.023				
Potassium K	mg/L				3.5	3.0	2.9	2.9	2.8				
Selenium Se	mg/L				0.00091	0.00061	0.00066	0.00061	0.00060				
Silicon SiO2	mg/L				0.59	0.59	0.58	0.59	0.58				
Silver Ag	mg/L				0.0000061	0.0000065	0.0000063	0.0000066	0.0000061				
Sodium Na	mg/L				49	42	42	41	40				
Strontium Sr	mg/L				0.041	0.042	0.036	0.041	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000004	0.000005	0.000005	0.000006	0.000006				
Tin Sn	mg/L				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti	mg/L				0.0065	0.0066	0.0067	0.0068	0.0067				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000036	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0014	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr	mg/L				0.0049	0.0049	0.0050	0.0050	0.0050				

Table I-3-a-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				158	135	137	154	154				
TSS	mg/L				4.0	5.8	6.0	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.000				
Sulphate	mg/L				3.6	3.3	3.4	3.4	3.4				
Chloride	mg/L				77	74	71	73	73				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.04	0.03	0.03	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P	mg/L				0.0190	0.0199	0.0255	0.0210	0.0210				
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.05	0.07	0.09	0.08	0.08				
Antimony Sb	mg/L				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi	mg/L				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B	mg/L				0.035	0.024	0.024	0.023	0.024				
Cadmium Cd	mg/L				0.0000040	0.0000038	0.0000033	0.0000031	0.0000031				
Calcium Ca	mg/L				11	10	10	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.10	0.10	0.10				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000017	0.0000018	0.0000018	0.0000017	0.0000018				
Molybdenum Mo	mg/L				0.00025	0.00022	0.00025	0.00022	0.00022				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.020	0.025	0.021	0.021				
Potassium K	mg/L				3.2	2.8	2.7	2.6	2.6				
Selenium Se	mg/L				0.00092	0.00061	0.00066	0.00060	0.00060				
Silicon SiO2	mg/L				0.57	0.57	0.57	0.56	0.56				
Silver Ag	mg/L				0.0000056	0.0000059	0.0000057	0.0000051	0.0000050				
Sodium Na	mg/L				45	38	39	37	37				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000005	0.000005	0.000005	0.000005	0.000005				
Tin Sn	mg/L				0.00042	0.00041	0.00041	0.00041	0.00041				
Titanium Ti	mg/L				0.0066	0.0067	0.0067	0.0067	0.0067				
Uranium U	mg/L				0.000029	0.000033	0.000041	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0012	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-3-a-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				148	128	131	148	148				
TSS	mg/L				4.0	5.8	6.0	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.2	3.0	3.1	3.2	3.2				
Chloride	mg/L				71	69	67	69	69				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P	mg/L				0.0181	0.0192	0.0249	0.0204	0.0205				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.05	0.07	0.09	0.08	0.08				
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B	mg/L				0.035	0.024	0.024	0.023	0.024				
Cadmium Cd	mg/L				0.0000036	0.0000035	0.0000030	0.0000029	0.0000029				
Calcium Ca	mg/L				10	9	9	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.10	0.10	0.10				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000017	0.0000018	0.0000019	0.0000018	0.0000018				
Molybdenum Mo	mg/L				0.00021	0.00020	0.00022	0.00020	0.00020				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.018	0.019	0.024	0.020	0.020				
Potassium K	mg/L				3.1	2.6	2.6	2.5	2.5				
Selenium Se	mg/L				0.00092	0.00062	0.00066	0.00060	0.00060				
Silicon SiO2	mg/L				0.56	0.56	0.56	0.55	0.55				
Silver Ag	mg/L				0.0000050	0.0000054	0.0000053	0.0000047	0.0000047				
Sodium Na	mg/L				43	37	38	35	35				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000005	0.000005	0.000005	0.000005	0.000005				
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti	mg/L				0.0067	0.0067	0.0068	0.0067	0.0067				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-3-a-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				142	123	127	146	145				
TSS	mg/L				4.0	5.8	6.0	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.0	2.8	2.9	3.1	3.1				
Chloride	mg/L				67	66	64	68	68				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P	mg/L				0.0174	0.0187	0.0245	0.0204	0.0203				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				44	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.05	0.07	0.09	0.09	0.08				
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B	mg/L				0.035	0.024	0.024	0.024	0.024				
Cadmium Cd	mg/L				0.0000033	0.0000033	0.0000028	0.0000028	0.0000028				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.06	0.13	0.10	0.10	0.10				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000017	0.0000018	0.0000018	0.0000019	0.0000019				
Molybdenum Mo	mg/L				0.00019	0.00018	0.00021	0.00019	0.00019				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.017	0.018	0.024	0.019	0.019				
Potassium K	mg/L				3.0	2.6	2.6	2.5	2.5				
Selenium Se	mg/L				0.00092	0.00061	0.00066	0.00061	0.00061				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.56	0.55				
Silver Ag	mg/L				0.0000044	0.0000050	0.0000049	0.0000051	0.0000046				
Sodium Na	mg/L				42	36	37	35	35				
Strontium Sr	mg/L				0.040	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000004	0.000005	0.000005	0.000005	0.000005				
Tin Sn	mg/L				0.00040	0.00039	0.00039	0.00039	0.00039				
Titanium Ti	mg/L				0.0066	0.0067	0.0068	0.0069	0.0068				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-3-a-B.2
Scenario 3 - Upper Limit Scenario

Water Quality in DORIS CREEK (d/s of the waterfall)												
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				140	121	125	143	143			
TSS	mg/L				4.0	5.8	6.0	6.9	6.9			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				2.9	2.7	2.9	3.0	3.0			
Chloride	mg/L				65	65	63	66	66			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				27	25	27	26	26			
OrthoPhosphate-P	mg/L				0.0011	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0172	0.0185	0.0243	0.0199	0.0200			
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0			
Hardness CaCO3	mg/L				44	42	42	43	43			
Total Metals												
Aluminum Al	mg/L				0.05	0.07	0.09	0.08	0.08			
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005			
Boron B	mg/L				0.035	0.024	0.024	0.023	0.023			
Cadmium Cd	mg/L				0.0000032	0.0000032	0.0000027	0.0000026	0.0000027			
Calcium Ca	mg/L				9	8	8	8	8			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015			
Iron Fe	mg/L				0.06	0.13	0.10	0.10	0.10			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.2	6.6	6.6	6.5	6.5			
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000017	0.0000018	0.0000019	0.0000018	0.0000018			
Molybdenum Mo	mg/L				0.00018	0.00018	0.00020	0.00018	0.00018			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.016	0.018	0.023	0.019	0.019			
Potassium K	mg/L				2.9	2.5	2.5	2.5	2.5			
Selenium Se	mg/L				0.00092	0.00062	0.00066	0.00060	0.00060			
Silicon SiO2	mg/L				0.54	0.55	0.55	0.54	0.55			
Silver Ag	mg/L				0.0000043	0.0000049	0.0000048	0.0000043	0.0000043			
Sodium Na	mg/L				41	35	37	34	34			
Strontium Sr	mg/L				0.040	0.042	0.036	0.040	0.040			
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L				0.000004	0.000005	0.000005	0.000004	0.000004			
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039			
Titanium Ti	mg/L				0.0067	0.0068	0.0068	0.0067	0.0067			
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000034	0.000034			
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003			
Zinc Zn	mg/L				0.0010	0.0032	0.0029	0.0018	0.0018			
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049			

Table I-3-a-B.3

Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1073956	586904	257660	384118	135770				
TSS				29483	26699	11501	17154	5992				
Free CN				0.60	0.05	0.05	0.07	0.02				
Total CN				21	9	4	5	2				
WAD CN				0.81	0.07	0.07	0.09	0.03				
CNO				665	55	57	77	27				
SCN				9	6	3	5	2				
Sulphate				28611	18314	8584	12413	4649				
Chloride				468083	295283	123233	171437	61017				
Total Ammonia				143	209	44	77	27				
Nitrate				576	521	281	463	185				
Nitrite				83	63	27	14	14				
Alkalinity				206688	119301	53699	68141	23935				
OrthoPhosphate-P				17	12	6	9	3				
Phosphate-P				132	89	50	54	19				
Org. Carbon				40778	23698	14478	12543	4379				
Hardness CaCO3				342229	200983	84935	113548	39956				
Total Metals												
Aluminum Al				250	275	156	179	63				
Antimony Sb				3.4	4.6	5.9	1.9	0.7				
Arsenic As				3.8	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.09	0.04	0.06	0.02				
Bismuth Bi				0.92	0.99	0.55	0.85	0.35				
Boron B				253	104	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				84525	51177	22658	31216	11723				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.30	1.29	2.02	0.75	0.30				
Copper Cu				10	8	3	4	1				
Iron Fe				379	566	163	223	78				
Lead Pb				0.19	0.32	0.09	0.12	0.04				
Lithium Li				21	13	6	7	3				
Magnesium Mg				53966	30305	12948	16335	5728				
Manganese Mn				50	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.96	1.26	0.64	0.87	0.33				
Nickel Ni				3.73	3.14	1.18	1.54	0.56				
Phosphorus P				142	97	54	61	22				
Potassium K				24293	13560	5932	7916	2900				
Selenium Se				6.59	2.64	1.20	1.39	0.49				
Silicon SiO2				4141	2613	1126	1487	532				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				289400	152276	66908	80717	28310				
Strontium Sr				303	195	71	102	36				
Tellurium Te				370	230	97	125	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.02	1.94	0.84	1.10	0.39				
Titanium Ti				44	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.09	0.03				
Vanadium V				4.30	0.49	0.59	0.57	0.21				
Zinc Zn				8.69	15.69	6.16	5.40	1.97				
Zirconium Zr				37	23	10	13	4				

Table I-3-a-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1220165	658674	285400	420123	147948				
TSS				29841	26873	11568	17241	6021				
Free CN				1.54		0.05	0.07	0.02				
Total CN				29	9	4	5	2				
WAD CN				2.06		0.07	0.09	0.03				
CNO				1699		58	76	26				
SCN				38	21	9	13	5				
Sulphate				55480	31510	13684	19031	6887				
Chloride				564931	342809	141595	195266	69076				
Total Ammonia				335	399	33	79	27				
Nitrate				2202	1396	617	901	333				
Nitrite				244	59	28	13	14				
Alkalinity				219476	125568	56119	71284	24998				
OrthoPhosphate-P				55	30	13	18	7				
Phosphate-P				170	108	57	64	23				
Org. Carbon				40852	23731	14490	12559	4385				
Hardness CaCO3				369674	214447	90137	120301	42240				
Total Metals												
Aluminum Al				261	280	158	182	64				
Antimony Sb				6.9	6.3	6.5	2.8	1.0				
Arsenic As				4.6	2.4	1.0	1.3	0.5				
Barium Ba				25	16	7	9	3				
Beryllium Be				0.26	0.15	0.07	0.09	0.03				
Bismuth Bi				4.27	2.63	1.18	1.68	0.62				
Boron B				259	107	47	58	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.01				
Calcium Ca				157237	86903	36468	49138	17785				
Chromium Cr				7	3	1	1	1				
Cobalt Co				4.35	2.79	2.60	1.51	0.55				
Copper Cu				12	9	3	5	2				
Iron Fe				389	571	165	226	79				
Lead Pb				0.30	0.37	0.11	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56099	31350	13351	16859	5905				
Manganese Mn				59	99	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.61	2.56	1.14	1.52	0.55				
Nickel Ni				6.10	4.31	1.63	2.12	0.76				
Phosphorus P				205	128	66	76	27				
Potassium K				36288	19454	8210	10872	3899				
Selenium Se				6.66	2.67	1.22	1.41	0.49				
Silicon SiO2				5179	3122	1323	1743	618				
Silver Ag				0.05	0.04	0.01	0.02	0.01				
Sodium Na				301047	157988	69115	83582	29279				
Strontium Sr				326	207	76	108	38				
Tellurium Te				370	230	97	125	44				
Thallium Tl				0.23	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.54	2.20	0.94	1.23	0.43				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.14	0.91	0.75	0.77	0.28				
Zinc Zn				15.33	18.96	7.42	7.03	2.53				
Zirconium Zr				37	23	10	13	4				

Table I-3-a-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1300322	697522	299220	436673	153011				
TSS				30001	26945	11589	17259	6024				
Free CN				0.98								
Total CN				24	9	4	5	2				
WAD CN				1.31								
CNO				1077								
SCN				49	24	9	12	4				
Sulphate				65965	35656	14686	19545	6776				
Chloride				628689	376026	154662	212713	75121				
Total Ammonia				274	267	33	43	15				
Nitrate				2952	1702	697	961	337				
Nitrite				225	45	27	10	4				
Alkalinity				224269	127428	56526	71400	24887				
OrthoPhosphate-P				80	43	18	25	9				
Phosphate-P				195	121	62	71	25				
Org. Carbon				40952	23797	14519	12600	4400				
Hardness CaCO3				379716	218247	90921	120414	41950				
Total Metals												
Aluminum Al				267	283	158	183	64				
Antimony Sb				9.1	7.5	7.0	3.4	1.2				
Arsenic As				4.9	2.6	1.0	1.3	0.5				
Barium Ba				26	17	7	9	3				
Beryllium Be				0.33	0.18	0.08	0.11	0.04				
Bismuth Bi				6.45	3.77	1.63	2.27	0.83				
Boron B				262	109	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.01				
Calcium Ca				182881	96201	38181	48879	16801				
Chromium Cr				8	3	2	1	1				
Cobalt Co				5.47	3.20	2.69	1.52	0.52				
Copper Cu				13	9	3	5	2				
Iron Fe				393	573	166	226	79				
Lead Pb				0.35	0.40	0.12	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				57003	31733	13457	16940	5913				
Manganese Mn				62	100	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				5.54	2.90	1.20	1.51	0.52				
Nickel Ni				7.04	4.68	1.72	2.17	0.75				
Phosphorus P				241	145	72	84	30				
Potassium K				40505	20981	8489	10824	3735				
Selenium Se				6.70	2.69	1.22	1.42	0.49				
Silicon SiO2				5567	3268	1354	1749	608				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				305334	159620	69457	83643	29161				
Strontium Sr				335	210	76	108	38				
Tellurium Te				371	231	97	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.88	2.37	1.01	1.32	0.47				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.60	1.12	0.83	0.86	0.31				
Zinc Zn				17.88	19.95	7.65	7.13	2.48				
Zirconium Zr				38	23	10	13	4				

Table I-3-a-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)													
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11	
Parameter													
TDS				1316091	745342	336198	512442	188653					
TSS				29982	27151	11713	17446	6097					
Free CN													
Total CN				14	9	4	5	2					
WAD CN													
CNO													
SCN				34	17	6	8	3					
Sulphate				56656	29974	12240	16246	5592					
Chloride				672180	422177	183169	265586	98697					
Total Ammonia				88	55	34	40	14					
Nitrate				2559	1376	550	731	254					
Nitrite				86	12	5	7	2					
Alkalinity				219552	124925	55549	70173	24476					
OrthoPhosphate-P				96	47	18	24	8					
Phosphate-P				211	126	63	71	25					
Org. Carbon				41238	23954	14584	12693	4433					
Hardness CaCO3				368526	212290	88579	117438	40947					
Total Metals													
Aluminum Al				266	300	169	198	70					
Antimony Sb				10.8	7.7	6.9	3.1	1.1					
Arsenic As				4.6	2.4	1.0	1.2	0.4					
Barium Ba				25	16	6	9	3					
Beryllium Be				0.36	0.19	0.07	0.10	0.03					
Bismuth Bi				8.14	4.00	1.54	2.02	0.69					
Boron B				262	111	48	60	21					
Cadmium Cd				0.05	0.03	0.01	0.01	0.00					
Calcium Ca				148759	80932	33355	44471	15946					
Chromium Cr				7	2	1	1	0					
Cobalt Co				4.16	2.49	2.40	1.14	0.39					
Copper Cu				12	9	3	5	2					
Iron Fe				392	590	176	241	85					
Lead Pb				0.34	0.39	0.12	0.15	0.05					
Lithium Li				22	14	6	8	3					
Magnesium Mg				56558	31675	13466	16971	5929					
Manganese Mn				58	98	27	27	10					
Mercury Hg				0.01	0.01	0.00	0.00	0.00					
Molybdenum Mo				4.30	2.25	0.95	1.19	0.41					
Nickel Ni				6.26	4.21	1.52	1.91	0.66					
Phosphorus P				251	145	70	80	28					
Potassium K				34847	18145	7398	9434	3268					
Selenium Se				6.69	2.76	1.26	1.48	0.52					
Silicon SiO2				5157	3090	1291	1672	583					
Silver Ag				0.07	0.04	0.02	0.02	0.01					
Sodium Na				300688	176869	83951	113050	42990					
Strontium Sr				326	206	75	107	37					
Tellurium Te				373	232	98	126	44					
Thallium Tl				0.24	0.15	0.06	0.08	0.03					
Thorium Th				0.02	0.02	0.01	0.01	0.00					
Tin Sn				4.15	2.42	1.00	1.29	0.45					
Titanium Ti				45	29	12	16	6					
Uranium U				0.21	0.16	0.08	0.09	0.03					
Vanadium V				5.72	1.24	0.88	0.93	0.32					
Zinc Zn				15.46	18.63	7.11	6.43	2.24					
Zirconium Zr				38	23	10	13	4					

Table I-3-a-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1649633	844341	350162	477954	165786				
TSS				30603	27480	11843	17507	6118				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				23	11	4	5	2				
Sulphate				45483	23970	9841	12218	4223				
Chloride				871774	480475	190864	241404	83690				
Total Ammonia				61	59	34	40	14				
Nitrate				1785	934	377	442	155				
Nitrite				19	13	6	7	2				
Alkalinity				216162	123072	54813	68410	23877				
OrthoPhosphate-P				67	32	12	14	5				
Phosphate-P				186	113	58	62	21				
Org. Carbon				41509	24095	14641	12662	4422				
Hardness CaCO3				360257	207793	86790	113734	39688				
Total Metals												
Aluminum Al				317	327	180	207	73				
Antimony Sb				8.2	6.3	6.3	2.2	0.8				
Arsenic As				4.4	2.3	0.9	1.1	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.30	0.15	0.06	0.07	0.02				
Bismuth Bi				5.65	2.66	1.00	1.13	0.39				
Boron B				267	113	49	60	21				
Cadmium Cd				0.04	0.03	0.01	0.01	0.00				
Calcium Ca				146859	75190	29551	34707	11971				
Chromium Cr				7	2	1	1	0				
Cobalt Co				3.00	1.86	2.15	0.72	0.25				
Copper Cu				11	8	3	4	1				
Iron Fe				443	617	186	250	88				
Lead Pb				0.30	0.37	0.11	0.13	0.05				
Lithium Li				23	14	6	8	3				
Magnesium Mg				56576	31675	13465	16771	5861				
Manganese Mn				56	97	27	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				3.37	1.75	0.75	0.85	0.29				
Nickel Ni				5.33	3.71	1.32	1.56	0.54				
Phosphorus P				212	125	62	66	23				
Potassium K				30992	16071	6568	7941	2761				
Selenium Se				6.90	2.87	1.31	1.51	0.53				
Silicon SiO2				4949	2976	1245	1555	544				
Silver Ag				0.07	0.04	0.02	0.02	0.01				
Sodium Na				445451	227968	95865	112555	39124				
Strontium Sr				322	204	74	104	36				
Tellurium Te				376	233	98	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.04	0.03	0.01	0.02	0.01				
Tin Sn				3.80	2.23	0.92	1.16	0.40				
Titanium Ti				48	31	13	17	6				
Uranium U				0.23	0.17	0.09	0.09	0.03				
Vanadium V				5.68	1.22	0.87	0.83	0.29				
Zinc Zn				13.25	17.43	6.63	5.55	1.94				
Zirconium Zr				38	24	10	13	4				

Table I-3-a-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1348988	706899	298900	433395	148496				
TSS				30666	27503	11851	17633	6141				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				12	6	2	3	1				
Sulphate				33344	18395	7756	10360	3510				
Chloride				677860	391767	157768	213984	72762				
Total Ammonia				38	44	28	33	12				
Nitrate				741	423	180	248	83				
Nitrite				15	11	4	5	2				
Alkalinity				210537	120486	53843	67953	23617				
OrthoPhosphate-P				37	18	7	9	3				
Phosphate-P				158	100	53	58	20				
Org. Carbon				41323	24005	14607	12727	4427				
Hardness CaCO3				348734	202509	84813	112518	39109				
Total Metals												
Aluminum Al				331	332	181	215	74				
Antimony Sb				5.5	5.1	5.9	1.8	0.6				
Arsenic As				4.0	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.19	0.10	0.04	0.05	0.02				
Bismuth Bi				2.99	1.44	0.55	0.72	0.23				
Boron B				265	112	49	61	21				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				105910	56425	22544	28508	9586				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.73	1.27	1.93	0.52	0.17				
Copper Cu				10	8	3	4	1				
Iron Fe				460	625	189	259	90				
Lead Pb				0.23	0.33	0.09	0.12	0.04				
Lithium Li				22	14	6	8	3				
Magnesium Mg				55805	31311	13327	16797	5839				
Manganese Mn				53	96	26	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.35	1.29	0.58	0.70	0.23				
Nickel Ni				4.25	3.22	1.14	1.40	0.48				
Phosphorus P				167	103	54	59	20				
Potassium K				26479	14004	5796	7334	2512				
Selenium Se				6.93	2.88	1.31	1.54	0.54				
Silicon SiO2				4515	2767	1165	1509	520				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				377230	196731	84207	103452	35371				
Strontium Sr				314	200	73	104	36				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.38	2.03	0.85	1.09	0.38				
Titanium Ti				49	31	13	17	6				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.30	1.04	0.80	0.82	0.28				
Zinc Zn				10.45	16.13	6.14	5.16	1.79				
Zirconium Zr				38	23	10	13	4				

Table I-3-a-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1208037	640342	273705	392674	136850				
TSS				30780	27559	11873	17541	6129				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				7	3	1	1	0				
Sulphate				27718	15715	6735	8744	3042				
Chloride				587903	349318	141704	186583	65088				
Total Ammonia				38	36	26	31	11				
Nitrate				329	160	62	71	24				
Nitrite				15	9	4	5	2				
Alkalinity				208170	119375	53425	66867	23353				
OrthoPhosphate-P				23	12	5	5	2				
Phosphate-P				145	94	51	53	19				
Org. Carbon				41302	23998	14604	12622	4409				
Hardness CaCO3				343689	200134	83917	110534	38602				
Total Metals												
Aluminum Al				345	338	183	211	74				
Antimony Sb				4.2	4.5	5.6	1.4	0.5				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.15	0.07	0.03	0.04	0.01				
Bismuth Bi				1.74	0.85	0.32	0.37	0.13				
Boron B				266	112	49	60	21				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				86802	47362	19102	23033	8007				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.14	0.99	1.82	0.35	0.12				
Copper Cu				10	7	3	4	1				
Iron Fe				474	631	192	256	90				
Lead Pb				0.21	0.32	0.09	0.11	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55563	31196	13283	16568	5791				
Manganese Mn				52	95	26	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.87	1.06	0.49	0.56	0.19				
Nickel Ni				3.77	2.98	1.05	1.25	0.43				
Phosphorus P				147	93	50	53	18				
Potassium K				24412	13028	5427	6669	2329				
Selenium Se				6.98	2.90	1.32	1.52	0.53				
Silicon SiO2				4359	2687	1133	1427	500				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				345981	181998	78633	93343	32604				
Strontium Sr				310	199	72	102	36				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				3.19	1.94	0.81	1.03	0.36				
Titanium Ti				50	32	13	17	6				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.18	0.98	0.78	0.72	0.26				
Zinc Zn				9.24	15.55	5.92	4.74	1.67				
Zirconium Zr				38	23	10	13	4				

Table I-3-a-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)													
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15	
Parameter													
TDS				1131301	604436	260169	377448	131677					
TSS				30867	27602	11889	17558	6135					
Free CN													
Total CN				14	9	4	5	2					
WAD CN													
CNO													
SCN				4	2	1	1	0					
Sulphate				24580	14245	6181	8121	2831					
Chloride				539208	326555	133126	176918	61806					
Total Ammonia				36	36	26	31	11					
Nitrate				43	27	12	15	5					
Nitrite				14	9	4	5	2					
Alkalinity				206962	118815	53216	66627	23272					
OrthoPhosphate-P				15	8	3	4	1					
Phosphate-P				138	91	50	52	18					
Org. Carbon				41310	24003	14607	12623	4409					
Hardness CaCO3				341047	198903	83456	110009	38424					
Total Metals													
Aluminum Al				352	342	185	212	75					
Antimony Sb				3.5	4.1	5.5	1.3	0.5					
Arsenic As				3.8	2.0	0.8	1.0	0.3					
Barium Ba				21	15	6	8	3					
Beryllium Be				0.12	0.06	0.03	0.03	0.01					
Bismuth Bi				1.05	0.52	0.20	0.24	0.08					
Boron B				266	112	49	60	21					
Cadmium Cd				0.03	0.02	0.01	0.01	0.00					
Calcium Ca				76264	42429	17242	20943	7297					
Chromium Cr				5	1	1	1	0					
Cobalt Co				0.81	0.84	1.76	0.28	0.10					
Copper Cu				10	7	3	4	1					
Iron Fe				483	635	193	257	90					
Lead Pb				0.19	0.31	0.08	0.10	0.04					
Lithium Li				22	14	6	7	3					
Magnesium Mg				55450	31146	13264	16545	5784					
Manganese Mn				51	95	26	26	9					
Mercury Hg				0.01	0.01	0.00	0.00	0.00					
Molybdenum Mo				1.61	0.94	0.45	0.50	0.18					
Nickel Ni				3.49	2.86	1.00	1.19	0.42					
Phosphorus P				135	88	48	50	18					
Potassium K				23298	12508	5231	6447	2254					
Selenium Se				7.01	2.91	1.32	1.53	0.53					
Silicon SiO2				4258	2640	1115	1407	493					
Silver Ag				0.04	0.03	0.01	0.01	0.00					
Sodium Na				329179	174154	75678	90007	31472					
Strontium Sr				309	198	72	101	35					
Tellurium Te				374	232	98	125	44					
Thallium Tl				0.23	0.14	0.06	0.08	0.03					
Thorium Th				0.04	0.02	0.01	0.01	0.00					
Tin Sn				3.08	1.89	0.80	1.01	0.35					
Titanium Ti				51	32	14	17	6					
Uranium U				0.21	0.16	0.08	0.09	0.03					
Vanadium V				5.11	0.94	0.76	0.71	0.25					
Zinc Zn				8.54	15.22	5.79	4.61	1.62					
Zirconium Zr				38	23	10	13	4					

Table I-3-a-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1084533	583016	252171	371986	129241				
TSS				30801	27566	11875	17664	6151				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				2	1	0	0	0				
Sulphate				22703	13388	5861	7867	2727				
Chloride				508180	312285	127788	174588	60408				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205842	118288	53015	66865	23276				
OrthoPhosphate-P				11	6	2	3	1				
Phosphate-P				133	89	49	52	18				
Org. Carbon				41221	23958	14589	12704	4420				
Hardness CaCO3				338932	197919	83082	110244	38396				
Total Metals												
Aluminum Al				349	340	184	218	76				
Antimony Sb				3.1	4.0	5.5	1.2	0.4				
Arsenic As				3.7	2.0	0.8	1.0	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				0.65	0.34	0.13	0.17	0.06				
Boron B				265	112	49	61	21				
Cadmium Cd				0.02	0.02	0.01	0.01	0.00				
Calcium Ca				69933	39534	16162	20116	6952				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.61	0.75	1.73	0.26	0.09				
Copper Cu				9	7	3	4	1				
Iron Fe				481	634	193	264	91				
Lead Pb				0.17	0.30	0.08	0.10	0.04				
Lithium Li				22	14	6	8	3				
Magnesium Mg				55234	31041	13224	16661	5796				
Manganese Mn				51	95	26	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.45	0.87	0.42	0.49	0.17				
Nickel Ni				3.32	2.78	0.97	1.18	0.41				
Phosphorus P				128	85	47	49	17				
Potassium K				22554	12164	5102	6422	2226				
Selenium Se				6.99	2.91	1.32	1.55	0.54				
Silicon SiO2				4169	2598	1099	1422	492				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				317906	168944	73726	89679	31052				
Strontium Sr				307	197	71	102	35				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.02	1.86	0.78	1.01	0.35				
Titanium Ti				51	32	14	18	6				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.02	0.90	0.75	0.75	0.25				
Zinc Zn				8.06	15.00	5.71	4.59	1.61				
Zirconium Zr				37	23	10	13	4				

Table I-3-a-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1063722	573231	248476	364428	127259				
TSS				30854	27594	11886	17555	6134				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				1	0	0	0	0				
Sulphate				21843	12983	5708	7594	2652				
Chloride				495307	306263	125518	168459	58934				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205608	118185	52978	66365	23183				
OrthoPhosphate-P				9	5	2	2	1				
Phosphate-P				131	88	48	51	18				
Org. Carbon				41246	23972	14595	12611	4405				
Hardness CaCO3				338340	197648	82983	109487	38247				
Total Metals												
Aluminum Al				353	342	185	213	75				
Antimony Sb				2.9	3.9	5.4	1.2	0.4				
Arsenic As				3.7	2.0	0.8	1.0	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.09	0.05	0.02	0.02	0.01				
Bismuth Bi				0.46	0.25	0.10	0.12	0.04				
Boron B				265	112	49	60	21				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				67053	38178	15649	19168	6694				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.52	0.71	1.71	0.23	0.08				
Copper Cu				9	7	3	4	1				
Iron Fe				485	636	194	258	90				
Lead Pb				0.17	0.30	0.08	0.10	0.03				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55240	31047	13227	16505	5770				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.38	0.83	0.41	0.46	0.16				
Nickel Ni				3.25	2.74	0.96	1.15	0.40				
Phosphorus P				125	83	46	48	17				
Potassium K				22267	12031	5052	6249	2187				
Selenium Se				7.01	2.91	1.32	1.53	0.53				
Silicon SiO2				4149	2589	1096	1386	486				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				313604	166945	72975	87006	30452				
Strontium Sr				307	197	71	101	35				
Tellurium Te				373	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				2.99	1.84	0.78	0.99	0.35				
Titanium Ti				51	32	14	17	6				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.01	0.90	0.75	0.69	0.24				
Zinc Zn				7.89	14.92	5.68	4.48	1.58				
Zirconium Zr				37	23	10	13	4				

Appendix I

SedLoad1

Table I-3-a-C.1
Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Base		Tail Lk Cu < CME Year		9			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			5.8	6.9	8.2	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1075	114	92	
Total Ammonia	mg/L		0.97	1.31	0.084	0.045	9%
Nitrate	mg/L		2.9	6.8	0.39	0.20	13%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0318	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.32	0.09	0.25	93%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00071	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.050	0.035	0.030	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000067	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.33	0.14	0.29	45%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0060	0.0030	0.0030	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000250	0.0000020	0.0000013	2%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.305	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00154	0.00092	0.00086	92%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000088	0.0000073	9%
Sodium Na	mg/L			401	58	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.002001	4%
Thorium Th	mg/L			0.000101	0.0000064	0.0000033	
Tin Sn	mg/L			0.00296	0.00054	0.00009	
Titanium Ti	mg/L			0.0219	0.0069	0.0066	
Uranium U	mg/L			0.000109	0.000043	0.000046	
Vanadium V	mg/L			0.0041	0.0007	0.0006	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0046	0.0050	0.0051	

Appendix I

Table I-3-a-C.2

Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				155	155	146	167	168				
TSS	mg/L				7.0	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.05	0.01	0.01	0.02	0.02				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.4	5.5	5.5	5.7				
Chloride	mg/L				63	61	60	69	70				
Total Ammonia	mg/L				0.012	0.024	0.005	0.016	0.016				
Nitrate	mg/L				0.04	0.06	0.07	0.10	0.11				
Nitrite	mg/L				0.007	0.008	0.006	0.004	0.009				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0018	0.0019	0.0021	0.0024	0.0027				
Phosphate-P	mg/L				0.0249	0.0170	0.0082	0.0205	0.0208				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00002				
Bismuth Bi	mg/L				0.00015	0.00019	0.00023	0.00026	0.00029				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000048	0.0000155	0.0000031	0.0000032				
Calcium Ca	mg/L				9	8	9	10	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00024	0.00023	0.00031	0.00029	0.00031				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.018	0.009	0.022	0.022				
Potassium K	mg/L				3.0	2.5	2.5	2.9	3.0				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.55	0.56	0.56				
Silver Ag	mg/L				0.0000053	0.0000030	0.0000057	0.0000042	0.0000043				
Sodium Na	mg/L				38	32	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-a-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS mg/L				164	163	153	174	175				
TSS mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN mg/L				0.00010		0.00001	0.00001	0.00001				
Total CN mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0001		0.0000	0.0000	0.0000				
CNO mg/L				0.12		0.02	0.02	0.02				
SCN mg/L				0.003	0.002	0.002	0.003	0.003				
Sulphate mg/L				6.2	5.8	6.8	6.8	7.0				
Chloride mg/L				70	66	65	74	75				
Total Ammonia mg/L				0.025	0.045	0.002	0.017	0.016				
Nitrate mg/L				0.15	0.16	0.16	0.19	0.20				
Nitrite mg/L				0.018	0.007	0.006	0.004	0.009				
Alkalinity mg/L				24	24	25	27	27				
OrthoPhosphate-P mg/L				0.0044	0.0039	0.0040	0.0043	0.0045				
Phosphate-P mg/L				0.0275	0.0190	0.0101	0.0224	0.0226				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				46	41	43	47	47				
Total Metals												
Aluminum Al mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb mg/L				0.0007	0.0020	0.0015	0.0010	0.0010				
Arsenic As mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba mg/L				0.0054	0.0036	0.0047	0.0044	0.0044				
Beryllium Be mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi mg/L				0.00038	0.00037	0.00039	0.00043	0.00045				
Boron B mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd mg/L				0.0000042	0.0000057	0.0000163	0.0000039	0.0000040				
Calcium Ca mg/L				14	12	12	14	14				
Chromium Cr mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.2	5.2	5.4	7.3	7.4				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.009				
Mercury Hg mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo mg/L				0.00042	0.00037	0.00044	0.00043	0.00044				
Nickel Ni mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P mg/L				0.030	0.021	0.012	0.025	0.025				
Potassium K mg/L				3.8	3.1	3.1	3.5	3.6				
Selenium Se mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2 mg/L				0.61	0.60	0.60	0.61	0.62				
Silver Ag mg/L				0.0000064	0.0000039	0.0000064	0.0000050	0.0000051				
Sodium Na mg/L				39	32	35	37	37				
Strontium Sr mg/L				0.046	0.039	0.041	0.048	0.048				
Tellurium Te mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000002				
Tin Sn mg/L				0.00004	0.00004	0.00005	0.00005	0.00006				
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-a-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				170	167	157	178	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00007								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.07								
SCN	mg/L				0.003	0.003	0.002	0.003	0.002				
Sulphate	mg/L				6.9	6.3	7.1	6.9	6.9				
Chloride	mg/L				74	70	69	78	78				
Total Ammonia	mg/L				0.021	0.030	0.002	0.009	0.010				
Nitrate	mg/L				0.20	0.19	0.18	0.20	0.20				
Nitrite	mg/L				0.016	0.006	0.006	0.003	0.003				
Alkalinity	mg/L				25	25	25	27	27				
OrthoPhosphate-P	mg/L				0.0061	0.0054	0.0053	0.0057	0.0059				
Phosphate-P	mg/L				0.0292	0.0205	0.0114	0.0238	0.0240				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				47	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00052	0.00050	0.00051	0.00055	0.00057				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000047	0.0000059	0.0000164	0.0000039	0.0000039				
Calcium Ca	mg/L				16	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0016	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	5.3	5.4	7.4	7.4				
Manganese Mn	mg/L				0.025	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00048	0.00041	0.00046	0.00042	0.00042				
Nickel Ni	mg/L				0.0009	0.0007	0.0009	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.023	0.014	0.026	0.027				
Potassium K	mg/L				4.1	3.3	3.2	3.5	3.5				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.63	0.61	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000071	0.0000043	0.0000068	0.0000053	0.0000053				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000002	0.000002				
Tin Sn	mg/L				0.00007	0.00006	0.00007	0.00007	0.00008				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0042	0.0023	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-a-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow													
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				171	172	166	193	199				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.2	5.6	6.4	6.3	6.2				
Chloride	mg/L				77	75	76	88	92				
Total Ammonia	mg/L				0.009	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.18	0.15	0.14	0.15	0.15				
Nitrite	mg/L				0.007	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0071	0.0058	0.0054	0.0055	0.0054				
Phosphate-P	mg/L				0.0302	0.0211	0.0117	0.0239	0.0238				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0010	0.0021	0.0016	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00064	0.00052	0.00049	0.00050	0.00049				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.028				
Cadmium Cd	mg/L				0.0000043	0.0000057	0.0000162	0.0000038	0.0000038				
Calcium Ca	mg/L				14	12	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0030	0.0030				
Magnesium Mg	mg/L				7.2	5.3	5.4	7.4	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000009	0.0000010	0.0000010	0.0000011				
Molybdenum Mo	mg/L				0.00039	0.00034	0.00039	0.00036	0.00035				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.023	0.014	0.026	0.026				
Potassium K	mg/L				3.7	3.0	2.9	3.2	3.2				
Selenium Se	mg/L				0.00066	0.00039	0.00085	0.00062	0.00062				
Silicon SiO2	mg/L				0.61	0.59	0.59	0.60	0.60				
Silver Ag	mg/L				0.0000073	0.0000045	0.0000070	0.0000055	0.0000054				
Sodium Na	mg/L				39	34	39	43	45				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000003	0.000003				
Tin Sn	mg/L				0.00009	0.00007	0.00006	0.00007	0.00006				
Titanium Ti	mg/L				0.0061	0.0063	0.0063	0.0063	0.0064				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-a-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow													
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				194	183	170	186	186				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.5	5.0	5.8	5.5	5.4				
Chloride	mg/L				91	81	78	83	83				
Total Ammonia	mg/L				0.007	0.008	0.002	0.009	0.009				
Nitrate	mg/L				0.12	0.11	0.10	0.09	0.09				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0052	0.0042	0.0038	0.0035	0.0034				
Phosphate-P	mg/L				0.0286	0.0197	0.0104	0.0220	0.0219				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0008	0.0020	0.0014	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00047	0.00038	0.00035	0.00032	0.00031				
Boron B	mg/L				0.030	0.021	0.030	0.028	0.028				
Cadmium Cd	mg/L				0.0000042	0.0000056	0.0000161	0.0000035	0.0000035				
Calcium Ca	mg/L				14	11	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.19	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.3	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000010	0.0000011	0.0000012	0.0000012	0.0000012				
Molybdenum Mo	mg/L				0.00033	0.00028	0.00034	0.00029	0.00029				
Nickel Ni	mg/L				0.0008	0.0006	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.030	0.021	0.011	0.023	0.023				
Potassium K	mg/L				3.4	2.7	2.7	2.9	2.9				
Selenium Se	mg/L				0.00067	0.00040	0.00086	0.00063	0.00063				
Silicon SiO2	mg/L				0.59	0.58	0.58	0.57	0.57				
Silver Ag	mg/L				0.0000072	0.0000045	0.0000069	0.0000048	0.0000048				
Sodium Na	mg/L				48	40	42	43	43				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00006	0.00005	0.00004	0.00004	0.00004				
Titanium Ti	mg/L				0.0064	0.0064	0.0065	0.0064	0.0065				
Uranium U	mg/L				0.000038	0.000035	0.000037	0.000046	0.000046				
Vanadium V	mg/L				0.0005	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0020	0.0019	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-a-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow													
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				173	168	157	177	176				
TSS	mg/L				7.1	8.1	4.1	5.2	5.2				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.7	4.4	5.3	5.1	5.0				
Chloride	mg/L				77	71	69	78	77				
Total Ammonia	mg/L				0.005	0.006	0.000	0.007	0.007				
Nitrate	mg/L				0.05	0.05	0.04	0.05	0.05				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0032	0.0026	0.0025	0.0025	0.0024				
Phosphate-P	mg/L				0.0267	0.0182	0.0091	0.0212	0.0210				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0042				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00029	0.00024	0.00023	0.00023	0.00022				
Boron B	mg/L				0.030	0.021	0.029	0.028	0.028				
Cadmium Cd	mg/L				0.0000034	0.0000049	0.0000154	0.0000030	0.0000030				
Calcium Ca	mg/L				11	9	9	10	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.19	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0030	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000011	0.0000012	0.0000012	0.0000013	0.0000012				
Molybdenum Mo	mg/L				0.00026	0.00023	0.00030	0.00026	0.00025				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.019	0.009	0.021	0.021				
Potassium K	mg/L				3.1	2.5	2.5	2.8	2.8				
Selenium Se	mg/L				0.00067	0.00040	0.00086	0.00063	0.00063				
Silicon SiO2	mg/L				0.56	0.56	0.56	0.56	0.56				
Silver Ag	mg/L				0.0000060	0.0000034	0.0000059	0.0000043	0.0000041				
Sodium Na	mg/L				44	36	39	41	41				
Strontium Sr	mg/L				0.046	0.038	0.040	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00003	0.00003	0.00003	0.00003	0.00002				
Titanium Ti	mg/L				0.0064	0.0065	0.0065	0.0066	0.0065				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-3-a-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow													
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				164	161	150	169	169				
TSS	mg/L				7.1	8.1	4.2	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.3	4.1	5.0	4.8	4.8				
Chloride	mg/L				71	67	65	72	72				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.03	0.02	0.01	0.02	0.02				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0022	0.0019	0.0018	0.0017	0.0017				
Phosphate-P	mg/L				0.0258	0.0176	0.0085	0.0203	0.0203				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00020	0.00018	0.00017	0.00016	0.00016				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000033	0.0000047	0.0000152	0.0000026	0.0000026				
Calcium Ca	mg/L				9	8	8	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.29	0.15	0.19	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000012	0.0000012	0.0000013	0.0000012	0.0000012				
Molybdenum Mo	mg/L				0.00023	0.00021	0.00027	0.00023	0.00023				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.017	0.008	0.020	0.020				
Potassium K	mg/L				3.0	2.4	2.4	2.7	2.7				
Selenium Se	mg/L				0.00068	0.00040	0.00086	0.00063	0.00063				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000057	0.0000031	0.0000055	0.0000036	0.0000035				
Sodium Na	mg/L				42	35	37	39	39				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000002	0.000002				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Titanium Ti	mg/L				0.0065	0.0065	0.0066	0.0065	0.0065				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-3-a-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow													
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				158	157	147	166	166				
TSS	mg/L				7.1	8.2	4.2	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.1	3.9	4.9	4.6	4.6				
Chloride	mg/L				68	64	63	70	70				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0015	0.0015	0.0014	0.0014				
Phospho-P	mg/L				0.0253	0.0172	0.0082	0.0201	0.0201				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00016	0.00014	0.00014	0.00013	0.00013				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000045	0.0000151	0.0000025	0.0000025				
Calcium Ca	mg/L				9	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.29	0.15	0.19	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000012	0.0000012	0.0000013	0.0000012	0.0000012				
Molybdenum Mo	mg/L				0.00021	0.00019	0.00026	0.00022	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.4	2.3	2.6	2.6				
Selenium Se	mg/L				0.00068	0.00041	0.00086	0.00063	0.00063				
Silicon SiO2	mg/L				0.54	0.54	0.55	0.54	0.54				
Silver Ag	mg/L				0.0000054	0.0000028	0.0000053	0.0000034	0.0000033				
Sodium Na	mg/L				41	34	36	39	39				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000002	0.000002				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0065	0.0066	0.0066	0.0065	0.0066				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-3-a-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow													
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				155	155	144	165	164				
TSS	mg/L				7.1	8.1	4.2	5.2	5.2				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.9	3.8	4.8	4.6	4.6				
Chloride	mg/L				66	63	62	70	70				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0013	0.0013	0.0012				
Phosphate-P	mg/L				0.0250	0.0170	0.0080	0.0200	0.0200				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0005	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00013	0.00012	0.00012	0.00012	0.00012				
Boron B	mg/L				0.030	0.021	0.029	0.028	0.028				
Cadmium Cd	mg/L				0.0000029	0.0000044	0.0000150	0.0000025	0.0000025				
Calcium Ca	mg/L				8	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.29	0.15	0.19	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000012	0.0000012	0.0000013	0.0000013	0.0000013				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00025	0.00022	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.007	0.019	0.019				
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00068	0.00040	0.00086	0.00064	0.00063				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000051	0.0000026	0.0000051	0.0000035	0.0000033				
Sodium Na	mg/L				40	33	36	39	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000003	0.000002				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0065	0.0066	0.0066	0.0066	0.0066				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-a-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow												
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				154	154	143	163	163			
TSS	mg/L				7.1	8.2	4.2	5.1	5.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.9	3.8	4.8	4.5	4.5			
Chloride	mg/L				65	62	61	69	69			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0012	0.0012	0.0012	0.0011	0.0011			
Phosphate-P	mg/L				0.0248	0.0169	0.0079	0.0198	0.0198			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00012	0.00011	0.00011	0.00011	0.00011			
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000028	0.0000044	0.0000149	0.0000024	0.0000024			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.29	0.15	0.19	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.2	5.4	7.3	7.3			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000012	0.0000012	0.0000013	0.0000012	0.0000012			
Molybdenum Mo	mg/L				0.00020	0.00018	0.00025	0.00021	0.00021			
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6			
Selenium Se	mg/L				0.00068	0.00040	0.00086	0.00063	0.00063			
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54			
Silver Ag	mg/L				0.0000050	0.0000026	0.0000051	0.0000032	0.0000031			
Sodium Na	mg/L				39	33	36	38	38			
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002			
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti	mg/L				0.0065	0.0066	0.0066	0.0065	0.0066			
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000044	0.000044			
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004			
Zinc Zn	mg/L				0.0036	0.0017	0.0016	0.0052	0.0052			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

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Table I-3-a-C.3
Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	151	153				
TSS				3.9	5.6	5.8	6.7	6.7				
Free CN				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.09	0.01	0.03	0.03	0.03				
SCN				0.001	0.001	0.002	0.002	0.002				
Sulphate				3.8	3.9	4.3	4.9	5.2				
Chloride				61	62	62	67	69				
Total Ammonia				0.019	0.044	0.022	0.030	0.030				
Nitrate				0.08	0.11	0.14	0.18	0.21				
Nitrite				0.011	0.013	0.014	0.006	0.016				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi				0.00012	0.00021	0.00028	0.00033	0.00039				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000040	0.0000038	0.0000040	0.0000043				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000008	0.0000008				
Molybdenum Mo				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.021	0.027	0.024	0.025				
Potassium K				3.2	2.9	3.0	3.1	3.3				
Selenium Se				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2				0.54	0.55	0.57	0.58	0.60				
Silver Ag				0.0000049	0.0000058	0.0000060	0.0000064	0.0000065				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000020	0.0000022	0.0000023	0.0000025				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

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Table I-3-a-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				160	139	143	165	166				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00020		0.00003	0.00003	0.00003				
Total CN				0.004	0.002	0.002	0.002	0.002				
WAD CN				0.0003		0.0000	0.0000	0.0000				
CNO				0.22		0.03	0.03	0.03				
SCN				0.005	0.004	0.004	0.005	0.005				
Sulphate				7.3	6.7	6.9	7.5	7.7				
Chloride				74	73	71	77	78				
Total Ammonia				0.044	0.084	0.016	0.031	0.030				
Nitrate				0.29	0.30	0.31	0.35	0.37				
Nitrite				0.032	0.012	0.014	0.005	0.016				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000059	0.0000057	0.0000053	0.0000056	0.0000058				
Calcium Ca				21	18	18	19	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P				0.027	0.027	0.033	0.030	0.030				
Potassium K				4.8	4.1	4.1	4.3	4.4				
Selenium Se				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2				0.68	0.66	0.66	0.68	0.69				
Silver Ag				0.0000070	0.0000074	0.0000075	0.0000079	0.0000080				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.043				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000023	0.0000026	0.0000028	0.0000029	0.0000030				
Tin Sn				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

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Table I-3-a-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				171	148	150	171	172				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00013								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0002								
CNO				0.14								
SCN				0.006	0.005	0.005	0.005	0.005				
Sulphate				8.7	7.5	7.4	7.7	7.6				
Chloride				82	80	78	83	84				
Total Ammonia				0.036	0.057	0.016	0.017	0.017				
Nitrate				0.39	0.36	0.35	0.38	0.38				
Nitrite				0.030	0.009	0.014	0.004	0.004				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				50	46	46	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000067	0.0000062	0.0000055	0.0000056	0.0000056				
Calcium Ca				24	20	19	19	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0007	0.0007	0.0013	0.0006	0.0006				
Copper Cu				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.5	6.7	6.8	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P				0.032	0.031	0.036	0.033	0.033				
Potassium K				5.3	4.4	4.3	4.2	4.2				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.73	0.69	0.68	0.69	0.68				
Silver Ag				0.0000082	0.0000083	0.0000082	0.0000085	0.0000085				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.044	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000028	0.0000028	0.0000029	0.0000030	0.0000030				
Tin Sn				0.00051	0.00050	0.00051	0.00052	0.00052				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Appendix I

Table I-3-a-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert **Loadings in Little Roberts Creek Outflow (kg/month)**

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				173	158	169	201	212				
TSS				3.9	5.7	5.9	6.8	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.005	0.004	0.003	0.003	0.003				
Sulphate				7.4	6.3	6.1	6.4	6.3				
Chloride				88	89	92	104	111				
Total Ammonia				0.012	0.012	0.017	0.016	0.016				
Nitrate				0.34	0.29	0.28	0.29	0.29				
Nitrite				0.011	0.002	0.003	0.003	0.003				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P				0.0276	0.0267	0.0318	0.0278	0.0276				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.08	0.08				
Antimony Sb				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B				0.034	0.023	0.024	0.024	0.024				
Cadmium Cd				0.0000060	0.0000057	0.0000052	0.0000053	0.0000053				
Calcium Ca				20	17	17	17	18				
Chromium Cr				0.001	0.001	0.001	0.001	0.000				
Cobalt Co				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.12	0.09	0.09	0.10				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0030	0.0030				
Magnesium Mg				7.4	6.7	6.8	6.7	6.7				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000012	0.0000013	0.0000014	0.0000014				
Molybdenum Mo				0.00056	0.00048	0.00048	0.00047	0.00046				
Nickel Ni				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P				0.033	0.031	0.035	0.031	0.031				
Potassium K				4.6	3.8	3.7	3.7	3.7				
Selenium Se				0.00088	0.00058	0.00063	0.00058	0.00058				
Silicon SiO2				0.68	0.65	0.65	0.66	0.66				
Silver Ag				0.0000088	0.0000087	0.0000085	0.0000087	0.0000087				
Sodium Na				39	37	42	44	48				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000030	0.0000041	0.0000046	0.0000050	0.0000053				
Tin Sn				0.00054	0.00051	0.00050	0.00051	0.00050				
Titanium Ti				0.0059	0.0062	0.0063	0.0063	0.0064				
Uranium U				0.000028	0.000034	0.000042	0.000036	0.000036				
Vanadium V				0.0007	0.0003	0.0004	0.0004	0.0004				
Zinc Zn				0.0020	0.0039	0.0036	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-3-a-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				216	179	176	187	186				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.002	0.002	0.002	0.002				
Sulphate				6.0	5.1	4.9	4.8	4.7				
Chloride				114	102	96	95	94				
Total Ammonia				0.008	0.013	0.017	0.016	0.016				
Nitrate				0.23	0.20	0.19	0.17	0.17				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P				0.0244	0.0239	0.0291	0.0241	0.0240				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.07	0.09	0.08	0.08				
Antimony Sb				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0005	0.0004	0.0004				
Barium Ba				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00074	0.00056	0.00050	0.00044	0.00043				
Boron B				0.035	0.024	0.025	0.024	0.024				
Cadmium Cd				0.0000057	0.0000054	0.0000049	0.0000047	0.0000047				
Calcium Ca				19	16	15	14	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0017	0.0015	0.0017	0.0017				
Iron Fe				0.06	0.13	0.09	0.10	0.10				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0030	0.0030	0.0030	0.0029	0.0030				
Magnesium Mg				7.4	6.7	6.8	6.6	6.6				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000014	0.0000016	0.0000017	0.0000016	0.0000017				
Molybdenum Mo				0.00044	0.00037	0.00038	0.00033	0.00033				
Nickel Ni				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.028	0.026	0.031	0.026	0.026				
Potassium K				4.1	3.4	3.3	3.1	3.1				
Selenium Se				0.00090	0.00061	0.00066	0.00059	0.00059				
Silicon SiO2				0.65	0.63	0.62	0.61	0.61				
Silver Ag				0.0000086	0.0000086	0.0000083	0.0000076	0.0000075				
Sodium Na				58	48	48	44	44				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000052	0.0000060	0.0000064	0.0000060	0.0000063				
Tin Sn				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti				0.0064	0.0065	0.0066	0.0065	0.0066				
Uranium U				0.000030	0.000035	0.000043	0.000036	0.000036				
Vanadium V				0.0007	0.0003	0.0004	0.0003	0.0003				
Zinc Zn				0.0017	0.0037	0.0033	0.0022	0.0022				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-3-a-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				177	150	150	170	167				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.4	3.9	3.9	4.1	3.9				
Chloride				89	83	79	84	82				
Total Ammonia				0.005	0.009	0.014	0.013	0.013				
Nitrate				0.10	0.09	0.09	0.10	0.09				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P				0.0207	0.0212	0.0267	0.0226	0.0223				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.07	0.09	0.08	0.08				
Antimony Sb				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B				0.035	0.024	0.024	0.024	0.024				
Cadmium Cd				0.0000043	0.0000042	0.0000037	0.0000038	0.0000037				
Calcium Ca				14	12	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0016				
Iron Fe				0.06	0.13	0.09	0.10	0.10				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0030	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.6	6.6				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000015	0.0000017	0.0000018	0.0000019	0.0000018				
Molybdenum Mo				0.00031	0.00027	0.00029	0.00027	0.00026				
Nickel Ni				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.022	0.022	0.027	0.023	0.023				
Potassium K				3.5	3.0	2.9	2.9	2.8				
Selenium Se				0.00091	0.00061	0.00066	0.00061	0.00060				
Silicon SiO2				0.59	0.59	0.58	0.59	0.58				
Silver Ag				0.0000061	0.0000065	0.0000063	0.0000066	0.0000061				
Sodium Na				49	42	42	41	40				
Strontium Sr				0.041	0.042	0.036	0.041	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000044	0.0000049	0.0000052	0.0000057	0.0000055				
Tin Sn				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti				0.0065	0.0066	0.0067	0.0068	0.0067				
Uranium U				0.000028	0.000033	0.000041	0.000036	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0014	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr				0.0049	0.0049	0.0050	0.0050	0.0050				

Appendix I

Table I-3-a-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				158	135	137	154	154				
TSS				4.0	5.8	6.0	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.000				
Sulphate				3.6	3.3	3.4	3.4	3.4				
Chloride				77	74	71	73	73				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.04	0.03	0.03	0.03	0.03				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P				0.0190	0.0199	0.0255	0.0210	0.0210				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.05	0.07	0.09	0.08	0.08				
Antimony Sb				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B				0.035	0.024	0.024	0.023	0.024				
Cadmium Cd				0.0000040	0.0000038	0.0000033	0.0000031	0.0000031				
Calcium Ca				11	10	10	9	9				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.10	0.10	0.10				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000017	0.0000018	0.0000018	0.0000017	0.0000018				
Molybdenum Mo				0.00025	0.00022	0.00025	0.00022	0.00022				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.020	0.025	0.021	0.021				
Potassium K				3.2	2.8	2.7	2.6	2.6				
Selenium Se				0.00092	0.00061	0.00066	0.00060	0.00060				
Silicon SiO2				0.57	0.57	0.57	0.56	0.56				
Silver Ag				0.0000056	0.0000059	0.0000057	0.0000051	0.0000050				
Sodium Na				45	38	39	37	37				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000049	0.0000050	0.0000051	0.0000047	0.0000048				
Tin Sn				0.00042	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0066	0.0067	0.0067	0.0067	0.0067				
Uranium U				0.000029	0.000033	0.000041	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0012	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-3-a-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				148	128	131	148	148				
TSS				4.0	5.8	6.0	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.2	3.0	3.1	3.2	3.2				
Chloride				71	69	67	69	69				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P				0.0181	0.0192	0.0249	0.0204	0.0205				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.05	0.07	0.09	0.08	0.08				
Antimony Sb				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B				0.035	0.024	0.024	0.023	0.024				
Cadmium Cd				0.0000036	0.0000035	0.0000030	0.0000029	0.0000029				
Calcium Ca				10	9	9	8	8				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.10	0.10	0.10				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000017	0.0000018	0.0000019	0.0000018	0.0000018				
Molybdenum Mo				0.00021	0.00020	0.00022	0.00020	0.00020				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.024	0.020	0.020				
Potassium K				3.1	2.6	2.6	2.5	2.5				
Selenium Se				0.00092	0.00062	0.00066	0.00060	0.00060				
Silicon SiO2				0.56	0.56	0.56	0.55	0.55				
Silver Ag				0.0000050	0.0000054	0.0000053	0.0000047	0.0000047				
Sodium Na				43	37	38	35	35				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000047	0.0000048	0.0000050	0.0000045	0.0000047				
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0067	0.0067	0.0068	0.0067	0.0067				
Uranium U				0.000028	0.000033	0.000041	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-3-a-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				142	123	127	146	145				
TSS				4.0	5.8	6.0	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.0	2.8	2.9	3.1	3.1				
Chloride				67	66	64	68	68				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P				0.0174	0.0187	0.0245	0.0204	0.0203				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.05	0.07	0.09	0.09	0.08				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B				0.035	0.024	0.024	0.024	0.024				
Cadmium Cd				0.0000033	0.0000033	0.0000028	0.0000028	0.0000028				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.10	0.10	0.10				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000017	0.0000018	0.0000018	0.0000019	0.0000019				
Molybdenum Mo				0.00019	0.00018	0.00021	0.00019	0.00019				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.017	0.018	0.024	0.019	0.019				
Potassium K				3.0	2.6	2.6	2.5	2.5				
Selenium Se				0.00092	0.00061	0.00066	0.00061	0.00061				
Silicon SiO2				0.55	0.55	0.55	0.56	0.55				
Silver Ag				0.0000044	0.0000050	0.0000049	0.0000051	0.0000046				
Sodium Na				42	36	37	35	35				
Strontium Sr				0.040	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000043	0.0000046	0.0000047	0.0000051	0.0000048				
Tin Sn				0.00040	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0066	0.0067	0.0068	0.0069	0.0068				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

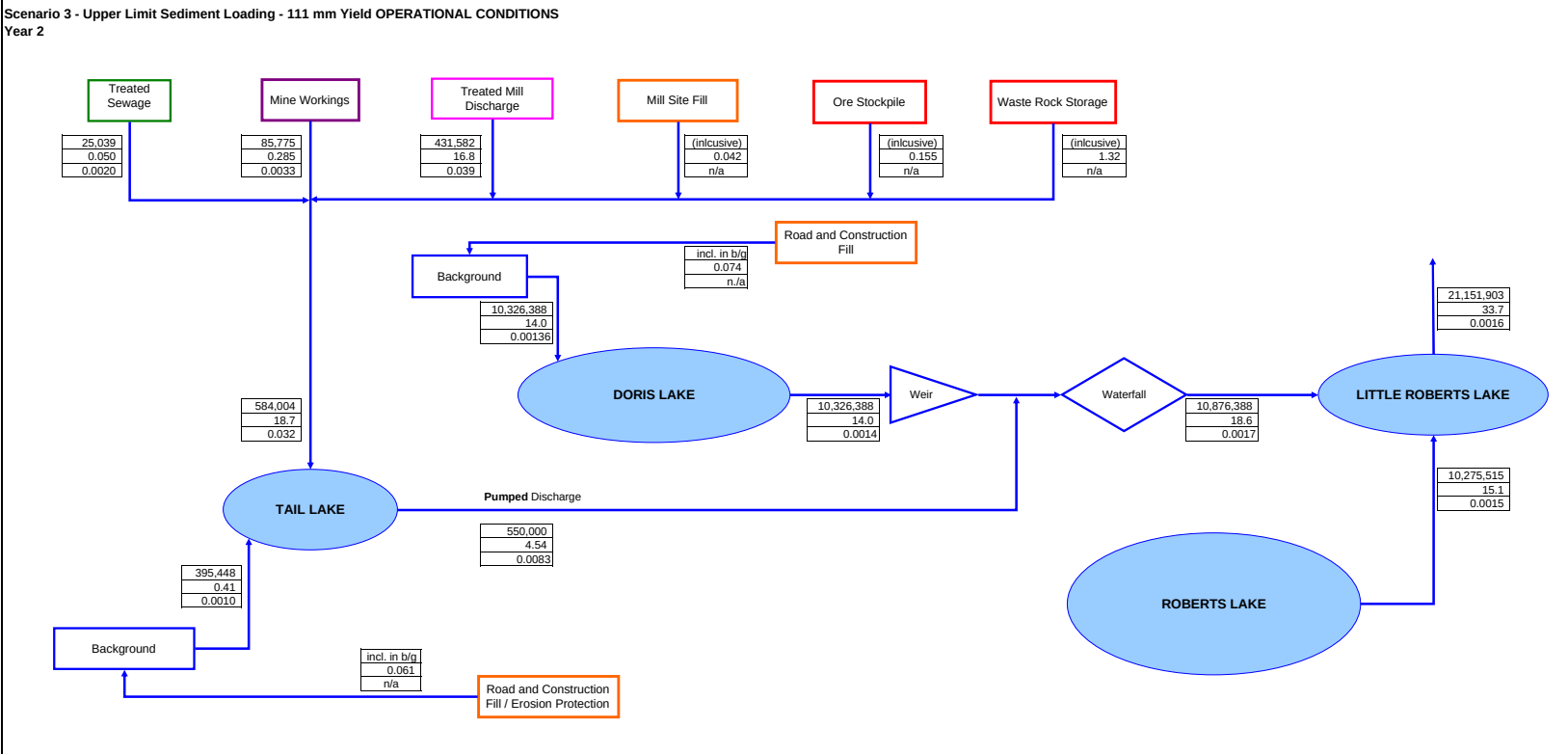
Table I-3-a-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

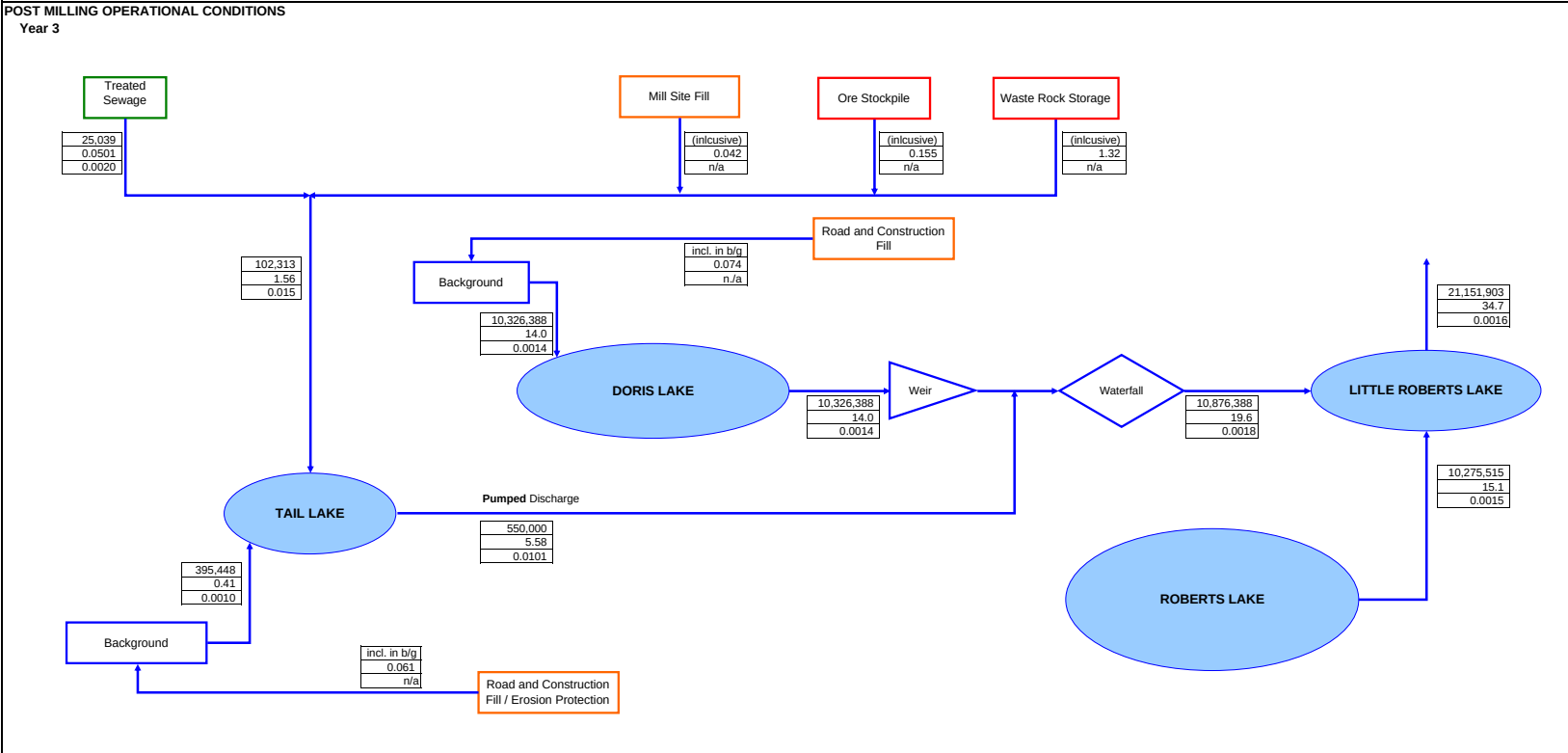
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Parameter												
TDS				140	121	125	143	143				
TSS				4.0	5.8	6.0	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				2.9	2.7	2.9	3.0	3.0				
Chloride				65	65	63	66	66				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0011	0.0010	0.0010	0.0010	0.0010				
Phosphate-P				0.0172	0.0185	0.0243	0.0199	0.0200				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.05	0.07	0.09	0.08	0.08				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00006	0.00005	0.00005	0.00005	0.00005				
Boron B				0.035	0.024	0.024	0.023	0.023				
Cadmium Cd				0.0000032	0.0000032	0.0000027	0.0000026	0.0000027				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.06	0.13	0.10	0.10	0.10				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000017	0.0000018	0.0000019	0.0000018	0.0000018				
Molybdenum Mo				0.00018	0.00018	0.00020	0.00018	0.00018				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.016	0.018	0.023	0.019	0.019				
Potassium K				2.9	2.5	2.5	2.5	2.5				
Selenium Se				0.00092	0.00062	0.00066	0.00060	0.00060				
Silicon SiO2				0.54	0.55	0.55	0.54	0.55				
Silver Ag				0.0000043	0.0000049	0.0000048	0.0000043	0.0000043				
Sodium Na				41	35	37	34	34				
Strontium Sr				0.040	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000043	0.0000046	0.0000047	0.0000043	0.0000045				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0067	0.0068	0.0068	0.0067	0.0067				
Uranium U				0.000028	0.000033	0.000041	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0010	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

SedLoad2

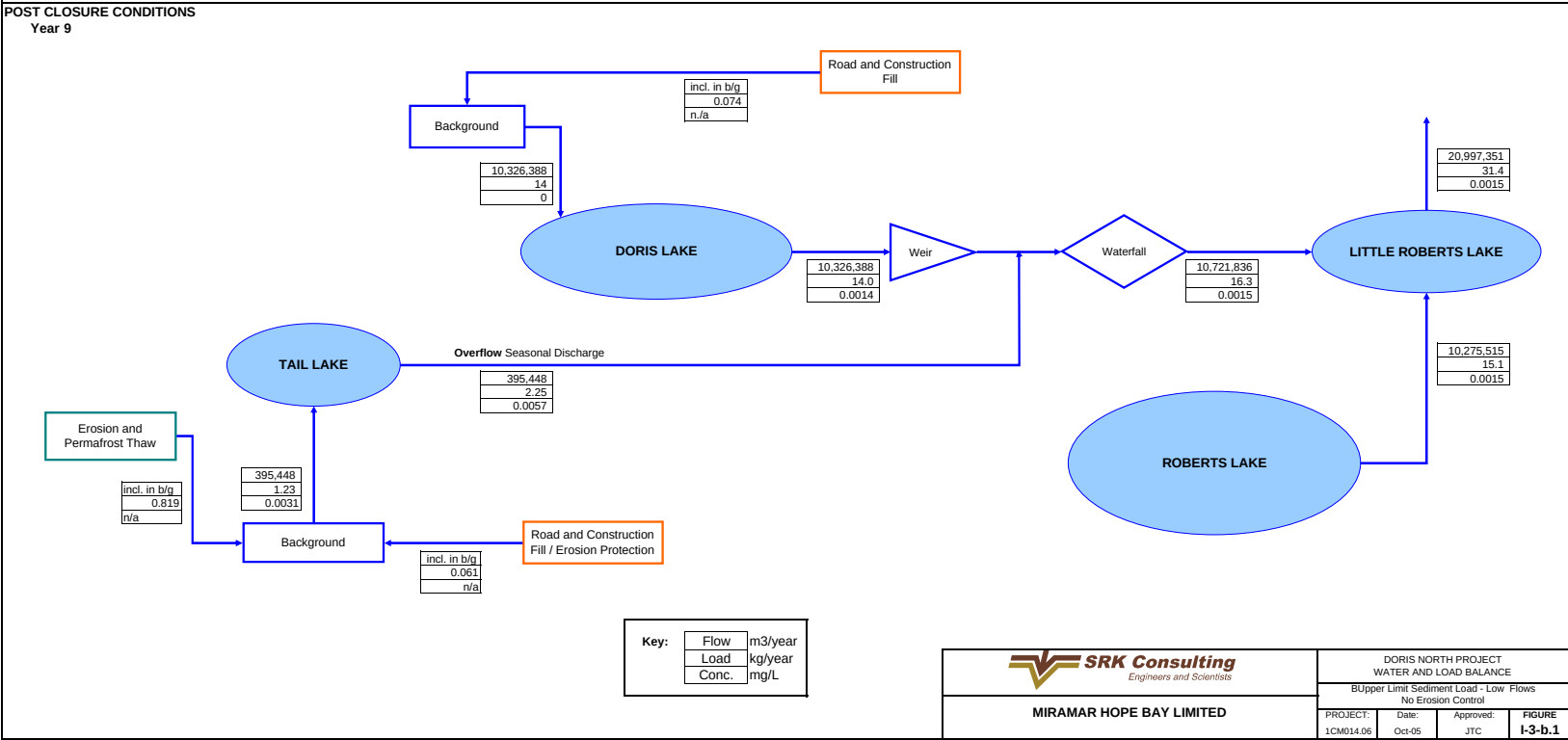
Scenario 3 - Upper Limit Sediment Loading - 111 mm Yield OPERATIONAL CONDITIONS
Year 2



POST MILLING OPERATIONAL CONDITIONS
Year 3



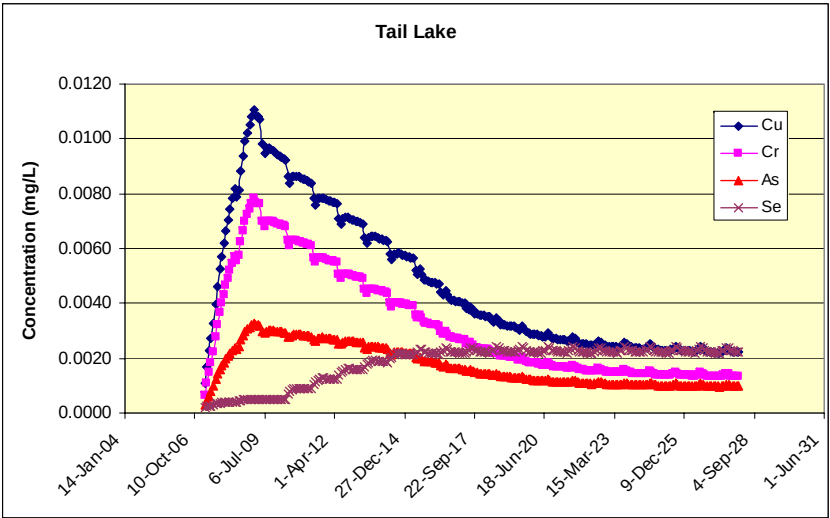
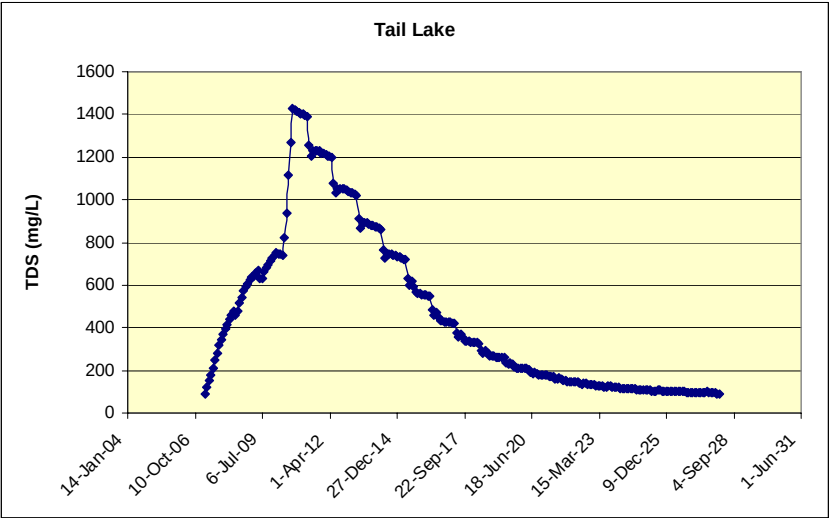
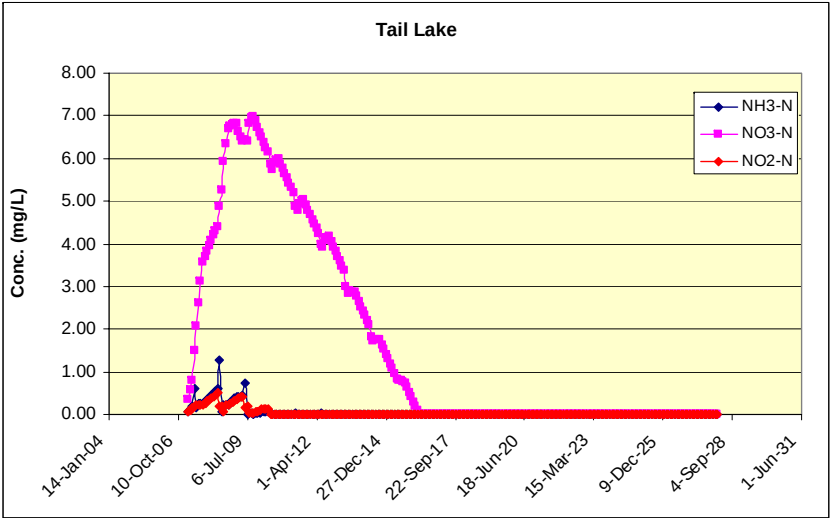
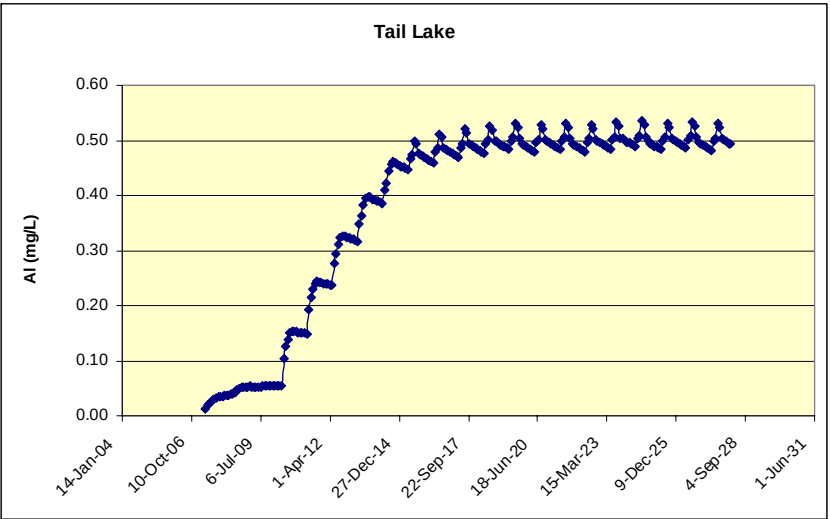
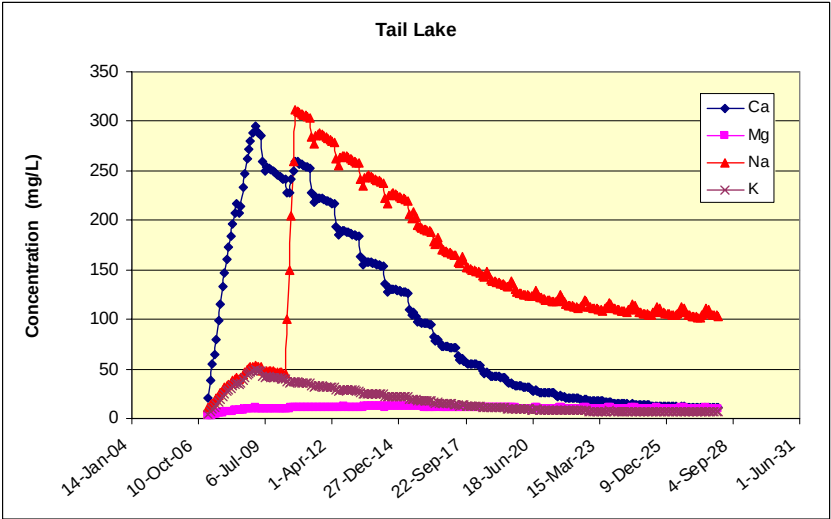
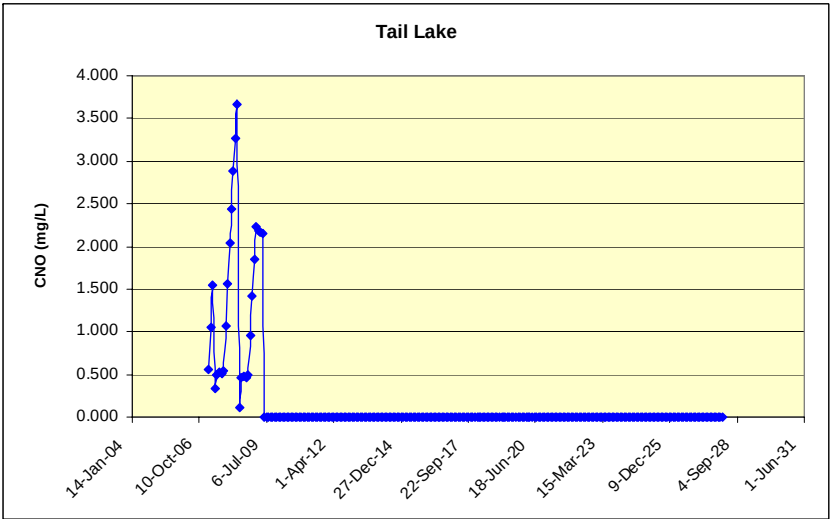
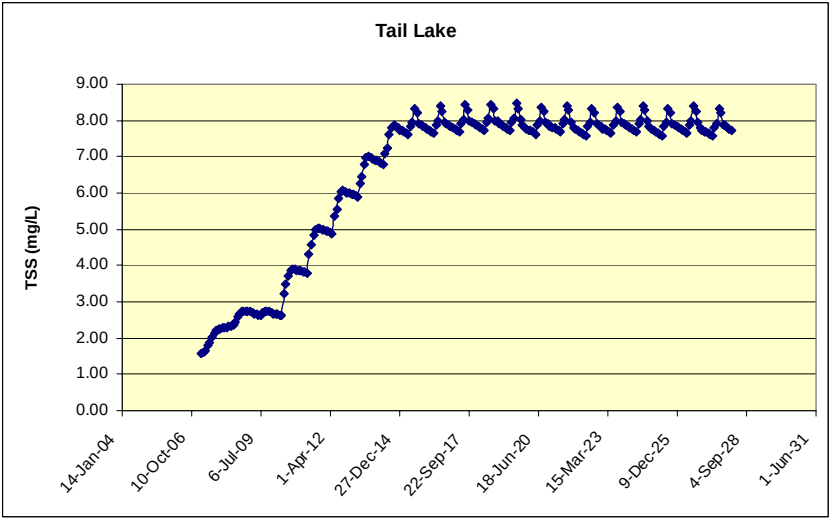
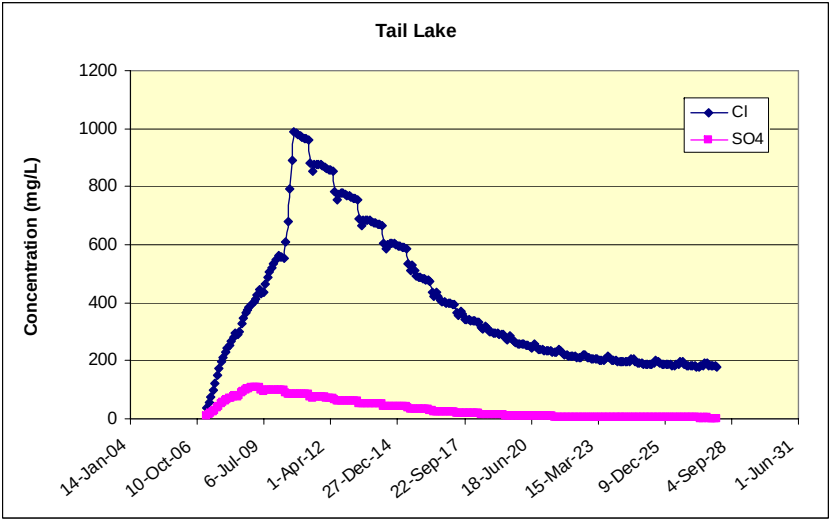
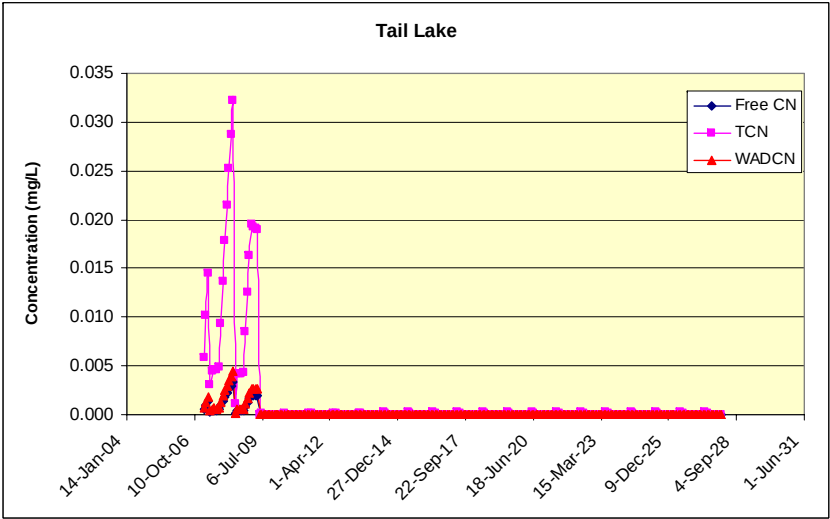
POST CLOSURE CONDITIONS
Year 9



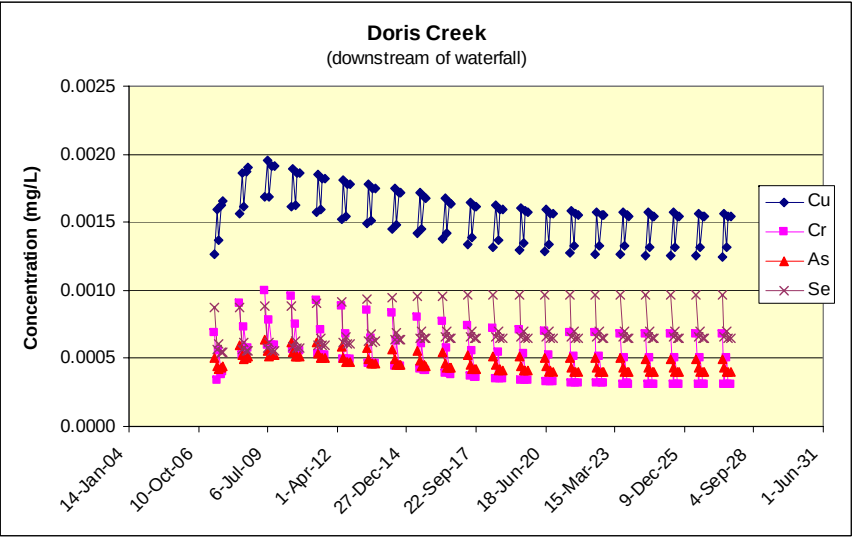
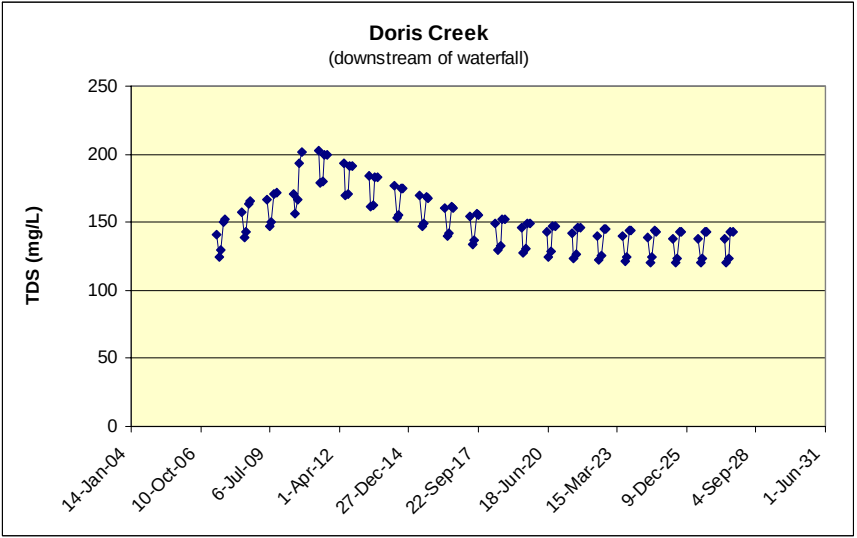
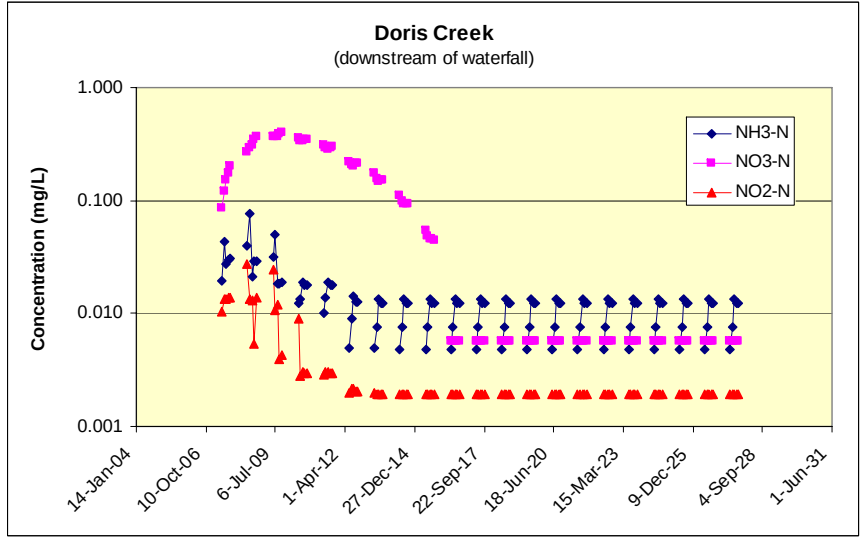
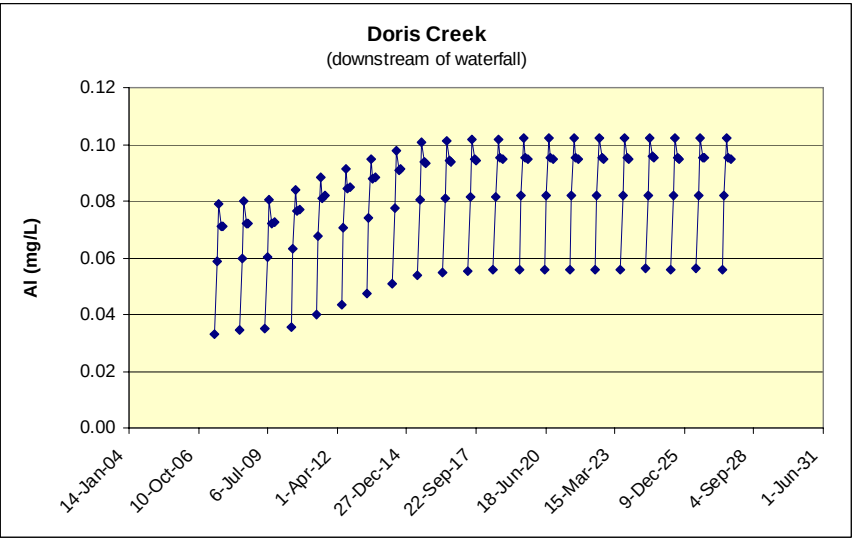
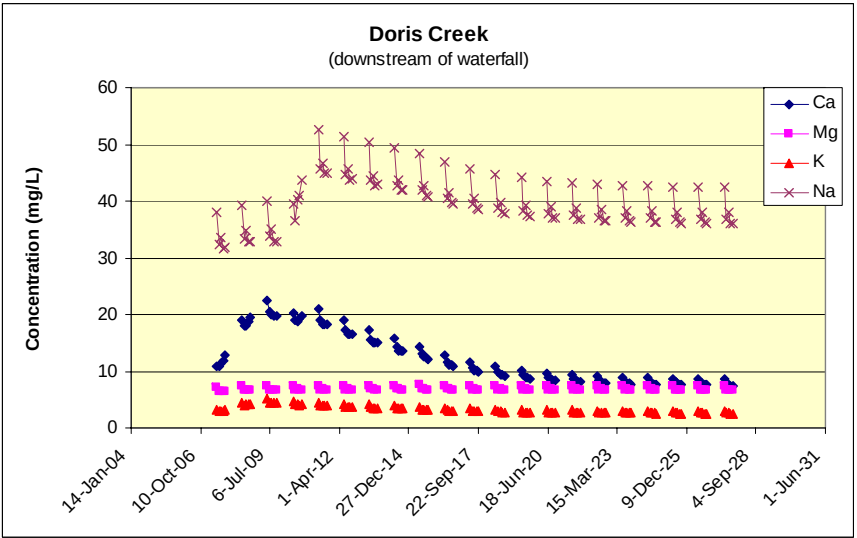
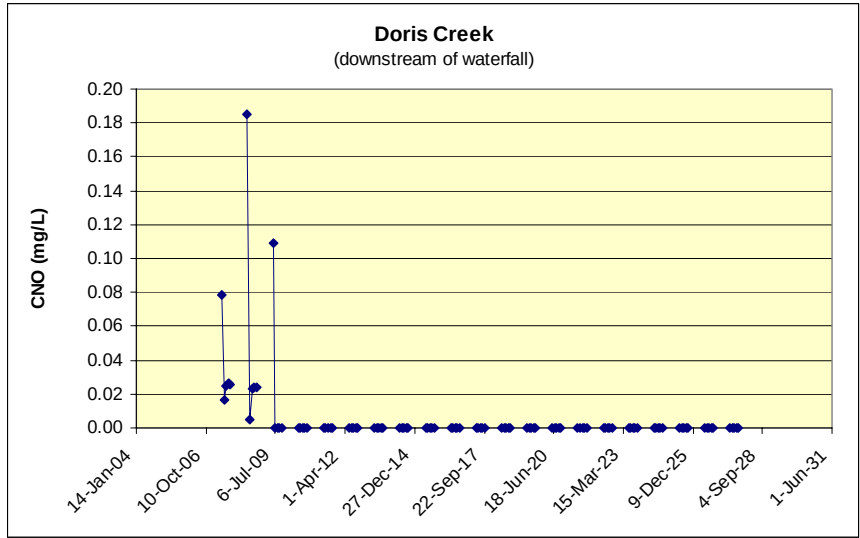
Key:	Flow	m ³ /year
	Load	kg/year
	Conc.	mg/L

 Engineers and Scientists		DORIS NORTH PROJECT WATER AND LOAD BALANCE	
MIRAMAR HOPE BAY LIMITED		Blupper Limit Sediment Load - Low Flows No Erosion Control	
PROJECT: 1.0M014.06	Date: Oct-05	Approved: JTC	FIGURE I-3-b.1

SedLoad2



SedLoad2



Appendix 1

Table I-3-b-A.1

Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		550000 m3/year					
Degradation Base		Tail Lk Cu < CME Year		30			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1427	203	193	
TSS	mg/L			8.5	7.1	8.2	
Free CN	mg/L		0.005	0.0033	0.00017	0.00009	3%
Total CN	mg/L	1.0		0.032	0.004	0.003	
WAD CN	mg/L			0.0044	0.0002	0.0001	
CNO	mg/L			3.7	0.19	0.10	
SCN	mg/L			0.119	0.006	0.003	
Sulphate	mg/L			109	8.1	7.2	
Chloride	mg/L			987	106	88	
Total Ammonia	mg/L		0.97	1.26	0.077	0.041	8%
Nitrate	mg/L		2.9	7.0	0.40	0.21	14%
Nitrite	mg/L		0.018	0.49	0.028	0.015	152%
Alkalinity	mg/L			62	29	26	
OrthoPhosphate-P	mg/L			0.2166	0.0115	0.0065	
Phosphate-P	mg/L			0.2195	0.0326	0.0296	
Org. Carbon	mg/L			5.4	7.4	7.1	
Hardness CaCO3	mg/L			124	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.54	0.10	0.26	102%
Antimony Sb	mg/L			0.0197	0.0036	0.0022	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0124	0.0036	0.0054	
Beryllium Be	mg/L			0.00073	0.00005	0.00003	
Bismuth Bi	mg/L			0.01903	0.00098	0.00059	
Boron B	mg/L			0.079	0.036	0.031	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000069	0.0000167	18%
Calcium Ca	mg/L			296	23	15	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	100%
Cobalt Co	mg/L			0.0124	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.00196	0.0021	98%
Iron Fe	mg/L		0.3	0.54	0.14	0.29	48%
Lead Pb	mg/L	0.2	0.002	0.00049	0.00009	0.00027	4%
Lithium Li	mg/L			0.0084	0.0031	0.0030	
Magnesium Mg	mg/L			12.5	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000423	0.00000271	0.0000017	3%
Molybdenum Mo	mg/L		0.073	0.0107	0.00067	0.00047	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.317	0.037	0.033	
Potassium K	mg/L			49	5.1	3.9	
Selenium Se	mg/L		0.001	0.00243	0.0010	0.00088	96%
Silicon SiO2	mg/L			4.6	0.71	0.62	
Silver Ag	mg/L		0.0001	0.00014	0.0000091	0.0000074	9%
Sodium Na	mg/L			312	53	45	
Strontium Sr	mg/L			0.102	0.045	0.048	
Tellurium Te	mg/L			0.044	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000047	0.000031	0.0020	4%
Thorium Th	mg/L			0.000156	0.0000079	0.0000041	
Tin Sn	mg/L			0.00297	0.00053	0.00008	
Titanium Ti	mg/L			0.0343	0.0074	0.0069	
Uranium U	mg/L			0.000148	0.000043	0.000046	
Vanadium V	mg/L			0.0056	0.0008	0.0006	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0050	0.0050	0.0051	

Appendix 1

Table I-3-b-A.2

Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	179	209	249	283	319	345	371	395	416
TSS	mg/L	1.6	1.6	1.6	1.8	1.9	2.0	2.1	2.2	2.2	2.3	2.3	2.3
Free CN	mg/L	0.00050	0.00096	0.00141	0.00030	0.00045	0.00048	0.00047	0.00050	0.00096	0.00142	0.00185	0.00222
Total CN	mg/L	0.006	0.010	0.015	0.003	0.004	0.005	0.005	0.005	0.009	0.014	0.018	0.021
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0004	0.0006	0.0006	0.0006	0.0007	0.0013	0.0019	0.0025	0.0030
CNO	mg/L	0.55	1.06	1.55	0.33	0.49	0.52	0.51	0.55	1.06	1.56	2.04	2.44
SCN	mg/L	0.008	0.014	0.021	0.025	0.031	0.038	0.045	0.052	0.058	0.064	0.069	0.073
Sulphate	mg/L	7.5	13.4	19.3	24.4	30.3	37.4	43.9	50.3	55.2	59.8	64.2	68.0
Chloride	mg/L	37	57	77	100	123	150	174	197	213	228	243	255
Total Ammonia	mg/L	0.070	0.133	0.194	0.613	0.175	0.252	0.260	0.248	0.306	0.363	0.416	0.462
Nitrate	mg/L	0.35	0.58	0.80	1.48	2.07	2.60	3.13	3.56	3.70	3.84	3.97	4.07
Nitrite	mg/L	0.054	0.102	0.150	0.207	0.208	0.218	0.219	0.225	0.269	0.312	0.353	0.388
Alkalinity	mg/L	16	18	21	23	26	30	33	36	38	40	42	43
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0334	0.0407	0.0507	0.0595	0.0687	0.0761	0.0832	0.0900	0.0957
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0370	0.0442	0.0542	0.0630	0.0722	0.0795	0.0865	0.0931	0.0988
Org. Carbon	mg/L	3.0	2.9	2.8	3.0	3.1	3.3	3.3	3.3	3.2	3.1	3.0	3.0
Hardness CaCO3	mg/L	23	29	35	39	45	53	60	66	71	76	80	83
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0035	0.0048	0.0058	0.0068	0.0076	0.0079	0.0083	0.0086	0.0089
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0017	0.0019	0.0020	0.0021
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0033	0.0039	0.0047	0.0054	0.0061	0.0066	0.0071	0.0076	0.0080
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00022	0.00027	0.00031	0.00034	0.00037	0.00038	0.00039	0.00040	0.00041
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00330	0.00453	0.00552	0.00650	0.00719	0.00752	0.00784	0.00815	0.00840
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.016	0.018	0.019	0.020	0.020	0.021	0.021
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000159	0.0000205	0.0000250	0.0000293	0.0000330	0.0000353	0.0000375	0.0000397	0.0000414
Calcium Ca	mg/L	21	38	54	65	79	98	115	133	147	160	173	184
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0027	0.0033	0.0041	0.0048	0.0056	0.0061	0.0067	0.0072	0.0077
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0027	0.0033	0.0040	0.0046	0.0052	0.0057	0.0062	0.0066	0.0070
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00013	0.00016	0.00019	0.00022	0.00025	0.00026	0.00028	0.00029	0.00030
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0027	0.0030	0.0033	0.0035	0.0036	0.0037	0.0038	0.0039
Magnesium Mg	mg/L	2.5	2.9	3.3	3.9	4.4	5.1	5.6	6.1	6.4	6.7	7.0	7.2
Manganese Mn	mg/L	0.002	0.004	0.006	0.008	0.009	0.011	0.013	0.015	0.017	0.019	0.020	0.021
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000018	0.0000022	0.0000027	0.0000031	0.0000035	0.0000037	0.0000039	0.0000041	0.0000043
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00232	0.00283	0.00353	0.00414	0.00479	0.00530	0.00579	0.00626	0.00666
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0023	0.0029	0.0035	0.0041	0.0046	0.0051	0.0055	0.0059	0.0062
Phosphorus P	mg/L	0.020	0.033	0.047	0.060	0.073	0.090	0.105	0.120	0.132	0.142	0.153	0.161
Potassium K	mg/L	3.8	6.6	9.3	11.0	13.4	16.5	19.3	22.3	24.6	26.8	28.9	30.7
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00027	0.00030	0.00033	0.00035	0.00037	0.00037	0.00038	0.00038	0.00039
Silicon SiO2	mg/L	0.70	0.92	1.14	1.34	1.57	1.86	2.12	2.37	2.54	2.71	2.87	3.01
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000670	0.0000749	0.0000805	0.0000849	0.0000879	0.0000882	0.0000882	0.0000883	0.0000883
Sodium Na	mg/L	11	13	16	18	20	23	26	29	31	33	35	36
Strontium Sr	mg/L	0.017	0.021	0.026	0.030	0.035	0.042	0.047	0.053	0.057	0.061	0.064	0.067
Tellurium Te	mg/L	0.025	0.024	0.024	0.025	0.026	0.027	0.027	0.027	0.027	0.026	0.025	0.025
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000022	0.000025	0.000027	0.000030	0.000031	0.000032	0.000033	0.000034	0.000034
Thorium Th	mg/L				0.000007	0.000011	0.000013	0.000016	0.000016	0.000016	0.000016	0.000015	0.000015
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00055	0.00075	0.00091	0.00106	0.00117	0.00121	0.00126	0.00130	0.00133
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0032	0.0034	0.0036	0.0037	0.0038	0.0037	0.0037	0.0036	0.0035
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000033	0.000038	0.000041	0.000043	0.000044	0.000043	0.000042	0.000041	0.000040
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0018	0.0020	0.0021	0.0022	0.0023	0.0023
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0061	0.0075	0.0092	0.0109	0.0125	0.0137	0.0148	0.0159	0.0168
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0026	0.0028	0.0029	0.0031	0.0031	0.0030	0.0029	0.0028	0.0027

Appendix 1

Table I-3-b-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	439	459	479	462	475	515	545	574	592	608	624	637
TSS	mg/L	2.3	2.3	2.3	2.4	2.4	2.6	2.7	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L	0.00262	0.00297	0.00333	0.00009	0.00042	0.00043	0.00043	0.00045	0.00088	0.00129	0.00169	0.00203
Total CN	mg/L	0.025	0.029	0.032	0.001	0.004	0.004	0.004	0.004	0.008	0.012	0.016	0.020
WAD CN	mg/L	0.0035	0.0040	0.0044	0.0001	0.0006	0.0006	0.0006	0.0006	0.0012	0.0017	0.0022	0.0027
CNO	mg/L	2.88	3.27	3.66	0.10	0.46	0.48	0.47	0.50	0.96	1.42	1.85	2.23
SCN	mg/L	0.078	0.083	0.087	0.083	0.085	0.093	0.099	0.105	0.109	0.112	0.116	0.119
Sulphate	mg/L	72.2	75.9	79.5	77.1	79.9	87.1	92.5	97.9	101.0	104.0	106.9	109.2
Chloride	mg/L	269	281	293	289	301	328	348	367	377	386	395	403
Total Ammonia	mg/L	0.512	0.557	0.601	1.265	0.051	0.237	0.237	0.225	0.279	0.331	0.380	0.423
Nitrate	mg/L	4.19	4.29	4.40	4.88	5.25	5.94	6.34	6.71	6.75	6.78	6.82	6.83
Nitrite	mg/L	0.426	0.460	0.494	0.207	0.201	0.049	0.218	0.217	0.257	0.297	0.334	0.366
Alkalinity	mg/L	45	47	48	47	49	52	55	58	59	60	61	62
OrthoPhosphate-P	mg/L	0.1021	0.1077	0.1132	0.1080	0.1110	0.1210	0.1284	0.1362	0.1411	0.1457	0.1502	0.1540
Phosphate-P	mg/L	0.1051	0.1106	0.1161	0.1111	0.1141	0.1242	0.1315	0.1393	0.1441	0.1487	0.1531	0.1568
Org. Carbon	mg/L	2.9	2.8	2.7	2.9	3.0	3.2	3.2	3.2	3.1	3.0	2.9	2.9
Hardness CaCO3	mg/L	88	91	95	92	95	103	108	114	117	119	122	124
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0092	0.0095	0.0097	0.0104	0.0112	0.0122	0.0131	0.0137	0.0139	0.0140	0.0142	0.0143
Arsenic As	mg/L	0.0022	0.0023	0.0024	0.0023	0.0025	0.0027	0.0028	0.0030	0.0031	0.0031	0.0032	0.0033
Barium Ba	mg/L	0.0084	0.0088	0.0092	0.0089	0.0092	0.0100	0.0106	0.0112	0.0115	0.0118	0.0121	0.0124
Beryllium Be	mg/L	0.00042	0.00043	0.00043	0.00046	0.00049	0.00053	0.00056	0.00058	0.00059	0.00059	0.00060	0.00060
Bismuth Bi	mg/L	0.00870	0.00895	0.00920	0.00986	0.01066	0.01164	0.01248	0.01305	0.01320	0.01333	0.01346	0.01356
Boron B	mg/L	0.022	0.023	0.023	0.024	0.025	0.027	0.029	0.030	0.030	0.030	0.031	0.031
Cadmium Cd	mg/L	0.0000435	0.0000453	0.0000470	0.0000476	0.0000503	0.0000548	0.0000584	0.0000615	0.0000628	0.0000641	0.0000653	0.0000664
Calcium Ca	mg/L	196	207	217	208	214	233	247	262	271	280	288	296
Chromium Cr	mg/L	0.005	0.005	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.008	0.008
Cobalt Co	mg/L	0.0082	0.0086	0.0090	0.0087	0.0090	0.0098	0.0104	0.0110	0.0114	0.0117	0.0121	0.0124
Copper Cu	mg/L	0.0075	0.0078	0.0082	0.0079	0.0081	0.0088	0.0094	0.0099	0.0102	0.0105	0.0108	0.0111
Iron Fe	mg/L	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00031	0.00032	0.00033	0.00034	0.00036	0.00039	0.00042	0.00044	0.00045	0.00046	0.00046	0.00047
Lithium Li	mg/L	0.0040	0.0041	0.0041	0.0042	0.0043	0.0046	0.0049	0.0050	0.0051	0.0051	0.0052	0.0052
Magnesium Mg	mg/L	7.5	7.7	7.9	7.9	8.2	8.8	9.3	9.7	9.9	10.0	10.2	10.3
Manganese Mn	mg/L	0.023	0.024	0.025	0.024	0.025	0.027	0.029	0.030	0.031	0.032	0.033	0.034
Mercury Hg	mg/L	0.0000045	0.0000047	0.0000049	0.0000049	0.0000052	0.0000056	0.0000060	0.0000063	0.0000064	0.0000065	0.0000067	0.0000068
Molybdenum Mo	mg/L	0.00711	0.00749	0.00788	0.00753	0.00774	0.00844	0.00895	0.00950	0.00984	0.01016	0.01047	0.01073
Nickel Ni	mg/L	0.0065	0.0069	0.0072	0.0070	0.0072	0.0079	0.0084	0.0088	0.0091	0.0094	0.0096	0.0098
Phosphorus P	mg/L	0.171	0.179	0.188	0.183	0.189	0.206	0.219	0.232	0.239	0.246	0.252	0.258
Potassium K	mg/L	32.7	34.4	36.2	34.6	35.6	38.7	41.1	43.5	45.0	46.5	47.9	49.1
Selenium Se	mg/L	0.00039	0.00040	0.00040	0.00041	0.00043	0.00046	0.00048	0.00049	0.00049	0.00050	0.00050	0.00050
Silicon SiO2	mg/L	3.16	3.30	3.43	3.35	3.46	3.75	3.97	4.17	4.29	4.39	4.49	4.58
Silver Ag	mg/L	0.0000887	0.0000887	0.0000888	0.0000957	0.0001016	0.0001072	0.0001110	0.0001135	0.0001130	0.0001124	0.0001118	0.0001112
Sodium Na	mg/L	38	39	41	40	41	44	47	49	50	51	53	54
Strontium Sr	mg/L	0.071	0.074	0.077	0.075	0.077	0.083	0.088	0.093	0.095	0.098	0.100	0.102
Tellurium Te	mg/L	0.024	0.023	0.023	0.024	0.025	0.026	0.027	0.027	0.026	0.025	0.025	0.024
Thallium Tl	mg/L	0.000035	0.000035	0.000036	0.000037	0.000038	0.000041	0.000043	0.000045	0.000045	0.000045	0.000045	0.000046
Thorium Th	mg/L	0.000014	0.000014	0.000014	0.000018	0.000022	0.000024	0.000026	0.000026	0.000026	0.000025	0.000024	0.000024
Tin Sn	mg/L	0.00138	0.00141	0.00144	0.00155	0.00169	0.00184	0.00197	0.00206	0.00208	0.00209	0.00211	0.00212
Titanium Ti	mg/L	0.0035	0.0034	0.0034	0.0036	0.0037	0.0039	0.0040	0.0041	0.0040	0.0040	0.0039	0.0038
Uranium U	mg/L	0.000039	0.000038	0.000037	0.000044	0.000048	0.000050	0.000052	0.000053	0.000052	0.000050	0.000049	0.000048
Vanadium V	mg/L	0.0024	0.0025	0.0026	0.0027	0.0028	0.0031	0.0033	0.0034	0.0035	0.0035	0.0036	0.0036
Zinc Zn	mg/L	0.0179	0.0188	0.0197	0.0190	0.0196	0.0214	0.0228	0.0242	0.0250	0.0257	0.0264	0.0270
Zirconium Zr	mg/L	0.0027	0.0026	0.0025	0.0028	0.0029	0.0030	0.0031	0.0032	0.0031	0.0030	0.0029	0.0028

Appendix 1

Table I-3-b-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	644	658	671	634	630	662	679	697	712	725	739	752
TSS	mg/L	2.7	2.7	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L	0.00199	0.00197	0.00196									
Total CN	mg/L	0.019	0.019	0.019		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0027	0.0026	0.0026									
CNO	mg/L	2.19	2.17	2.15									
SCN	mg/L	0.116	0.116	0.115	0.104	0.099	0.101	0.101	0.100	0.099	0.099	0.098	0.097
Sulphate	mg/L	107.7	107.4	107.0	98.8	96.0	98.6	99.1	99.4	99.1	98.8	98.5	98.3
Chloride	mg/L	414	428	443	430	437	466	486	505	520	535	550	563
Total Ammonia	mg/L	0.424	0.430	0.436	0.741		0.022	0.026	0.016	0.025	0.034	0.044	0.052
Nitrate	mg/L	6.63	6.51	6.39	6.42	6.40	6.81	6.93	6.99	6.87	6.73	6.61	6.49
Nitrite	mg/L	0.384	0.404	0.425	0.154	0.181	0.023	0.029	0.029	0.054	0.078	0.103	0.125
Alkalinity	mg/L	61	61	60	56	55	56	56	56	56	55	55	55
OrthoPhosphate-P	mg/L	0.1591	0.1656	0.1722	0.1634	0.1645	0.1755	0.1828	0.1905	0.1973	0.2039	0.2105	0.2166
Phosphate-P	mg/L	0.1618	0.1683	0.1749	0.1664	0.1675	0.1786	0.1858	0.1936	0.2003	0.2069	0.2135	0.2195
Org. Carbon	mg/L	2.8	2.8	2.8	3.0	3.1	3.2	3.3	3.3	3.3	3.3	3.2	3.2
Hardness CaCO3	mg/L	122	121	120	111	108	111	111	110	109	108	108	107
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.05	0.05
Antimony Sb	mg/L	0.0145	0.0148	0.0152	0.0154	0.0159	0.0170	0.0178	0.0184	0.0188	0.0191	0.0194	0.0197
Arsenic As	mg/L	0.0032	0.0032	0.0032	0.0030	0.0029	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
Barium Ba	mg/L	0.0122	0.0121	0.0120	0.0111	0.0108	0.0110	0.0110	0.0110	0.0110	0.0109	0.0108	0.0108
Beryllium Be	mg/L	0.00060	0.00060	0.00061	0.00062	0.00063	0.00067	0.00069	0.00070	0.00071	0.00071	0.00072	0.00073
Bismuth Bi	mg/L	0.01377	0.01410	0.01444	0.01471	0.01531	0.01637	0.01719	0.01776	0.01810	0.01841	0.01873	0.01903
Boron B	mg/L	0.031	0.031	0.031	0.030	0.030	0.031	0.032	0.032	0.032	0.032	0.032	0.032
Cadmium Cd	mg/L	0.0000652	0.0000647	0.0000643	0.0000602	0.0000589	0.0000605	0.0000609	0.0000609	0.0000605	0.0000600	0.0000596	0.0000593
Calcium Ca	mg/L	290	288	286	260	249	254	253	252	250	248	246	245
Chromium Cr	mg/L	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Cobalt Co	mg/L	0.0122	0.0121	0.0120	0.0110	0.0106	0.0108	0.0108	0.0108	0.0107	0.0107	0.0106	0.0105
Copper Cu	mg/L	0.0109	0.0108	0.0107	0.0098	0.0095	0.0097	0.0097	0.0096	0.0096	0.0095	0.0094	0.0094
Iron Fe	mg/L	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00046	0.00046	0.00047	0.00045	0.00045	0.00047	0.00048	0.00048	0.00048	0.00048	0.00048	0.00049
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0050	0.0050	0.0051	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Magnesium Mg	mg/L	10.2	10.1	10.1	9.6	9.5	9.8	10.0	10.0	10.0	9.9	9.9	9.9
Manganese Mn	mg/L	0.033	0.033	0.033	0.030	0.029	0.030	0.030	0.030	0.030	0.029	0.029	0.029
Mercury Hg	mg/L	0.0000067	0.0000066	0.0000066	0.0000062	0.0000060	0.0000062	0.0000063	0.0000063	0.0000062	0.0000062	0.0000061	0.0000061
Molybdenum Mo	mg/L	0.01054	0.01046	0.01039	0.00942	0.00904	0.00920	0.00916	0.00913	0.00907	0.00900	0.00893	0.00888
Nickel Ni	mg/L	0.0097	0.0097	0.0096	0.0089	0.0087	0.0089	0.0090	0.0090	0.0090	0.0090	0.0089	0.0089
Phosphorus P	mg/L	0.262	0.268	0.274	0.260	0.260	0.274	0.282	0.291	0.298	0.304	0.311	0.317
Potassium K	mg/L	48.2	47.8	47.5	43.1	41.4	42.1	41.9	41.8	41.5	41.1	40.8	40.6
Selenium Se	mg/L	0.00049	0.00049	0.00048	0.00047	0.00047	0.00049	0.00049	0.00049	0.00049	0.00049	0.00048	0.00048
Silicon SiO2	mg/L	4.50	4.47	4.44	4.11	3.99	4.08	4.09	4.08	4.06	4.03	4.00	3.98
Silver Ag	mg/L	0.0001101	0.0001101	0.0001102	0.0001131	0.0001160	0.0001203	0.0001224	0.0001235	0.0001235	0.0001234	0.0001233	0.0001233
Sodium Na	mg/L	53	52	52	48	47	48	48	48	47	47	47	46
Strontium Sr	mg/L	0.100	0.099	0.099	0.092	0.089	0.091	0.091	0.091	0.091	0.090	0.089	0.089
Tellurium Te	mg/L	0.023	0.023	0.023	0.025	0.026	0.027	0.027	0.027	0.027	0.027	0.027	0.027
Thallium Tl	mg/L	0.000045	0.000044	0.000044	0.000043	0.000043	0.000044	0.000045	0.000045	0.000044	0.000044	0.000044	0.000043
Thorium Th	mg/L	0.000023	0.000023	0.000023	0.000024	0.000026	0.000027	0.000028	0.000029	0.000028	0.000028	0.000028	0.000028
Tin Sn	mg/L	0.00215	0.00220	0.00225	0.00230	0.00240	0.00256	0.00269	0.00278	0.00283	0.00288	0.00292	0.00297
Titanium Ti	mg/L	0.0038	0.0038	0.0038	0.0040	0.0041	0.0043	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044
Uranium U	mg/L	0.000048	0.000047	0.000047	0.000050	0.000053	0.000055	0.000056	0.000056	0.000056	0.000056	0.000056	0.000055
Vanadium V	mg/L	0.0036	0.0037	0.0037	0.0036	0.0037	0.0039	0.0040	0.0041	0.0041	0.0042	0.0042	0.0042
Zinc Zn	mg/L	0.0265	0.0264	0.0263	0.0242	0.0234	0.0240	0.0242	0.0242	0.0241	0.0240	0.0239	0.0238
Zirconium Zr	mg/L	0.0028	0.0028	0.0027	0.0029	0.0031	0.0032	0.0033	0.0033	0.0033	0.0032	0.0032	0.0032

Appendix 1

Table I-3-b-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	747	744	741	823	939	1112	1269	1427	1423	1415	1408	1404
TSS	mg/L	2.6	2.6	2.6	3.2	3.5	3.7	3.9	3.9	3.9	3.9	3.9	3.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.097	0.096	0.096	0.087	0.083	0.085	0.085	0.085	0.084	0.084	0.084	0.083
Sulphate	mg/L	97.7	97.3	96.8	87.9	84.4	86.2	86.1	86.1	85.8	85.4	85.0	84.7
Chloride	mg/L	560	558	555	608	682	792	890	987	983	978	974	971
Total Ammonia	mg/L	0.052	0.052	0.051	0.018	0.013	0.006	0.008	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	6.37	6.26	6.15	5.86	5.73	5.91	5.96	5.98	5.87	5.75	5.64	5.54
Nitrite	mg/L	0.124	0.123	0.123		0.004	0.002	0.002	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	54	54	54	51	50	51	51	52	51	51	51	51
OrthoPhosphate-P	mg/L	0.2152	0.2143	0.2134	0.1933	0.1855	0.1895	0.1891	0.1890	0.1884	0.1874	0.1865	0.1859
Phosphate-P	mg/L	0.2181	0.2173	0.2163	0.2004	0.1944	0.1992	0.1996	0.1998	0.1991	0.1980	0.1971	0.1965
Org. Carbon	mg/L	3.2	3.2	3.2	3.3	3.5	3.6	3.7	3.7	3.7	3.7	3.7	3.7
Hardness CaCO3	mg/L	106	106	105	98	96	98	99	99	98	98	97	97
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.10	0.13	0.14	0.15	0.15	0.15	0.15	0.15	0.15
Antimony Sb	mg/L	0.0195	0.0195	0.0194	0.0176	0.0169	0.0172	0.0172	0.0172	0.0172	0.0171	0.0170	0.0169
Arsenic As	mg/L	0.0030	0.0029	0.0029	0.0028	0.0028	0.0028	0.0029	0.0029	0.0029	0.0029	0.0028	0.0028
Barium Ba	mg/L	0.0107	0.0107	0.0106	0.0098	0.0094	0.0097	0.0097	0.0097	0.0097	0.0096	0.0096	0.0095
Beryllium Be	mg/L	0.00072	0.00072	0.00071	0.00067	0.00066	0.00067	0.00067	0.00067	0.00067	0.00067	0.00066	0.00066
Bismuth Bi	mg/L	0.01891	0.01883	0.01875	0.01698	0.01630	0.01665	0.01662	0.01661	0.01656	0.01646	0.01639	0.01634
Boron B	mg/L	0.032	0.032	0.031	0.036	0.039	0.041	0.043	0.043	0.043	0.043	0.043	0.042
Cadmium Cd	mg/L	0.0000589	0.0000586	0.0000584	0.0000570	0.0000569	0.0000590	0.0000600	0.0000604	0.0000602	0.0000599	0.0000596	0.0000594
Calcium Ca	mg/L	243	242	241	228	227	241	250	260	259	257	256	255
Chromium Cr	mg/L	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0105	0.0104	0.0104	0.0094	0.0091	0.0093	0.0093	0.0093	0.0092	0.0092	0.0092	0.0091
Copper Cu	mg/L	0.0093	0.0093	0.0092	0.0086	0.0084	0.0086	0.0086	0.0086	0.0086	0.0086	0.0085	0.0085
Iron Fe	mg/L	0.06	0.05	0.05	0.10	0.13	0.14	0.15	0.15	0.15	0.15	0.15	0.15
Lead Pb	mg/L	0.00048	0.00048	0.00048	0.00045	0.00045	0.00046	0.00047	0.00047	0.00046	0.00046	0.00046	0.00046
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0054	0.0055	0.0057	0.0059	0.0059	0.0059	0.0059	0.0058	0.0058
Magnesium Mg	mg/L	9.8	9.8	9.7	9.8	10.0	10.4	10.5	10.6	10.6	10.5	10.5	10.4
Manganese Mn	mg/L	0.029	0.029	0.029	0.027	0.027	0.027	0.028	0.028	0.028	0.028	0.027	0.027
Mercury Hg	mg/L	0.0000061	0.0000061	0.0000060	0.0000099	0.0000116	0.0000126	0.0000135	0.0000137	0.0000137	0.0000136	0.0000135	0.0000135
Molybdenum Mo	mg/L	0.00882	0.00878	0.00875	0.00799	0.00770	0.00788	0.00788	0.00788	0.00785	0.00781	0.00777	0.00775
Nickel Ni	mg/L	0.0089	0.0088	0.0088	0.0081	0.0078	0.0080	0.0080	0.0080	0.0079	0.0079	0.0079	0.0078
Phosphorus P	mg/L	0.314	0.313	0.312	0.284	0.274	0.280	0.280	0.280	0.279	0.277	0.276	0.275
Potassium K	mg/L	40.3	40.1	40.0	36.8	35.7	36.5	36.6	36.6	36.5	36.3	36.1	36.0
Selenium Se	mg/L	0.00048	0.00047	0.00047	0.00068	0.00078	0.00083	0.00088	0.00089	0.00089	0.00089	0.00088	0.00088
Silicon SiO2	mg/L	3.95	3.93	3.92	3.76	3.72	3.83	3.87	3.88	3.87	3.85	3.83	3.82
Silver Ag	mg/L	0.0001226	0.0001221	0.0001215	0.0001227	0.0001241	0.0001278	0.0001289	0.0001293	0.0001289	0.0001282	0.0001276	0.0001272
Sodium Na	mg/L	46	46	46	100	149	205	259	312	311	309	308	307
Strontium Sr	mg/L	0.088	0.088	0.088	0.085	0.084	0.087	0.088	0.088	0.088	0.087	0.087	0.086
Tellurium Te	mg/L	0.026	0.026	0.026	0.028	0.029	0.030	0.030	0.031	0.031	0.030	0.030	0.030
Thallium Tl	mg/L	0.000043	0.000043	0.000043	0.000042	0.000042	0.000044	0.000045	0.000045	0.000045	0.000044	0.000044	0.000044
Thorium Th	mg/L	0.000028	0.000028	0.000027	0.000044	0.000052	0.000056	0.000061	0.000062	0.000062	0.000061	0.000061	0.000061
Tin Sn	mg/L	0.00295	0.00294	0.00292	0.00267	0.00258	0.00264	0.00265	0.00265	0.00264	0.00263	0.00261	0.00261
Titanium Ti	mg/L	0.0044	0.0043	0.0043	0.0074	0.0088	0.0095	0.0102	0.0104	0.0103	0.0103	0.0102	0.0102
Uranium U	mg/L	0.000055	0.000055	0.000054	0.000067	0.000073	0.000078	0.000081	0.000082	0.000082	0.000081	0.000081	0.000081
Vanadium V	mg/L	0.0042	0.0042	0.0042	0.0043	0.0045	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0045
Zinc Zn	mg/L	0.0236	0.0235	0.0234	0.0216	0.0209	0.0214	0.0216	0.0217	0.0216	0.0215	0.0214	0.0213
Zirconium Zr	mg/L	0.0032	0.0032	0.0031	0.0033	0.0034	0.0036	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037

Appendix 1

Table I-3-b-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1399	1394	1387	1256	1206	1233	1232	1232	1228	1221	1215	1211
TSS	mg/L	3.8	3.8	3.8	4.3	4.6	4.8	5.0	5.0	5.0	5.0	5.0	5.0
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.083	0.083	0.082	0.074	0.071	0.072	0.072	0.072	0.072	0.071	0.071	0.071
Sulphate	mg/L	84.4	84.1	83.7	75.4	72.3	73.9	73.7	73.7	73.5	73.1	72.7	72.5
Chloride	mg/L	967	963	959	882	853	875	877	878	875	870	866	863
Total Ammonia	mg/L	0.003	0.003	0.003	0.024	0.014	0.006	0.009	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	5.43	5.32	5.21	4.87	4.78	4.94	5.00	5.02	4.91	4.79	4.68	4.57
Nitrite	mg/L	0.001	0.001	0.001	0.005	0.005	0.003	0.002	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	51	50	50	47	46	48	48	48	48	48	48	47
OrthoPhosphate-P	mg/L	0.1853	0.1846	0.1837	0.1653	0.1581	0.1615	0.1611	0.1610	0.1605	0.1596	0.1588	0.1583
Phosphate-P	mg/L	0.1959	0.1950	0.1942	0.1795	0.1738	0.1783	0.1787	0.1789	0.1783	0.1773	0.1764	0.1759
Org. Carbon	mg/L	3.6	3.6	3.6	3.8	3.9	4.1	4.1	4.2	4.1	4.1	4.1	4.1
Hardness CaCO3	mg/L	97	96	96	89	87	89	90	90	90	89	89	88
Total Metals													
Aluminum Al	mg/L	0.15	0.15	0.15	0.19	0.21	0.23	0.24	0.24	0.24	0.24	0.24	0.24
Antimony Sb	mg/L	0.0169	0.0168	0.0167	0.0151	0.0144	0.0148	0.0147	0.0147	0.0147	0.0146	0.0145	0.0145
Arsenic As	mg/L	0.0028	0.0028	0.0028	0.0027	0.0026	0.0027	0.0027	0.0028	0.0027	0.0027	0.0027	0.0027
Barium Ba	mg/L	0.0095	0.0095	0.0094	0.0086	0.0083	0.0085	0.0086	0.0086	0.0085	0.0085	0.0085	0.0084
Beryllium Be	mg/L	0.00066	0.00066	0.00065	0.00061	0.00060	0.00061	0.00062	0.00062	0.00061	0.00061	0.00061	0.00061
Bismuth Bi	mg/L	0.01629	0.01622	0.01614	0.01452	0.01389	0.01419	0.01415	0.01415	0.01410	0.01402	0.01396	0.01391
Boron B	mg/L	0.042	0.042	0.042	0.046	0.048	0.051	0.053	0.053	0.053	0.053	0.052	0.052
Cadmium Cd	mg/L	0.0000592	0.0000590	0.0000587	0.0000572	0.0000571	0.0000593	0.0000603	0.0000607	0.0000605	0.0000602	0.0000599	0.0000597
Calcium Ca	mg/L	255	254	252	228	218	223	223	223	222	221	220	219
Chromium Cr	mg/L	0.006	0.006	0.006	0.006	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0091	0.0091	0.0090	0.0081	0.0078	0.0080	0.0080	0.0080	0.0079	0.0079	0.0079	0.0078
Copper Cu	mg/L	0.0085	0.0084	0.0084	0.0078	0.0076	0.0078	0.0078	0.0079	0.0078	0.0078	0.0077	0.0077
Iron Fe	mg/L	0.15	0.15	0.15	0.19	0.21	0.23	0.24	0.24	0.24	0.24	0.24	0.24
Lead Pb	mg/L	0.00046	0.00046	0.00045	0.00043	0.00042	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044
Lithium Li	mg/L	0.0058	0.0058	0.0058	0.0060	0.0061	0.0064	0.0065	0.0066	0.0066	0.0065	0.0065	0.0065
Magnesium Mg	mg/L	10.4	10.4	10.3	10.4	10.5	10.9	11.1	11.2	11.1	11.1	11.0	11.0
Manganese Mn	mg/L	0.027	0.027	0.027	0.026	0.025	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Mercury Hg	mg/L	0.0000135	0.0000134	0.0000133	0.0000168	0.0000183	0.0000195	0.0000204	0.0000207	0.0000206	0.0000205	0.0000204	0.0000203
Molybdenum Mo	mg/L	0.00772	0.00769	0.00766	0.00696	0.00669	0.00685	0.00685	0.00685	0.00683	0.00679	0.00676	0.00673
Nickel Ni	mg/L	0.0078	0.0078	0.0077	0.0071	0.0068	0.0070	0.0070	0.0070	0.0070	0.0069	0.0069	0.0069
Phosphorus P	mg/L	0.274	0.273	0.272	0.246	0.236	0.242	0.242	0.242	0.241	0.239	0.238	0.238
Potassium K	mg/L	35.9	35.8	35.6	32.7	31.6	32.4	32.5	32.5	32.4	32.2	32.1	32.0
Selenium Se	mg/L	0.00088	0.00087	0.00087	0.00105	0.00114	0.00121	0.00126	0.00127	0.00127	0.00126	0.00126	0.00125
Silicon SiO2	mg/L	3.81	3.79	3.78	3.63	3.58	3.70	3.74	3.75	3.74	3.72	3.70	3.69
Silver Ag	mg/L	0.0001268	0.0001263	0.0001257	0.0001265	0.0001279	0.0001318	0.0001329	0.0001334	0.0001329	0.0001322	0.0001315	0.0001311
Sodium Na	mg/L	306	304	303	284	278	285	287	288	287	285	284	283
Strontium Sr	mg/L	0.086	0.086	0.085	0.082	0.082	0.084	0.085	0.086	0.085	0.085	0.085	0.084
Tellurium Te	mg/L	0.030	0.030	0.030	0.031	0.032	0.033	0.034	0.034	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000044	0.000044	0.000044	0.000043	0.000043	0.000045	0.000045	0.000046	0.000046	0.000045	0.000045	0.000045
Thorium Th	mg/L	0.000061	0.000060	0.000060	0.000075	0.000082	0.000087	0.000092	0.000093	0.000093	0.000092	0.000092	0.000091
Tin Sn	mg/L	0.00260	0.00259	0.00257	0.00234	0.00226	0.00231	0.00232	0.00232	0.00231	0.00230	0.00229	0.00228
Titanium Ti	mg/L	0.0102	0.0101	0.0101	0.0128	0.0140	0.0149	0.0156	0.0158	0.0158	0.0157	0.0156	0.0156
Uranium U	mg/L	0.000080	0.000080	0.000080	0.000090	0.000096	0.000101	0.000105	0.000106	0.000105	0.000105	0.000104	0.000104
Vanadium V	mg/L	0.0045	0.0045	0.0045	0.0046	0.0048	0.0049	0.0049	0.0049	0.0049	0.0049	0.0048	0.0048
Zinc Zn	mg/L	0.0212	0.0211	0.0211	0.0193	0.0187	0.0192	0.0194	0.0194	0.0193	0.0192	0.0191	0.0191
Zirconium Zr	mg/L	0.0037	0.0037	0.0036	0.0038	0.0039	0.0041	0.0042	0.0042	0.0042	0.0042	0.0042	0.0041

Appendix 1

Table I-3-b-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	1207	1202	1196	1076	1030	1054	1052	1053	1049	1043	1038	1034
TSS	mg/L	4.9	4.9	4.9	5.3	5.6	5.8	6.0	6.1	6.1	6.0	6.0	6.0
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.071	0.070	0.070	0.062	0.059	0.061	0.060	0.060	0.060	0.060	0.059	0.059
Sulphate	mg/L	72.2	71.9	71.6	64.0	61.1	62.5	62.4	62.4	62.2	61.8	61.5	61.3
Chloride	mg/L	860	856	852	781	755	775	777	778	775	770	766	764
Total Ammonia	mg/L	0.003	0.003	0.003	0.026	0.015	0.007	0.010	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	4.47	4.36	4.24	3.99	3.93	4.07	4.14	4.16	4.05	3.93	3.82	3.71
Nitrite	mg/L	0.001	0.001	0.001	0.005	0.005	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	47	47	47	44	43	45	45	45	45	45	44	44
OrthoPhosphate-P	mg/L	0.1578	0.1571	0.1563	0.1395	0.1329	0.1359	0.1354	0.1354	0.1349	0.1341	0.1334	0.1330
Phosphate-P	mg/L	0.1753	0.1745	0.1737	0.1602	0.1549	0.1592	0.1596	0.1598	0.1593	0.1583	0.1575	0.1570
Org. Carbon	mg/L	4.1	4.1	4.0	4.2	4.3	4.5	4.5	4.6	4.5	4.5	4.5	4.5
Hardness CaCO3	mg/L	88	88	87	81	79	81	82	82	81	81	81	80
Total Metals													
Aluminum Al	mg/L	0.24	0.24	0.24	0.28	0.29	0.31	0.32	0.33	0.33	0.32	0.32	0.32
Antimony Sb	mg/L	0.0144	0.0144	0.0143	0.0128	0.0122	0.0125	0.0125	0.0125	0.0124	0.0123	0.0123	0.0122
Arsenic As	mg/L	0.0027	0.0027	0.0027	0.0025	0.0025	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Barium Ba	mg/L	0.0084	0.0084	0.0083	0.0076	0.0073	0.0075	0.0075	0.0075	0.0075	0.0075	0.0074	0.0074
Beryllium Be	mg/L	0.00060	0.00060	0.00060	0.00056	0.00055	0.00056	0.00056	0.00057	0.00056	0.00056	0.00056	0.00056
Bismuth Bi	mg/L	0.01386	0.01380	0.01374	0.01226	0.01168	0.01194	0.01190	0.01189	0.01186	0.01178	0.01173	0.01169
Boron B	mg/L	0.052	0.052	0.051	0.055	0.057	0.060	0.062	0.062	0.062	0.062	0.061	0.061
Cadmium Cd	mg/L	0.0000595	0.0000592	0.0000589	0.0000573	0.0000572	0.0000595	0.0000606	0.0000610	0.0000608	0.0000604	0.0000601	0.0000599
Calcium Ca	mg/L	218	217	216	194	185	190	189	189	189	187	187	186
Chromium Cr	mg/L	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0078	0.0078	0.0077	0.0069	0.0066	0.0068	0.0068	0.0068	0.0068	0.0067	0.0067	0.0067
Copper Cu	mg/L	0.0077	0.0077	0.0076	0.0071	0.0069	0.0071	0.0071	0.0071	0.0071	0.0071	0.0070	0.0070
Iron Fe	mg/L	0.24	0.24	0.23	0.27	0.29	0.31	0.32	0.32	0.32	0.32	0.32	0.32
Lead Pb	mg/L	0.00043	0.00043	0.00043	0.00041	0.00040	0.00042	0.00042	0.00042	0.00042	0.00042	0.00042	0.00041
Lithium Li	mg/L	0.0064	0.0064	0.0064	0.0066	0.0067	0.0070	0.0071	0.0072	0.0072	0.0071	0.0071	0.0071
Magnesium Mg	mg/L	10.9	10.9	10.8	10.9	10.9	11.4	11.6	11.7	11.6	11.6	11.5	11.5
Manganese Mn	mg/L	0.026	0.026	0.026	0.024	0.024	0.025	0.025	0.025	0.025	0.025	0.025	0.024
Mercury Hg	mg/L	0.0000203	0.0000202	0.0000201	0.0000231	0.0000244	0.0000258	0.0000268	0.0000271	0.0000270	0.0000268	0.0000267	0.0000266
Molybdenum Mo	mg/L	0.00671	0.00668	0.00665	0.00602	0.00577	0.00591	0.00590	0.00591	0.00589	0.00585	0.00582	0.00580
Nickel Ni	mg/L	0.0068	0.0068	0.0068	0.0062	0.0059	0.0061	0.0061	0.0061	0.0061	0.0060	0.0060	0.0060
Phosphorus P	mg/L	0.237	0.236	0.235	0.211	0.202	0.207	0.207	0.207	0.206	0.205	0.204	0.203
Potassium K	mg/L	31.9	31.7	31.6	28.9	27.9	28.7	28.7	28.8	28.7	28.5	28.4	28.3
Selenium Se	mg/L	0.00125	0.00124	0.00124	0.00140	0.00147	0.00155	0.00161	0.00162	0.00162	0.00161	0.00160	0.00159
Silicon SiO2	mg/L	3.68	3.66	3.64	3.50	3.46	3.58	3.62	3.63	3.62	3.60	3.58	3.57
Silver Ag	mg/L	0.0001307	0.0001301	0.0001295	0.0001301	0.0001313	0.0001354	0.0001365	0.0001370	0.0001366	0.0001357	0.0001351	0.0001346
Sodium Na	mg/L	282	281	279	262	255	263	265	265	265	263	262	261
Strontium Sr	mg/L	0.084	0.084	0.083	0.080	0.080	0.082	0.083	0.084	0.084	0.083	0.083	0.082
Tellurium Te	mg/L	0.034	0.033	0.033	0.034	0.035	0.036	0.037	0.037	0.037	0.037	0.037	0.037
Thallium Tl	mg/L	0.000045	0.000045	0.000044	0.000044	0.000044	0.000045	0.000046	0.000047	0.000046	0.000046	0.000046	0.000046
Thorium Th	mg/L	0.000091	0.000091	0.000090	0.000103	0.000109	0.000115	0.000120	0.000122	0.000121	0.000120	0.000120	0.000119
Tin Sn	mg/L	0.00227	0.00226	0.00225	0.00203	0.00196	0.00201	0.00201	0.00202	0.00201	0.00200	0.00199	0.00198
Titanium Ti	mg/L	0.0155	0.0154	0.0154	0.0177	0.0188	0.0199	0.0206	0.0209	0.0208	0.0207	0.0206	0.0205
Uranium U	mg/L	0.000104	0.000103	0.000103	0.000112	0.000117	0.000123	0.000126	0.000128	0.000127	0.000126	0.000126	0.000125
Vanadium V	mg/L	0.0048	0.0048	0.0048	0.0048	0.0049	0.0051	0.0052	0.0052	0.0052	0.0051	0.0051	0.0051
Zinc Zn	mg/L	0.0190	0.0189	0.0188	0.0172	0.0166	0.0171	0.0173	0.0173	0.0173	0.0172	0.0171	0.0170
Zirconium Zr	mg/L	0.0041	0.0041	0.0041	0.0042	0.0043	0.0045	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046

Appendix 1

Table I-3-b-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	1030	1026	1021	912	870	891	889	890	887	881	877	874
TSS	mg/L	5.9	5.9	5.9	6.3	6.5	6.8	7.0	7.0	7.0	6.9	6.9	6.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.059	0.059	0.059	0.052	0.049	0.050	0.050	0.050	0.050	0.049	0.049	0.049
Sulphate	mg/L	61.1	60.8	60.5	53.6	50.9	52.1	51.9	51.9	51.7	51.4	51.1	50.9
Chloride	mg/L	761	758	754	689	665	684	686	687	684	680	677	674
Total Ammonia	mg/L	0.003	0.003	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	3.60	3.49	3.38	2.98	2.83	2.89	2.88	2.88	2.77	2.65	2.53	2.42
Nitrite	mg/L	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	44	44	44	41	40	42	42	42	42	42	42	41
OrthoPhosphate-P	mg/L	0.1325	0.1319	0.1313	0.1161	0.1101	0.1126	0.1121	0.1121	0.1117	0.1110	0.1104	0.1100
Phosphate-P	mg/L	0.1564	0.1557	0.1549	0.1427	0.1378	0.1418	0.1422	0.1424	0.1420	0.1411	0.1403	0.1399
Org. Carbon	mg/L	4.5	4.4	4.4	4.5	4.6	4.8	4.9	4.9	4.9	4.9	4.8	4.8
Hardness CaCO3	mg/L	80	80	79	73	72	74	74	74	74	74	73	73
Total Metals													
Aluminum Al	mg/L	0.32	0.32	0.32	0.35	0.36	0.38	0.39	0.40	0.40	0.39	0.39	0.39
Antimony Sb	mg/L	0.0122	0.0121	0.0121	0.0107	0.0102	0.0104	0.0104	0.0104	0.0103	0.0103	0.0102	0.0102
Arsenic As	mg/L	0.0026	0.0026	0.0026	0.0024	0.0023	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
Barium Ba	mg/L	0.0074	0.0073	0.0073	0.0066	0.0064	0.0066	0.0066	0.0066	0.0066	0.0065	0.0065	0.0065
Beryllium Be	mg/L	0.00055	0.00055	0.00055	0.00050	0.00049	0.00050	0.00050	0.00050	0.00049	0.00049	0.00049	0.00049
Bismuth Bi	mg/L	0.01164	0.01159	0.01153	0.01019	0.00965	0.00987	0.00983	0.00982	0.00979	0.00973	0.00968	0.00965
Boron B	mg/L	0.061	0.061	0.060	0.063	0.064	0.067	0.069	0.069	0.069	0.069	0.068	0.068
Cadmium Cd	mg/L	0.0000597	0.0000594	0.0000591	0.0000551	0.0000536	0.0000552	0.0000556	0.0000557	0.0000555	0.0000552	0.0000549	0.0000547
Calcium Ca	mg/L	185	184	184	163	155	159	158	158	158	157	156	156
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.004	0.005	0.005	0.005	0.005	0.004	0.004	0.004
Cobalt Co	mg/L	0.0066	0.0066	0.0066	0.0058	0.0056	0.0057	0.0057	0.0057	0.0057	0.0056	0.0056	0.0056
Copper Cu	mg/L	0.0070	0.0070	0.0069	0.0064	0.0062	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0063
Iron Fe	mg/L	0.32	0.31	0.31	0.35	0.36	0.38	0.39	0.40	0.39	0.39	0.39	0.39
Lead Pb	mg/L	0.00041	0.00041	0.00041	0.00038	0.00037	0.00038	0.00038	0.00038	0.00038	0.00038	0.00037	0.00037
Lithium Li	mg/L	0.0070	0.0070	0.0070	0.0071	0.0072	0.0075	0.0077	0.0077	0.0077	0.0076	0.0076	0.0076
Magnesium Mg	mg/L	11.4	11.4	11.3	11.3	11.3	11.8	12.0	12.1	12.1	12.0	11.9	11.9
Manganese Mn	mg/L	0.024	0.024	0.024	0.023	0.023	0.023	0.024	0.024	0.024	0.023	0.023	0.023
Mercury Hg	mg/L	0.0000265	0.0000264	0.0000263	0.0000286	0.0000297	0.0000312	0.0000322	0.0000324	0.0000323	0.0000321	0.0000320	0.0000319
Molybdenum Mo	mg/L	0.00578	0.00576	0.00573	0.00515	0.00493	0.00505	0.00505	0.00505	0.00504	0.00500	0.00498	0.00496
Nickel Ni	mg/L	0.0060	0.0059	0.0059	0.0053	0.0051	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0051
Phosphorus P	mg/L	0.203	0.202	0.201	0.178	0.169	0.173	0.172	0.172	0.171	0.170	0.170	0.169
Potassium K	mg/L	28.2	28.0	27.9	25.5	24.5	25.2	25.3	25.3	25.3	25.1	25.0	24.9
Selenium Se	mg/L	0.00159	0.00158	0.00157	0.00170	0.00176	0.00185	0.00190	0.00192	0.00191	0.00190	0.00189	0.00188
Silicon SiO2	mg/L	3.56	3.54	3.52	3.36	3.31	3.42	3.46	3.47	3.46	3.44	3.42	3.41
Silver Ag	mg/L	0.0001341	0.0001335	0.0001329	0.0001301	0.0001294	0.0001328	0.0001328	0.0001329	0.0001325	0.0001316	0.0001309	0.0001305
Sodium Na	mg/L	260	259	257	241	235	243	245	245	245	243	242	241
Strontium Sr	mg/L	0.082	0.082	0.081	0.078	0.078	0.080	0.082	0.082	0.082	0.081	0.081	0.080
Tellurium Te	mg/L	0.037	0.037	0.036	0.037	0.038	0.039	0.040	0.040	0.040	0.040	0.040	0.040
Thallium Tl	mg/L	0.000046	0.000045	0.000045	0.000043	0.000043	0.000044	0.000045	0.000045	0.000045	0.000045	0.000044	0.000044
Thorium Th	mg/L	0.000119	0.000118	0.000118	0.000123	0.000126	0.000132	0.000135	0.000136	0.000136	0.000135	0.000134	0.000134
Tin Sn	mg/L	0.00197	0.00197	0.00196	0.00175	0.00167	0.00172	0.00172	0.00172	0.00171	0.00170	0.00169	0.00169
Titanium Ti	mg/L	0.0204	0.0203	0.0202	0.0222	0.0232	0.0244	0.0252	0.0254	0.0253	0.0252	0.0250	0.0249
Uranium U	mg/L	0.000125	0.000124	0.000124	0.000127	0.000128	0.000133	0.000136	0.000136	0.000136	0.000135	0.000134	0.000134
Vanadium V	mg/L	0.0051	0.0051	0.0050	0.0050	0.0051	0.0053	0.0054	0.0054	0.0054	0.0053	0.0053	0.0053
Zinc Zn	mg/L	0.0170	0.0169	0.0168	0.0153	0.0147	0.0151	0.0153	0.0154	0.0153	0.0152	0.0151	0.0151
Zirconium Zr	mg/L	0.0045	0.0045	0.0045	0.0045	0.0045	0.0047	0.0048	0.0048	0.0048	0.0048	0.0047	0.0047

Appendix 1

Table I-3-b-A.2

Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	870	866	862	765	727	745	743	744	742	737	733	730
TSS	mg/L	6.9	6.8	6.8	7.1	7.3	7.6	7.8	7.9	7.8	7.8	7.7	7.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.049	0.048	0.048	0.042	0.040	0.041	0.040	0.040	0.040	0.040	0.040	0.040
Sulphate	mg/L	50.7	50.5	50.2	44.1	41.7	42.7	42.5	42.5	42.3	42.1	41.8	41.7
Chloride	mg/L	672	669	665	607	584	602	604	605	603	599	596	594
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	2.32	2.20	2.09	1.83	1.72	1.76	1.75	1.75	1.64	1.52	1.41	1.30
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	41	41	41	39	38	39	40	40	40	39	39	39
OrthoPhosphate-P	mg/L	0.1096	0.1091	0.1085	0.0950	0.0896	0.0917	0.0912	0.0911	0.0909	0.0903	0.0898	0.0894
Phosphate-P	mg/L	0.1393	0.1387	0.1379	0.1269	0.1224	0.1262	0.1266	0.1269	0.1265	0.1256	0.1250	0.1245
Org. Carbon	mg/L	4.8	4.8	4.8	4.8	4.9	5.1	5.2	5.2	5.2	5.2	5.2	5.1
Hardness CaCO3	mg/L	73	72	72	67	65	67	68	68	68	67	67	67
Total Metals													
Aluminum Al	mg/L	0.39	0.39	0.39	0.41	0.42	0.44	0.46	0.46	0.46	0.46	0.45	0.45
Antimony Sb	mg/L	0.0101	0.0101	0.0100	0.0088	0.0083	0.0085	0.0085	0.0085	0.0085	0.0084	0.0084	0.0083
Arsenic As	mg/L	0.0024	0.0024	0.0024	0.0022	0.0021	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Barium Ba	mg/L	0.0064	0.0064	0.0064	0.0057	0.0055	0.0057	0.0057	0.0057	0.0057	0.0057	0.0056	0.0056
Beryllium Be	mg/L	0.00048	0.00048	0.00048	0.00044	0.00043	0.00044	0.00043	0.00043	0.00043	0.00043	0.00043	0.00043
Bismuth Bi	mg/L	0.00961	0.00956	0.00951	0.00832	0.00783	0.00802	0.00797	0.00797	0.00794	0.00789	0.00785	0.00782
Boron B	mg/L	0.068	0.067	0.067	0.069	0.070	0.073	0.075	0.076	0.076	0.075	0.075	0.074
Cadmium Cd	mg/L	0.0000545	0.0000542	0.0000539	0.0000503	0.0000488	0.0000504	0.0000508	0.0000509	0.0000508	0.0000504	0.0000502	0.0000500
Calcium Ca	mg/L	155	154	153	135	128	131	131	131	130	129	129	128
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0055	0.0055	0.0055	0.0048	0.0046	0.0047	0.0047	0.0047	0.0047	0.0046	0.0046	0.0046
Copper Cu	mg/L	0.0063	0.0063	0.0062	0.0058	0.0056	0.0058	0.0058	0.0058	0.0058	0.0058	0.0057	0.0057
Iron Fe	mg/L	0.39	0.39	0.38	0.41	0.42	0.44	0.46	0.46	0.46	0.46	0.45	0.45
Lead Pb	mg/L	0.00037	0.00037	0.00037	0.00034	0.00033	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034
Lithium Li	mg/L	0.0075	0.0075	0.0075	0.0076	0.0076	0.0080	0.0081	0.0082	0.0082	0.0081	0.0081	0.0080
Magnesium Mg	mg/L	11.8	11.8	11.7	11.7	11.7	12.2	12.4	12.5	12.5	12.4	12.3	12.3
Manganese Mn	mg/L	0.023	0.023	0.023	0.022	0.021	0.022	0.022	0.023	0.022	0.022	0.022	0.022
Mercury Hg	mg/L	0.0000317	0.0000316	0.0000314	0.0000333	0.0000342	0.0000359	0.0000369	0.0000373	0.0000371	0.0000369	0.0000367	0.0000366
Molybdenum Mo	mg/L	0.00494	0.00492	0.00489	0.00438	0.00417	0.00429	0.00428	0.00428	0.00427	0.00424	0.00422	0.00420
Nickel Ni	mg/L	0.0051	0.0051	0.0051	0.0046	0.0044	0.0045	0.0045	0.0045	0.0045	0.0044	0.0044	0.0044
Phosphorus P	mg/L	0.168	0.167	0.167	0.147	0.138	0.142	0.141	0.141	0.140	0.139	0.139	0.138
Potassium K	mg/L	24.8	24.7	24.5	22.4	21.5	22.2	22.2	22.3	22.2	22.0	21.9	21.8
Selenium Se	mg/L	0.00188	0.00187	0.00186	0.00196	0.00201	0.00211	0.00216	0.00218	0.00218	0.00216	0.00215	0.00214
Silicon SiO2	mg/L	3.40	3.38	3.36	3.21	3.16	3.28	3.31	3.33	3.32	3.29	3.28	3.26
Silver Ag	mg/L	0.0001300	0.0001294	0.0001287	0.0001264	0.0001257	0.0001291	0.0001290	0.0001291	0.0001287	0.0001279	0.0001272	0.0001267
Sodium Na	mg/L	240	239	238	223	217	225	226	227	227	225	224	223
Strontium Sr	mg/L	0.080	0.080	0.079	0.076	0.076	0.079	0.080	0.080	0.080	0.079	0.079	0.079
Tellurium Te	mg/L	0.040	0.039	0.039	0.040	0.040	0.042	0.043	0.043	0.043	0.043	0.042	0.042
Thallium Tl	mg/L	0.000044	0.000044	0.000044	0.000042	0.000041	0.000043	0.000044	0.000044	0.000044	0.000043	0.000043	0.000043
Thorium Th	mg/L	0.000133	0.000133	0.000132	0.000136	0.000138	0.000145	0.000148	0.000149	0.000149	0.000148	0.000147	0.000147
Tin Sn	mg/L	0.00168	0.00167	0.00167	0.00148	0.00141	0.00145	0.00145	0.00145	0.00145	0.00144	0.00143	0.00143
Titanium Ti	mg/L	0.0248	0.0247	0.0246	0.0263	0.0270	0.0284	0.0292	0.0295	0.0294	0.0292	0.0290	0.0289
Uranium U	mg/L	0.000133	0.000133	0.000132	0.000134	0.000136	0.000141	0.000143	0.000144	0.000143	0.000142	0.000142	0.000141
Vanadium V	mg/L	0.0053	0.0053	0.0052	0.0052	0.0052	0.0055	0.0055	0.0056	0.0056	0.0055	0.0055	0.0055
Zinc Zn	mg/L	0.0150	0.0150	0.0149	0.0135	0.0129	0.0133	0.0135	0.0136	0.0135	0.0134	0.0134	0.0133
Zirconium Zr	mg/L	0.0047	0.0047	0.0047	0.0046	0.0047	0.0049	0.0049	0.0050	0.0050	0.0049	0.0049	0.0049

Appendix 1

Table I-3-b-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	727	723	719	634	600	616	591	565	563	560	556	554
TSS	mg/L	7.7	7.6	7.6	7.8	7.9	8.3	8.2	7.9	7.9	7.8	7.8	7.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.039	0.039	0.039	0.034	0.031	0.032	0.031	0.029	0.029	0.029	0.029	0.029
Sulphate	mg/L	41.5	41.3	41.1	35.7	33.5	34.3	32.9	31.4	31.3	31.1	30.9	30.8
Chloride	mg/L	592	589	585	533	513	530	512	490	489	485	483	481
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.19	1.08	0.97	0.84	0.78	0.80	0.77	0.73	0.62	0.51	0.40	0.30
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	39	39	38	36	36	37	36	34	34	34	34	34
OrthoPhosphate-P	mg/L	0.0891	0.0886	0.0882	0.0763	0.0715	0.0732	0.0700	0.0668	0.0666	0.0661	0.0658	0.0655
Phosphate-P	mg/L	0.1240	0.1234	0.1227	0.1129	0.1088	0.1123	0.1086	0.1040	0.1036	0.1029	0.1024	0.1020
Org. Carbon	mg/L	5.1	5.1	5.1	5.1	5.2	5.4	5.3	5.1	5.1	5.0	5.0	5.0
Hardness CaCO3	mg/L	66	66	66	61	59	61	59	57	57	56	56	56
Total Metals													
Aluminum Al	mg/L	0.45	0.45	0.45	0.47	0.48	0.50	0.49	0.48	0.47	0.47	0.47	0.47
Antimony Sb	mg/L	0.0083	0.0083	0.0082	0.0071	0.0067	0.0068	0.0066	0.0063	0.0063	0.0062	0.0062	0.0062
Arsenic As	mg/L	0.0022	0.0022	0.0022	0.0020	0.0020	0.0020	0.0020	0.0019	0.0019	0.0019	0.0019	0.0019
Barium Ba	mg/L	0.0056	0.0056	0.0055	0.0050	0.0048	0.0049	0.0048	0.0046	0.0045	0.0045	0.0045	0.0045
Beryllium Be	mg/L	0.00042	0.00042	0.00042	0.00039	0.00037	0.00038	0.00036	0.00035	0.00035	0.00034	0.00034	0.00034
Bismuth Bi	mg/L	0.00779	0.00775	0.00770	0.00665	0.00622	0.00637	0.00609	0.00581	0.00579	0.00575	0.00572	0.00570
Boron B	mg/L	0.074	0.074	0.073	0.075	0.075	0.079	0.078	0.075	0.075	0.074	0.074	0.073
Cadmium Cd	mg/L	0.0000498	0.0000495	0.0000493	0.0000459	0.0000446	0.0000462	0.0000448	0.0000430	0.0000428	0.0000425	0.0000423	0.0000422
Calcium Ca	mg/L	128	127	126	110	104	107	102	98	97	97	96	96
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.003	0.004	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0046	0.0046	0.0045	0.0040	0.0037	0.0038	0.0037	0.0035	0.0035	0.0035	0.0034	0.0034
Copper Cu	mg/L	0.0057	0.0057	0.0056	0.0052	0.0051	0.0052	0.0051	0.0049	0.0048	0.0048	0.0048	0.0048
Iron Fe	mg/L	0.45	0.45	0.45	0.47	0.48	0.50	0.50	0.48	0.48	0.47	0.47	0.47
Lead Pb	mg/L	0.00033	0.00033	0.00033	0.00031	0.00030	0.00031	0.00030	0.00028	0.00028	0.00028	0.00028	0.00028
Lithium Li	mg/L	0.0080	0.0080	0.0079	0.0080	0.0080	0.0084	0.0082	0.0079	0.0079	0.0078	0.0078	0.0078
Magnesium Mg	mg/L	12.2	12.2	12.1	12.0	12.0	12.5	12.3	11.8	11.8	11.7	11.6	11.6
Manganese Mn	mg/L	0.022	0.022	0.022	0.021	0.020	0.021	0.021	0.020	0.020	0.020	0.020	0.019
Mercury Hg	mg/L	0.0000364	0.0000362	0.0000360	0.0000376	0.0000382	0.0000401	0.0000397	0.0000382	0.0000381	0.0000378	0.0000376	0.0000375
Molybdenum Mo	mg/L	0.00419	0.00417	0.00414	0.00369	0.00351	0.00360	0.00347	0.00331	0.00330	0.00328	0.00326	0.00325
Nickel Ni	mg/L	0.0044	0.0044	0.0043	0.0039	0.0037	0.0038	0.0037	0.0035	0.0035	0.0035	0.0035	0.0034
Phosphorus P	mg/L	0.138	0.137	0.136	0.119	0.111	0.114	0.109	0.104	0.104	0.103	0.102	0.102
Potassium K	mg/L	21.8	21.7	21.5	19.6	18.8	19.4	18.8	18.0	17.9	17.8	17.7	17.6
Selenium Se	mg/L	0.00213	0.00212	0.00211	0.00219	0.00223	0.00234	0.00231	0.00222	0.00221	0.00220	0.00219	0.00218
Silicon SiO2	mg/L	3.25	3.24	3.22	3.08	3.03	3.14	3.07	2.94	2.93	2.91	2.90	2.88
Silver Ag	mg/L	0.0001262	0.0001256	0.0001249	0.0001231	0.0001225	0.0001258	0.0001210	0.0001156	0.0001153	0.0001145	0.0001139	0.0001135
Sodium Na	mg/L	222	221	220	206	201	209	203	194	194	192	191	191
Strontium Sr	mg/L	0.078	0.078	0.078	0.075	0.074	0.077	0.075	0.072	0.072	0.072	0.071	0.071
Tellurium Te	mg/L	0.042	0.042	0.042	0.042	0.042	0.044	0.043	0.042	0.042	0.041	0.041	0.041
Thallium Tl	mg/L	0.000043	0.000043	0.000042	0.000041	0.000040	0.000042	0.000041	0.000039	0.000039	0.000039	0.000039	0.000038
Thorium Th	mg/L	0.000146	0.000145	0.000145	0.000148	0.000149	0.000156	0.000154	0.000148	0.000148	0.000147	0.000146	0.000145
Tin Sn	mg/L	0.00142	0.00141	0.00141	0.00124	0.00118	0.00122	0.00117	0.00112	0.00112	0.00111	0.00110	0.00110
Titanium Ti	mg/L	0.0288	0.0287	0.0285	0.0299	0.0304	0.0320	0.0316	0.0304	0.0303	0.0301	0.0300	0.0299
Uranium U	mg/L	0.000141	0.000140	0.000139	0.000141	0.000142	0.000148	0.000144	0.000139	0.000138	0.000137	0.000136	0.000136
Vanadium V	mg/L	0.0055	0.0054	0.0054	0.0054	0.0054	0.0056	0.0055	0.0053	0.0053	0.0052	0.0052	0.0052
Zinc Zn	mg/L	0.0133	0.0132	0.0131	0.0119	0.0113	0.0117	0.0115	0.0110	0.0110	0.0109	0.0109	0.0108
Zirconium Zr	mg/L	0.0049	0.0048	0.0048	0.0048	0.0048	0.0050	0.0049	0.0047	0.0047	0.0046	0.0046	0.0046

Appendix 1

Table I-3-b-A.2
Scenario 3 - Upper Limit Sediment I

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	552	549	546	484	460	472	454	434	433	430	427
TSS	mg/L	7.7	7.7	7.7	7.9	8.0	8.4	8.3	8.0	7.9	7.9	7.8
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.029	0.029	0.028	0.024	0.023	0.023	0.022	0.021	0.021	0.021	0.021
Sulphate	mg/L	30.7	30.5	30.4	26.4	24.8	25.4	24.4	23.3	23.2	23.0	22.9
Chloride	mg/L	479	477	474	437	423	437	424	406	404	402	400
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L	0.19	0.08		0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	34	34	33	32	32	33	32	31	31	30	30
OrthoPhosphate-P	mg/L	0.0653	0.0649	0.0646	0.0559	0.0524	0.0536	0.0513	0.0489	0.0488	0.0484	0.0482
Phosphate-P	mg/L	0.1016	0.1011	0.1005	0.0938	0.0908	0.0940	0.0911	0.0872	0.0869	0.0863	0.0858
Org. Carbon	mg/L	5.0	4.9	4.9	5.0	5.1	5.3	5.2	5.0	5.0	4.9	4.9
Hardness CaCO3	mg/L	56	55	55	52	51	53	51	49	49	49	48
Total Metals												
Aluminum Al	mg/L	0.46	0.46	0.46	0.48	0.49	0.51	0.51	0.49	0.48	0.48	0.48
Antimony Sb	mg/L	0.0061	0.0061	0.0061	0.0053	0.0049	0.0051	0.0049	0.0046	0.0046	0.0046	0.0046
Arsenic As	mg/L	0.0019	0.0018	0.0018	0.0017	0.0017	0.0018	0.0017	0.0017	0.0017	0.0016	0.0016
Barium Ba	mg/L	0.0045	0.0044	0.0044	0.0040	0.0039	0.0040	0.0039	0.0037	0.0037	0.0037	0.0037
Beryllium Be	mg/L	0.00034	0.00034	0.00034	0.00031	0.00031	0.00031	0.00030	0.00029	0.00028	0.00028	0.00028
Bismuth Bi	mg/L	0.00568	0.00565	0.00562	0.00485	0.00454	0.00464	0.00444	0.00423	0.00422	0.00419	0.00417
Boron B	mg/L	0.073	0.073	0.072	0.074	0.075	0.078	0.077	0.074	0.074	0.074	0.073
Cadmium Cd	mg/L	0.0000420	0.0000418	0.0000416	0.0000393	0.0000384	0.0000398	0.0000387	0.0000371	0.0000370	0.0000368	0.0000366
Calcium Ca	mg/L	95	95	94	83	78	80	77	73	73	73	72
Chromium Cr	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0034	0.0034	0.0034	0.0030	0.0028	0.0029	0.0028	0.0026	0.0026	0.0026	0.0026
Copper Cu	mg/L	0.0047	0.0047	0.0047	0.0044	0.0043	0.0045	0.0043	0.0041	0.0041	0.0041	0.0041
Iron Fe	mg/L	0.47	0.46	0.46	0.48	0.49	0.51	0.51	0.49	0.49	0.49	0.48
Lead Pb	mg/L	0.00028	0.00028	0.00028	0.00026	0.00025	0.00026	0.00025	0.00024	0.00024	0.00024	0.00024
Lithium Li	mg/L	0.0077	0.0077	0.0077	0.0077	0.0078	0.0082	0.0080	0.0077	0.0077	0.0076	0.0076
Magnesium Mg	mg/L	11.6	11.5	11.4	11.4	11.5	12.0	11.8	11.3	11.3	11.2	11.1
Manganese Mn	mg/L	0.019	0.019	0.019	0.018	0.018	0.019	0.019	0.018	0.018	0.018	0.018
Mercury Hg	mg/L	0.0000373	0.0000371	0.0000369	0.0000383	0.0000390	0.0000409	0.0000404	0.0000388	0.0000387	0.0000385	0.0000383
Molybdenum Mo	mg/L	0.00324	0.00322	0.00321	0.00288	0.00275	0.00283	0.00272	0.00260	0.00260	0.00258	0.00256
Nickel Ni	mg/L	0.0034	0.0034	0.0034	0.0031	0.0029	0.0030	0.0029	0.0028	0.0028	0.0028	0.0027
Phosphorus P	mg/L	0.102	0.101	0.100	0.088	0.082	0.084	0.081	0.077	0.077	0.076	0.076
Potassium K	mg/L	17.6	17.5	17.4	16.0	15.5	16.0	15.5	14.8	14.8	14.7	14.6
Selenium Se	mg/L	0.00217	0.00216	0.00215	0.00223	0.00226	0.00237	0.00234	0.00225	0.00224	0.00223	0.00222
Silicon SiO2	mg/L	2.87	2.86	2.84	2.76	2.72	2.83	2.77	2.66	2.65	2.63	2.62
Silver Ag	mg/L	0.0001130	0.0001125	0.0001118	0.0001118	0.0001119	0.0001151	0.0001107	0.0001057	0.0001054	0.0001047	0.0001041
Sodium Na	mg/L	190	189	188	179	175	182	177	170	170	168	167
Strontium Sr	mg/L	0.071	0.070	0.070	0.068	0.068	0.071	0.069	0.067	0.066	0.066	0.066
Tellurium Te	mg/L	0.041	0.041	0.040	0.041	0.041	0.043	0.042	0.041	0.041	0.040	0.040
Thallium Tl	mg/L	0.000038	0.000038	0.000038	0.000037	0.000037	0.000038	0.000037	0.000036	0.000036	0.000035	0.000035
Thorium Th	mg/L	0.000145	0.000144	0.000143	0.000147	0.000148	0.000155	0.000153	0.000147	0.000147	0.000146	0.000145
Tin Sn	mg/L	0.00110	0.00109	0.00108	0.00096	0.00092	0.00095	0.00092	0.00088	0.00087	0.00087	0.00086
Titanium Ti	mg/L	0.0297	0.0296	0.0294	0.0306	0.0312	0.0327	0.0323	0.0311	0.0310	0.0308	0.0306
Uranium U	mg/L	0.000135	0.000135	0.000134	0.000137	0.000138	0.000144	0.000140	0.000135	0.000134	0.000133	0.000133
Vanadium V	mg/L	0.0052	0.0051	0.0051	0.0051	0.0051	0.0054	0.0053	0.0051	0.0050	0.0050	0.0050
Zinc Zn	mg/L	0.0108	0.0107	0.0107	0.0097	0.0094	0.0097	0.0095	0.0092	0.0091	0.0091	0.0090
Zirconium Zr	mg/L	0.0046	0.0046	0.0045	0.0045	0.0046	0.0048	0.0047	0.0045	0.0045	0.0044	0.0044

Appendix 1

Table I-3-b-A.3

Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	102472	93472	84354	83350	82419	78530	81148	81148	73295
TSS	183	177	183	830	491	279	298	215	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18054	16910	15356	15223	14774	13840	14302	14302	12918
Chloride	49110	47526	49110	78414	68460	56622	57232	52370	47526	49110	49110	44357
Total Ammonia	149	145	149	287	238	186	193	166	145	149	149	135
Nitrate	758	733	758	1854	1453	1050	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	12146	10112	7793	7708	7193	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	23	22	21	21	21	21	21	21	19
Org. Carbon				1305.95	718.92	192.37	200.84	52.95				
Hardness CaCO3	14992	14508	14992	21691	19408	16178	16035	15394	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	17.06	11.33	8.33	8.27	5.77	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.65	3.42	2.21	2.42	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.67	0.57	0.46	0.47	0.42	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.06	1.88	1.70	1.67	1.61	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.21	0.14	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.54	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	8.67	6.42	4.18	4.38	3.34	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	41451	41793	41014	39826	40688	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.27	1.22	1.10	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.84	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.72	1.63	1.51	1.48	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	15.81	9.48	7.72	7.79	5.57	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.12	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.38	0.93	0.62	0.65	0.52	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2311	1789	1352	1353	1173	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.06	4.93	4.76	4.68	4.64	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.49	1.51	1.49	1.44	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.70	1.54	1.37	1.36	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	44	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	6904	6924	6764	6582	6726	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.16	0.10	0.06	0.06	0.04	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	841	715	613	610	578	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.05	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	9609	8311	6945	6894	6551	6148	6353	6353	5739
Strontium Sr	12	12	12	18	16	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	10.93	5.17	1.63	2.04	0.55	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.54	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	1.60	0.84	0.34	0.40	0.18	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.02	0.76	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.3	4.1	3.8	4.0	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				1.42	0.72	0.25	0.31	0.09				

Appendix 1

Table I-3-b-A.3
Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	102015	93238	84291	83255	82393	78530	81148	81148	73295
TSS	183	177	183	818	486	278	295	214	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18046	16905	15355	15221	14774	13840	14302	14302	12918
Chloride	49110	47526	49110	78293	68382	56601	57203	52363	47526	49110	49110	44357
Total Ammonia	149	145	149	287	238	186	193	166	145	149	149	135
Nitrate	758	733	758	1854	1453	1050	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	12042	10051	7777	7689	7187	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	23	22	21	21	21	21	21	21	19
Org. Carbon				1281.01	705.28	188.63	196.87	51.90				
Hardness CaCO3	14992	14508	14992	21554	19324	16155	16004	15386	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	16.99	11.31	8.30	8.26	5.77	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.65	3.42	2.21	2.42	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.67	0.57	0.46	0.47	0.42	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.06	1.87	1.70	1.67	1.61	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.21	0.14	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.54	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	8.62	6.39	4.17	4.37	3.34	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	41430	41781	41009	39821	40686	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.26	1.22	1.10	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.84	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.71	1.63	1.51	1.48	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	15.64	9.41	7.68	7.74	5.55	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.12	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.37	0.93	0.62	0.65	0.52	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2294	1780	1349	1349	1172	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.06	4.92	4.76	4.68	4.64	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.49	1.51	1.49	1.44	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.70	1.54	1.37	1.36	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	44	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	6898	6920	6763	6581	6725	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.15	0.10	0.06	0.06	0.04	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	837	713	612	609	578	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.05	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	9544	8275	6934	6880	6547	6148	6353	6353	5739
Strontium Sr	12	12	12	18	16	13	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	10.73	5.08	1.60	2.00	0.54	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.54	0.33	0.36	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	1.57	0.83	0.34	0.40	0.18	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.02	0.76	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.3	4.1	3.8	4.0	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				1.40	0.71	0.24	0.31	0.09				

Appendix 1

Table I-3-b-A.3
Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	72279	62639	53777	53712	51898	49028	50662	50662	45759
TSS				634	299	93	117	31				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5348	3827	2316	2593	1749	1247	1289	1289	1164
Chloride	49110	47526	49110	78232	68345	56591	57191	52360	47526	49110	49110	44357
Total Ammonia	25	24	25	152	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1035	653	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				5285	3094	841	976	257				
OrthoPhosphate-P	21	21	21	21	21	21	21	21	21	21	21	19
Phosphate-P	21	21	21	22	22	21	21	21	21	21	21	19
Org. Carbon				1268.28	698.70	186.93	195.19	51.49				
Hardness CaCO3				6976	4292	1153	1483	391				
Total Metals												
Aluminum Al	0.81	0.78	0.81	10.46	5.81	3.85	3.72	1.76	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.53	3.30	2.10	2.31	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.24	0.16	0.08	0.09	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.59	0.36	0.19	0.21	0.11	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.17	0.11	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.51	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	5.78	3.75	1.79	2.01	1.06	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	2322	1447	740	837	444	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.33	0.25	0.14	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.27	0.19	0.11	0.12	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.31	0.19	0.08	0.09	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	10.60	4.56	3.07	3.23	1.07	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	0.96	0.51	0.21	0.25	0.12	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1338	805	382	413	209	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.79	0.52	0.35	0.42	0.24	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.07	0.04	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.58	0.39	0.23	0.25	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	32	29	25	25	24	22	23	23	21
Potassium K	25	24	25	434	245	90	123	53	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.10	0.05	0.02	0.02	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	274	146	57	69	28	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	3370	1913	586	735	204	12	12	12	11
Strontium Sr	0	0	0	6	4	1	2	1	0	0	0	0
Tellurium Te				10.59	5.00	1.56	1.96	0.52				
Thallium Tl	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.71	0.53	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	1.51	0.77	0.30	0.35	0.14	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.81	0.56	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.0	0.7	0.5	0.8	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.25	0.62	0.21	0.26	0.07				

Appendix 1

Table I-3-b-A.3

Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				401537	390232	381340	382918	379454				
TSS				2241	1058	331	414	109				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				565	345	103	163	47				
Chloride				280034	254943	237872	239886	232898				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5301	3105	845	980	259				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				12	5	2	2	1				
Org. Carbon				1272.26	701.13	187.67	196.06	51.74				
Hardness CaCO3				6997	4307	1157	1490	393				
Total Metals												
Aluminum Al				146.90	69.53	23.07	28.03	7.52				
Antimony Sb				0.08	0.06	0.03	0.04	0.01				
Arsenic As				0.37	0.20	0.07	0.08	0.02				
Barium Ba				0.37	0.20	0.09	0.09	0.03				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				20.90	10.32	3.32	4.08	1.11				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				24944	23637	22760	22861	22437				
Chromium Cr				0.37	0.22	0.07	0.06	0.02				
Cobalt Co				0.11	0.05	0.02	0.02	0.01				
Copper Cu				0.66	0.32	0.09	0.12	0.03				
Iron Fe				145.15	67.91	22.67	27.86	7.38				
Lead Pb				0.06	0.03	0.01	0.01	0.00				
Lithium Li				2.02	0.95	0.30	0.38	0.10				
Magnesium Mg				2737	1351	447	526	140				
Manganese Mn				3.42	1.61	0.55	0.71	0.19				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.20	0.10	0.03	0.04	0.01				
Nickel Ni				0.27	0.13	0.04	0.05	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				1790	862	261	343	91				
Selenium Se				0.67	0.32	0.10	0.12	0.03				
Silicon SiO2				577	280	91	114	31				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				154700	139628	129921	131035	126994				
Strontium Sr				14	7	2	3	1				
Tellurium Te				10.63	5.02	1.57	1.97	0.52				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.05	0.03	0.01	0.01	0.00				
Tin Sn				0.06	0.05	0.02	0.02	0.01				
Titanium Ti				9.19	4.34	1.36	1.70	0.45				
Uranium U				0.05	0.02	0.01	0.01	0.00				
Vanadium V				1.30	0.62	0.19	0.23	0.06				
Zinc Zn				1.0	0.5	0.2	0.5	0.1				
Zirconium Zr				1.30	0.64	0.21	0.27	0.08				

Appendix 1

Table I-3-b-A.3

Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				23474	12097	3149	4738	1251				
TSS				2255	1065	333	417	110				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				567	347	103	164	47				
Chloride				49960	24709	7530	9560	2523				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5335	3125	850	987	261				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				12	5	2	2	1				
Org. Carbon				1280.43	705.67	188.94	197.42	52.11				
Hardness CaCO3				7042	4335	1165	1500	396				
Total Metals												
Aluminum Al				147.81	69.97	23.22	28.21	7.57				
Antimony Sb				0.08	0.06	0.03	0.04	0.01				
Arsenic As				0.37	0.20	0.07	0.08	0.02				
Barium Ba				0.37	0.20	0.09	0.10	0.03				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				21.02	10.38	3.34	4.11	1.11				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				2685	1370	487	590	163				
Chromium Cr				0.38	0.22	0.07	0.06	0.02				
Cobalt Co				0.11	0.06	0.02	0.02	0.01				
Copper Cu				0.66	0.33	0.09	0.12	0.03				
Iron Fe				146.07	68.34	22.82	28.05	7.43				
Lead Pb				0.06	0.03	0.01	0.01	0.00				
Lithium Li				2.03	0.96	0.30	0.38	0.10				
Magnesium Mg				2754	1359	450	530	140				
Manganese Mn				3.44	1.62	0.56	0.72	0.19				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.20	0.10	0.03	0.04	0.01				
Nickel Ni				0.27	0.13	0.04	0.05	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				1802	867	263	346	91				
Selenium Se				0.67	0.32	0.10	0.12	0.03				
Silicon SiO2				581	281	91	115	32				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				29342	14174	4406	5528	1459				
Strontium Sr				14	7	2	3	1				
Tellurium Te				10.70	5.06	1.58	1.98	0.52				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.05	0.03	0.01	0.01	0.00				
Tin Sn				0.06	0.05	0.02	0.02	0.01				
Titanium Ti				9.24	4.37	1.37	1.71	0.45				
Uranium U				0.05	0.02	0.01	0.01	0.00				
Vanadium V				1.31	0.62	0.19	0.23	0.06				
Zinc Zn				1.0	0.5	0.2	0.5	0.1				
Zirconium Zr				1.31	0.65	0.22	0.27	0.08				

Appendix 1

Table I-3-b-A.3

Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				23636	12181	3172	4773	1260				
TSS				2271	1073	335	420	111				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				570	349	103	165	48				
Chloride				50303	24880	7584	9630	2542				
Total Ammonia				60	37	16	21	7				
Nitrate				469	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				5372	3147	856	994	263				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				12	5	2	2	1				
Org. Carbon				1289.22	710.55	190.30	198.89	52.50				
Hardness CaCO3				7091	4365	1174	1512	399				
Total Metals												
Aluminum Al				148.80	70.43	23.38	28.41	7.62				
Antimony Sb				0.09	0.06	0.03	0.04	0.01				
Arsenic As				0.38	0.20	0.07	0.08	0.03				
Barium Ba				0.37	0.20	0.09	0.10	0.03				
Beryllium Be				0.06	0.03	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				21.16	10.45	3.36	4.13	1.12				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				2702	1378	490	594	164				
Chromium Cr				0.38	0.22	0.07	0.06	0.02				
Cobalt Co				0.11	0.06	0.02	0.02	0.01				
Copper Cu				0.66	0.33	0.10	0.12	0.03				
Iron Fe				147.07	68.81	22.98	28.25	7.49				
Lead Pb				0.06	0.03	0.01	0.01	0.00				
Lithium Li				2.04	0.97	0.30	0.38	0.10				
Magnesium Mg				2773	1368	453	533	142				
Manganese Mn				3.47	1.63	0.56	0.72	0.19				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.20	0.10	0.03	0.04	0.01				
Nickel Ni				0.28	0.14	0.04	0.05	0.01				
Phosphorus P				5	2	1	1	0				
Potassium K				1814	873	265	348	92				
Selenium Se				0.68	0.32	0.10	0.13	0.03				
Silicon SiO2				585	283	92	115	32				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				29543	14272	4438	5570	1470				
Strontium Sr				14	7	2	3	1				
Tellurium Te				10.77	5.09	1.59	2.00	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.05	0.03	0.01	0.01	0.00				
Tin Sn				0.06	0.05	0.02	0.02	0.01				
Titanium Ti				9.31	4.40	1.38	1.73	0.46				
Uranium U				0.05	0.02	0.01	0.01	0.00				
Vanadium V				1.32	0.63	0.19	0.23	0.06				
Zinc Zn				1.0	0.5	0.2	0.5	0.1				
Zirconium Zr				1.31	0.65	0.22	0.27	0.08				

Appendix 1

Table I-3-b-A.3

Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				23809	12271	3196	4811	1270				
TSS				2287	1081	338	424	112				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				426	260	66	117	31				
Chloride				50672	25064	7642	9707	2563				
Total Ammonia				1	1	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				5411	3170	863	1002	265				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				13	6	2	2	1				
Org. Carbon				1298.69	715.81	191.77	200.46	52.92				
Hardness CaCO3				7143	4397	1183	1524	402				
Total Metals												
Aluminum Al				145.58	68.27	22.43	27.19	7.18				
Antimony Sb				0.07	0.04	0.02	0.03	0.01				
Arsenic As				0.28	0.14	0.04	0.05	0.01				
Barium Ba				0.36	0.20	0.09	0.09	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				20.31	9.90	3.12	3.83	1.01				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2468	1232	428	514	136				
Chromium Cr				0.36	0.21	0.07	0.06	0.01				
Cobalt Co				0.09	0.04	0.01	0.02	0.00				
Copper Cu				0.64	0.31	0.09	0.11	0.03				
Iron Fe				147.14	68.70	22.90	28.14	7.43				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				2.04	0.96	0.30	0.38	0.10				
Magnesium Mg				2768	1363	450	529	140				
Manganese Mn				3.47	1.63	0.56	0.72	0.19				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.20	0.10	0.03	0.04	0.01				
Nickel Ni				0.26	0.12	0.04	0.04	0.01				
Phosphorus P				2	1	0	0	0				
Potassium K				1821	876	265	349	92				
Selenium Se				0.66	0.31	0.10	0.12	0.03				
Silicon SiO2				541	256	80	100	26				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				29754	14374	4470	5612	1481				
Strontium Sr				14	7	2	3	1				
Tellurium Te				10.83	5.12	1.60	2.01	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.00				
Titanium Ti				9.36	4.42	1.38	1.73	0.46				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				1.29	0.61	0.18	0.22	0.06				
Zinc Zn				0.9	0.4	0.2	0.5	0.1				
Zirconium Zr				1.12	0.53	0.17	0.21	0.05				

Appendix 1

Table I-3-b-A.3

Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				23997	12368	3222	4852	1281				
TSS				2305	1089	341	427	113				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				430	262	66	118	31				
Chloride				51071	25262	7705	9789	2585				
Total Ammonia				1	1	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				5454	3195	870	1011	267				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				13	6	2	2	1				
Org. Carbon				1308.90	721.46	193.34	202.16	53.38				
Hardness CaCO3				7199	4432	1192	1536	406				
Total Metals												
Aluminum Al				146.72	68.81	22.61	27.42	7.24				
Antimony Sb				0.07	0.04	0.02	0.03	0.01				
Arsenic As				0.28	0.14	0.04	0.05	0.01				
Barium Ba				0.36	0.20	0.09	0.09	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				20.47	9.98	3.15	3.86	1.02				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2488	1241	432	518	137				
Chromium Cr				0.36	0.21	0.07	0.06	0.02				
Cobalt Co				0.09	0.04	0.01	0.02	0.00				
Copper Cu				0.65	0.32	0.09	0.11	0.03				
Iron Fe				148.30	69.24	23.09	28.38	7.49				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				2.05	0.97	0.30	0.38	0.10				
Magnesium Mg				2789	1374	454	534	141				
Manganese Mn				3.50	1.64	0.56	0.73	0.19				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.21	0.10	0.03	0.04	0.01				
Nickel Ni				0.26	0.12	0.04	0.04	0.01				
Phosphorus P				2	1	0	0	0				
Potassium K				1835	883	267	352	93				
Selenium Se				0.67	0.32	0.10	0.12	0.03				
Silicon SiO2				545	258	81	101	27				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				29988	14487	4507	5659	1494				
Strontium Sr				14	7	2	3	1				
Tellurium Te				10.91	5.16	1.61	2.02	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.00				
Titanium Ti				9.43	4.46	1.39	1.75	0.46				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				1.30	0.61	0.18	0.22	0.06				
Zinc Zn				1.0	0.5	0.2	0.5	0.1				
Zirconium Zr				1.13	0.54	0.17	0.21	0.06				

Appendix 1

Table I-3-b-A.3

Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				24198	12472	3251	4877	1282				
TSS				2325	1098	344	430	113				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				433	264	67	118	31				
Chloride				51500	25475	7772	9840	2586				
Total Ammonia				1	1	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				5500	3222	878	1016	267				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				13	6	2	2	1				
Org. Carbon				1319.90	727.54	195.03	203.22	53.41				
Hardness CaCO3				7259	4469	1203	1544	406				
Total Metals												
Aluminum Al				147.95	69.39	22.81	27.56	7.24				
Antimony Sb				0.07	0.05	0.02	0.03	0.01				
Arsenic As				0.28	0.14	0.04	0.05	0.01				
Barium Ba				0.37	0.20	0.09	0.09	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				20.64	10.06	3.17	3.88	1.02				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2509	1252	435	521	137				
Chromium Cr				0.37	0.21	0.07	0.06	0.02				
Cobalt Co				0.09	0.04	0.01	0.02	0.00				
Copper Cu				0.65	0.32	0.09	0.11	0.03				
Iron Fe				149.55	69.82	23.29	28.53	7.50				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				2.07	0.98	0.31	0.38	0.10				
Magnesium Mg				2813	1385	458	536	141				
Manganese Mn				3.52	1.65	0.57	0.73	0.19				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.21	0.10	0.03	0.04	0.01				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				2	1	0	0	0				
Potassium K				1851	890	270	354	93				
Selenium Se				0.68	0.32	0.10	0.12	0.03				
Silicon SiO2				550	260	81	102	27				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				30240	14609	4546	5689	1495				
Strontium Sr				14	7	2	3	1				
Tellurium Te				11.01	5.20	1.63	2.03	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.00				
Titanium Ti				9.51	4.49	1.41	1.76	0.46				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				1.31	0.62	0.18	0.22	0.06				
Zinc Zn				1.0	0.5	0.2	0.5	0.1				
Zirconium Zr				1.14	0.54	0.17	0.21	0.06				

Appendix 1

Table I-3-b-A.3

Scenario 3 - Upper Limit :

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				24215	12481	3253	4881	1283				
TSS				2326	1099	344	430	113				
Free CN												
Total CN				0	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				434	264	67	118	31				
Chloride				51535	25493	7778	9847	2588				
Total Ammonia				1	1	0	1	0				
Nitrate				1	1	0	0	0				
Nitrite				0	0	0	0	0				
Alkalinity				5503	3224	878	1017	267				
OrthoPhosphate-P				0	0	0	0	0				
Phosphate-P				13	6	2	2	1				
Org. Carbon				1320.80	728.03	195.17	203.36	53.45				
Hardness CaCO3				7264	4472	1204	1546	406				
Total Metals												
Aluminum Al				148.05	69.44	22.83	27.58	7.25				
Antimony Sb				0.07	0.05	0.02	0.03	0.01				
Arsenic As				0.28	0.14	0.04	0.05	0.01				
Barium Ba				0.37	0.20	0.09	0.09	0.02				
Beryllium Be				0.04	0.02	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				20.66	10.07	3.18	3.89	1.02				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2510	1253	436	521	137				
Chromium Cr				0.37	0.21	0.07	0.06	0.02				
Cobalt Co				0.09	0.04	0.01	0.02	0.00				
Copper Cu				0.65	0.32	0.09	0.11	0.03				
Iron Fe				149.65	69.87	23.30	28.55	7.50				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				2.07	0.98	0.31	0.38	0.10				
Magnesium Mg				2815	1386	458	537	141				
Manganese Mn				3.53	1.66	0.57	0.73	0.19				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				0.21	0.10	0.03	0.04	0.01				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				2	1	0	0	0				
Potassium K				1852	891	270	354	93				
Selenium Se				0.68	0.32	0.10	0.12	0.03				
Silicon SiO2				550	260	81	102	27				
Silver Ag				0.03	0.01	0.00	0.00	0.00				
Sodium Na				30261	14619	4550	5693	1496				
Strontium Sr				14	7	2	3	1				
Tellurium Te				11.01	5.20	1.63	2.03	0.53				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				0.04	0.04	0.01	0.02	0.00				
Titanium Ti				9.52	4.50	1.41	1.76	0.46				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				1.31	0.62	0.18	0.22	0.06				
Zinc Zn				1.0	0.5	0.2	0.5	0.1				
Zirconium Zr				1.14	0.54	0.17	0.21	0.06				

SedLoad2 Table I-3-b-B.1
Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate Degradation Base		550000 m3/year Tail Lk Cu < CME Year		30			
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	Creek (%)
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1427	203	193	
TSS	mg/L			8.5	7.1	8.2	
Free CN	mg/L	1.0	0.005	0.0033	0.00017	0.00009	3%
Total CN	mg/L			0.032	0.004	0.003	
WAD CN	mg/L			0.0044	0.0002	0.0001	
CNO	mg/L			3.7	0.19	0.10	
SCN	mg/L			0.119	0.006	0.003	
Sulphate	mg/L			109	8.1	7.2	
Chloride	mg/L			987	106	88	
Total Ammonia	mg/L		0.97	1.26	0.077	0.041	8%
Nitrate	mg/L		2.9	7.0	0.40	0.21	14%
Nitrite	mg/L		0.018	0.49	0.028	0.015	152%
Alkalinity	mg/L			62	29	26	
OrthoPhosphate-P	mg/L			0.2166	0.0115	0.0065	
Phosphate-P	mg/L			0.2195	0.0326	0.0296	
Org. Carbon	mg/L			5.4	7.4	7.1	
Hardness CaCO3	mg/L			124	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.54	0.10	0.26	102%
Antimony Sb	mg/L			0.0197	0.0036	0.0022	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0124	0.0036	0.0054	
Beryllium Be	mg/L			0.00073	0.00005	0.00003	
Bismuth Bi	mg/L			0.01903	0.00098	0.00059	
Boron B	mg/L			0.079	0.036	0.031	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000069	0.0000167	18%
Calcium Ca	mg/L			296	23	15	
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	100%
Cobalt Co	mg/L			0.0124	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0020	0.0021	98%
Iron Fe	mg/L		0.3	0.54	0.14	0.29	48%
Lead Pb	mg/L	0.2	0.002	0.00049	0.00009	0.00027	4%
Lithium Li	mg/L			0.0084	0.0031	0.0030	
Magnesium Mg	mg/L			12.5	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000423	0.0000027	0.0000017	3%
Molybdenum Mo	mg/L		0.073	0.0107	0.00067	0.00047	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.317	0.037	0.033	
Potassium K	mg/L			49	5.1	3.9	
Selenium Se	mg/L		0.001	0.00243	0.00096	0.00088	96%
Silicon SiO2	mg/L			4.6	0.71	0.62	
Silver Ag	mg/L		0.0001	0.00014	0.0000091	0.0000074	9%
Sodium Na	mg/L			312	53	45	
Strontium Sr	mg/L			0.102	0.045	0.048	
Tellurium Te	mg/L			0.044	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000047	0.000031	0.002001	4%
Thorium Th	mg/L			0.000156	0.0000079	0.0000041	
Tin Sn	mg/L			0.00297	0.00053	0.00008	
Titanium Ti	mg/L			0.0343	0.0074	0.0069	
Uranium U	mg/L			0.000148	0.000043	0.000046	
Vanadium V	mg/L			0.0056	0.0008	0.0006	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0050	0.0050	0.0051	

Table I-3-b-B.2
Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	150	152				
TSS	mg/L				3.9	5.7	5.8	6.7	6.8				
Free CN	mg/L				0.00007	0.00002	0.00002	0.00002	0.00002				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.08	0.02	0.03	0.03	0.03				
SCN	mg/L				0.001	0.001	0.002	0.002	0.002				
Sulphate	mg/L				3.7	3.8	4.3	4.8	5.1				
Chloride	mg/L				61	62	62	67	68				
Total Ammonia	mg/L				0.020	0.044	0.027	0.030	0.031				
Nitrate	mg/L				0.09	0.12	0.15	0.18	0.20				
Nitrite	mg/L				0.010	0.013	0.013	0.014	0.014				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0021	0.0024	0.0028	0.0033	0.0037				
Phosphate-P	mg/L				0.0173	0.0188	0.0250	0.0213	0.0217				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	44	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0007	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi	mg/L				0.00011	0.00020	0.00026	0.00031	0.00036				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000042	0.0000045	0.0000042	0.0000044	0.0000047				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00025	0.00026	0.00032	0.00033	0.00036				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.021	0.027	0.024	0.025				
Potassium K	mg/L				3.2	2.9	3.0	3.1	3.2				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.55	0.57	0.58	0.59				
Silver Ag	mg/L				0.0000053	0.0000060	0.0000061	0.0000064	0.0000066				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0050				

Table I-3-b-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				157	138	143	164	165				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00017	0.00000	0.00002	0.00002	0.00002				
Total CN	mg/L				0.004	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0002	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.19	0.01	0.02	0.02	0.02				
SCN	mg/L				0.004	0.004	0.004	0.005	0.005				
Sulphate	mg/L				6.7	6.5	6.8	7.3	7.6				
Chloride	mg/L				72	72	71	76	77				
Total Ammonia	mg/L				0.040	0.077	0.021	0.029	0.029				
Nitrate	mg/L				0.27	0.29	0.31	0.35	0.37				
Nitrite	mg/L				0.028	0.013	0.013	0.005	0.014				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0064	0.0062	0.0063	0.0068	0.0072				
Phosphate-P	mg/L				0.0215	0.0226	0.0286	0.0248	0.0252				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0008	0.0013	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0033	0.0034	0.0035				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00004				
Bismuth Bi	mg/L				0.00050	0.00053	0.00057	0.00062	0.00066				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000060	0.0000061	0.0000057	0.0000059	0.0000061				
Calcium Ca	mg/L				19	18	18	19	19				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00055	0.00053	0.00056	0.00058	0.00060				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.026	0.027	0.033	0.030	0.030				
Potassium K	mg/L				4.5	4.0	4.1	4.2	4.3				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.66	0.66	0.66	0.68	0.69				
Silver Ag	mg/L				0.0000070	0.0000075	0.0000075	0.0000078	0.0000080				
Sodium Na	mg/L				39	33	35	33	33				
Strontium Sr	mg/L				0.042	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00046	0.00046	0.00047	0.00048	0.00048				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0019	0.0040	0.0037	0.0027	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-3-b-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				167	147	151	171	172				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00010								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.11								
SCN	mg/L				0.006	0.005	0.005	0.005	0.005				
Sulphate	mg/L				8.1	7.6	7.6	7.9	7.9				
Chloride	mg/L				80	79	78	83	84				
Total Ammonia	mg/L				0.032	0.050	0.018	0.019	0.019				
Nitrate	mg/L				0.37	0.37	0.37	0.39	0.40				
Nitrite	mg/L				0.024	0.011	0.012	0.004	0.004				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0094	0.0090	0.0090	0.0096	0.0100				
Phosphate-P	mg/L				0.0245	0.0254	0.0313	0.0275	0.0279				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				49	46	46	47	47				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0011	0.0016	0.0035	0.0013	0.0013				
Arsenic As	mg/L				0.0006	0.0006	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0033	0.0036	0.0034	0.0035	0.0035				
Beryllium Be	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00076	0.00078	0.00081	0.00086	0.00090				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000069	0.0000067	0.0000062	0.0000062	0.0000063				
Calcium Ca	mg/L				23	21	20	20	20				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu	mg/L				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00009	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.8	6.7	6.7				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00067	0.00062	0.00063	0.00062	0.00062				
Nickel Ni	mg/L				0.0009	0.0010	0.0009	0.0009	0.0009				
Phosphorus P	mg/L				0.030	0.031	0.037	0.033	0.034				
Potassium K	mg/L				5.1	4.5	4.4	4.4	4.3				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.71	0.69	0.69	0.69	0.69				
Silver Ag	mg/L				0.0000081	0.0000084	0.0000082	0.0000084	0.0000085				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.044	0.045	0.039	0.043	0.043				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00050	0.00050	0.00051	0.00051	0.00052				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000029	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0022	0.0042	0.0039	0.0028	0.0029				
Zirconium Zr	mg/L				0.0049	0.0049	0.0050	0.0050	0.0050				

Table I-3-b-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				170	157	166	194	202				
TSS	mg/L				3.9	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.005	0.004	0.004	0.004	0.004				
Sulphate	mg/L				7.6	7.1	7.0	7.2	7.2				
Chloride	mg/L				86	88	90	99	104				
Total Ammonia	mg/L				0.012	0.014	0.019	0.018	0.018				
Nitrate	mg/L				0.36	0.34	0.34	0.34	0.35				
Nitrite	mg/L				0.009	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0115	0.0105	0.0101	0.0103	0.0103				
Phosphate-P	mg/L				0.0266	0.0271	0.0326	0.0286	0.0286				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				49	46	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0013	0.0017	0.0036	0.0013	0.0013				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0035	0.0033	0.0034	0.0034				
Beryllium Be	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00098	0.00089	0.00086	0.00088	0.00087				
Boron B	mg/L				0.035	0.023	0.024	0.024	0.024				
Cadmium Cd	mg/L				0.0000066	0.0000065	0.0000061	0.0000062	0.0000062				
Calcium Ca	mg/L				20	19	19	19	20				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0006	0.0006	0.0013	0.0005	0.0005				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00009	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0030	0.0030				
Magnesium Mg	mg/L				7.4	6.7	6.8	6.7	6.7				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000010	0.0000012	0.0000013	0.0000013	0.0000014				
Molybdenum Mo	mg/L				0.00059	0.00055	0.00056	0.00055	0.00055				
Nickel Ni	mg/L				0.0008	0.0010	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.032	0.037	0.033	0.033				
Potassium K	mg/L				4.7	4.2	4.1	4.1	4.1				
Selenium Se	mg/L				0.00088	0.00058	0.00063	0.00057	0.00058				
Silicon SiO2	mg/L				0.69	0.68	0.68	0.68	0.68				
Silver Ag	mg/L				0.0000086	0.0000088	0.0000086	0.0000088	0.0000089				
Sodium Na	mg/L				40	36	40	41	44				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000005	0.000005	0.000005	0.000006				
Tin Sn	mg/L				0.00053	0.00052	0.00052	0.00052	0.00052				
Titanium Ti	mg/L				0.0059	0.0061	0.0061	0.0062	0.0062				
Uranium U	mg/L				0.000029	0.000034	0.000042	0.000036	0.000036				
Vanadium V	mg/L				0.0007	0.0003	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0021	0.0041	0.0038	0.0027	0.0027				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-3-b-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				203	179	180	200	200				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.004	0.004	0.004	0.004	0.004				
Sulphate	mg/L				6.9	6.4	6.4	6.6	6.6				
Chloride	mg/L				106	102	99	104	104				
Total Ammonia	mg/L				0.010	0.014	0.019	0.018	0.018				
Nitrate	mg/L				0.31	0.29	0.29	0.30	0.30				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0100	0.0091	0.0087	0.0089	0.0089				
Phosphate-P	mg/L				0.0255	0.0260	0.0316	0.0275	0.0276				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	45	46	46				
Total Metals													
Aluminum Al	mg/L				0.04	0.07	0.09	0.08	0.08				
Antimony Sb	mg/L				0.0012	0.0016	0.0034	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0033	0.0034	0.0034				
Beryllium Be	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00085	0.00077	0.00074	0.00075	0.00075				
Boron B	mg/L				0.035	0.024	0.025	0.024	0.024				
Cadmium Cd	mg/L				0.0000066	0.0000065	0.0000061	0.0000062	0.0000062				
Calcium Ca	mg/L				21	19	18	18	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0005	0.0005				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.06	0.13	0.09	0.10	0.10				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg	mg/L				7.5	6.8	6.8	6.7	6.7				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000013	0.0000015	0.0000016	0.0000017	0.0000017				
Molybdenum Mo	mg/L				0.00054	0.00050	0.00051	0.00050	0.00050				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.030	0.030	0.036	0.032	0.031				
Potassium K	mg/L				4.5	4.0	3.9	3.9	3.9				
Selenium Se	mg/L				0.00090	0.00060	0.00065	0.00059	0.00060				
Silicon SiO2	mg/L				0.68	0.67	0.67	0.67	0.68				
Silver Ag	mg/L				0.0000089	0.0000090	0.0000088	0.0000090	0.0000091				
Sodium Na	mg/L				53	46	47	45	45				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000006	0.000006	0.000007	0.000007	0.000007				
Tin Sn	mg/L				0.00052	0.00050	0.00050	0.00050	0.00050				
Titanium Ti	mg/L				0.0062	0.0063	0.0064	0.0065	0.0065				
Uranium U	mg/L				0.000030	0.000035	0.000043	0.000037	0.000037				
Vanadium V	mg/L				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0019	0.0040	0.0037	0.0026	0.0026				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-3-b-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				193	170	171	191	191				
TSS	mg/L				4.0	5.8	6.0	6.9	7.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.004	0.003	0.003	0.003	0.003				
Sulphate	mg/L				6.3	5.8	5.8	6.0	6.0				
Chloride	mg/L				101	97	94	99	99				
Total Ammonia	mg/L				0.005	0.009	0.014	0.013	0.013				
Nitrate	mg/L				0.22	0.21	0.20	0.21	0.21				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0086	0.0078	0.0074	0.0076	0.0076				
Phosphate-P	mg/L				0.0244	0.0251	0.0306	0.0266	0.0266				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.04	0.07	0.09	0.08	0.08				
Antimony Sb	mg/L				0.0011	0.0014	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0031	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00072	0.00065	0.00062	0.00063	0.00063				
Boron B	mg/L				0.035	0.024	0.025	0.024	0.024				
Cadmium Cd	mg/L				0.0000054	0.0000053	0.0000048	0.0000049	0.0000050				
Calcium Ca	mg/L				19	17	17	17	17				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.06	0.13	0.10	0.10	0.10				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00005	0.00006				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg	mg/L				7.5	6.8	6.8	6.7	6.7				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000016	0.0000017	0.0000018	0.0000019	0.0000019				
Molybdenum Mo	mg/L				0.00049	0.00045	0.00046	0.00045	0.00045				
Nickel Ni	mg/L				0.0007	0.0009	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.028	0.028	0.033	0.029	0.029				
Potassium K	mg/L				4.3	3.8	3.7	3.7	3.7				
Selenium Se	mg/L				0.00092	0.00061	0.00066	0.00061	0.00061				
Silicon SiO2	mg/L				0.66	0.65	0.65	0.66	0.66				
Silver Ag	mg/L				0.0000073	0.0000075	0.0000073	0.0000075	0.0000075				
Sodium Na	mg/L				51	45	46	44	44				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000005	0.000005	0.000006	0.000006	0.000006				
Tin Sn	mg/L				0.00049	0.00048	0.00048	0.00048	0.00048				
Titanium Ti	mg/L				0.0065	0.0066	0.0066	0.0067	0.0067				
Uranium U	mg/L				0.000029	0.000034	0.000042	0.000036	0.000036				
Vanadium V	mg/L				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0018	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-3-b-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				185	161	163	183	183				
TSS	mg/L				4.1	5.9	6.0	7.0	7.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.003	0.002	0.003	0.003				
Sulphate	mg/L				5.7	5.3	5.3	5.5	5.5				
Chloride	mg/L				96	92	89	94	94				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.18	0.16	0.15	0.15	0.15				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0073	0.0066	0.0063	0.0064	0.0064				
Phosphate-P	mg/L				0.0235	0.0242	0.0298	0.0257	0.0257				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.05	0.07	0.09	0.09	0.09				
Antimony Sb	mg/L				0.0010	0.0013	0.0032	0.0010	0.0010				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0031	0.0033	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00061	0.00054	0.00052	0.00053	0.00053				
Boron B	mg/L				0.036	0.025	0.025	0.025	0.025				
Cadmium Cd	mg/L				0.0000054	0.0000052	0.0000046	0.0000047	0.0000047				
Calcium Ca	mg/L				17	16	15	15	15				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0018	0.0015	0.0017	0.0017				
Iron Fe	mg/L				0.06	0.14	0.10	0.10	0.11				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg	mg/L				7.5	6.8	6.9	6.7	6.8				
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000019	0.0000020	0.0000021	0.0000021	0.0000022				
Molybdenum Mo	mg/L				0.00044	0.00041	0.00042	0.00041	0.00041				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.026	0.031	0.027	0.027				
Potassium K	mg/L				4.1	3.6	3.5	3.5	3.5				
Selenium Se	mg/L				0.00093	0.00063	0.00068	0.00062	0.00062				
Silicon SiO2	mg/L				0.65	0.64	0.64	0.65	0.65				
Silver Ag	mg/L				0.0000075	0.0000075	0.0000072	0.0000073	0.0000073				
Sodium Na	mg/L				50	44	45	43	43				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000006	0.000006	0.000006	0.000007	0.000007				
Tin Sn	mg/L				0.00048	0.00047	0.00046	0.00047	0.00047				
Titanium Ti	mg/L				0.0067	0.0068	0.0069	0.0069	0.0070				
Uranium U	mg/L				0.000030	0.000035	0.000042	0.000036	0.000036				
Vanadium V	mg/L				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0017	0.0038	0.0034	0.0024	0.0024				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-3-b-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				177	154	155	175	175				
TSS	mg/L				4.1	5.9	6.1	7.0	7.0				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.2	4.8	4.8	5.0	5.0				
Chloride	mg/L				91	88	85	90	90				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.11	0.10	0.09	0.09	0.09				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0062	0.0055	0.0052	0.0053	0.0053				
Phosphate-P	mg/L				0.0226	0.0234	0.0290	0.0249	0.0249				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.05	0.08	0.10	0.09	0.09				
Antimony Sb	mg/L				0.0008	0.0012	0.0031	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00003	0.00003	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00051	0.00045	0.00042	0.00043	0.00043				
Boron B	mg/L				0.036	0.025	0.026	0.025	0.025				
Cadmium Cd	mg/L				0.0000051	0.0000049	0.0000044	0.0000044	0.0000045				
Calcium Ca	mg/L				16	14	14	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0017	0.0015	0.0017	0.0017				
Iron Fe	mg/L				0.07	0.14	0.10	0.11	0.11				
Lead Pb	mg/L				0.00004	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0031	0.0031				
Magnesium Mg	mg/L				7.5	6.8	6.9	6.8	6.8				
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000022	0.0000023	0.0000023	0.0000024	0.0000024				
Molybdenum Mo	mg/L				0.00040	0.00037	0.00038	0.00037	0.00037				
Nickel Ni	mg/L				0.0006	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.024	0.030	0.026	0.026				
Potassium K	mg/L				3.9	3.4	3.4	3.3	3.3				
Selenium Se	mg/L				0.00095	0.00064	0.00069	0.00063	0.00064				
Silicon SiO2	mg/L				0.64	0.64	0.63	0.64	0.64				
Silver Ag	mg/L				0.0000073	0.0000073	0.0000070	0.0000072	0.0000071				
Sodium Na	mg/L				49	43	44	42	42				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000007	0.000007	0.000007	0.000007	0.000008				
Tin Sn	mg/L				0.00046	0.00045	0.00045	0.00045	0.00045				
Titanium Ti	mg/L				0.0069	0.0070	0.0071	0.0071	0.0072				
Uranium U	mg/L				0.000030	0.000035	0.000043	0.000037	0.000037				
Vanadium V	mg/L				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0016	0.0037	0.0033	0.0023	0.0023				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-3-b-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				169	147	149	169	168				
TSS	mg/L				4.2	6.0	6.1	7.1	7.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				4.7	4.4	4.4	4.6	4.5				
Chloride	mg/L				87	84	81	86	85				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.05	0.05	0.05	0.05	0.04				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0052	0.0046	0.0043	0.0044	0.0043				
Phosphate-P	mg/L				0.0219	0.0227	0.0283	0.0242	0.0240				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.05	0.08	0.10	0.09	0.09				
Antimony Sb	mg/L				0.0008	0.0011	0.0030	0.0008	0.0008				
Arsenic As	mg/L				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00042	0.00036	0.00034	0.00035	0.00034				
Boron B	mg/L				0.036	0.025	0.026	0.025	0.025				
Cadmium Cd	mg/L				0.0000049	0.0000047	0.0000042	0.0000042	0.0000042				
Calcium Ca	mg/L				14	13	12	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0017	0.0015	0.0017	0.0017				
Iron Fe	mg/L				0.07	0.14	0.10	0.11	0.11				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0031	0.0031	0.0031	0.0031	0.0031				
Magnesium Mg	mg/L				7.5	6.8	6.9	6.8	6.8				
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000024	0.0000025	0.0000025	0.0000026	0.0000026				
Molybdenum Mo	mg/L				0.00036	0.00033	0.00035	0.00033	0.00033				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.023	0.023	0.028	0.024	0.024				
Potassium K	mg/L				3.8	3.3	3.2	3.2	3.2				
Selenium Se	mg/L				0.00096	0.00065	0.00070	0.00065	0.00064				
Silicon SiO2	mg/L				0.64	0.63	0.63	0.63	0.63				
Silver Ag	mg/L				0.0000071	0.0000072	0.0000068	0.0000070	0.0000067				
Sodium Na	mg/L				48	42	43	41	41				
Strontium Sr	mg/L				0.042	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000007	0.000007	0.000008	0.000008	0.000008				
Tin Sn	mg/L				0.00045	0.00044	0.00044	0.00044	0.00044				
Titanium Ti	mg/L				0.0071	0.0072	0.0072	0.0073	0.0073				
Uranium U	mg/L				0.000031	0.000035	0.000043	0.000037	0.000037				
Vanadium V	mg/L				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0015	0.0036	0.0033	0.0022	0.0022				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-3-b-B.2
Scenario 3 - Upper Limit Se

Water Quality in DORIS CRWater Quality in DORIS CREEK (d/s of the waterfall)												
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				161	140	142	162	161			
TSS	mg/L				4.2	6.0	6.1	7.1	7.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.001	0.001	0.001	0.001	0.001			
Sulphate	mg/L				4.2	3.9	4.0	4.1	4.1			
Chloride	mg/L				81	80	77	81	81			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				28	26	27	27	27			
OrthoPhosphate-P	mg/L				0.0040	0.0035	0.0034	0.0034	0.0033			
Phosphate-P	mg/L				0.0207	0.0217	0.0274	0.0233	0.0231			
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0			
Hardness CaCO3	mg/L				46	43	43	44	44			
Total Metals												
Aluminum Al	mg/L				0.05	0.08	0.10	0.09	0.09			
Antimony Sb	mg/L				0.0006	0.0011	0.0030	0.0007	0.0007			
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031			
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002			
Bismuth Bi	mg/L				0.00031	0.00027	0.00026	0.00026	0.00025			
Boron B	mg/L				0.036	0.025	0.026	0.025	0.025			
Cadmium Cd	mg/L				0.0000045	0.0000044	0.0000038	0.0000039	0.0000039			
Calcium Ca	mg/L				13	12	11	11	11			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002			
Copper Cu	mg/L				0.0014	0.0017	0.0014	0.0016	0.0016			
Iron Fe	mg/L				0.07	0.14	0.11	0.11	0.11			
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005			
Lithium Li	mg/L				0.0030	0.0031	0.0031	0.0031	0.0031			
Magnesium Mg	mg/L				7.5	6.8	6.9	6.8	6.7			
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011			
Mercury Hg	mg/L				0.0000024	0.0000025	0.0000025	0.0000026	0.0000026			
Molybdenum Mo	mg/L				0.00031	0.00029	0.00031	0.00030	0.00029			
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006			
Phosphorus P	mg/L				0.021	0.021	0.027	0.023	0.023			
Potassium K	mg/L				3.6	3.1	3.1	3.0	3.0			
Selenium Se	mg/L				0.00096	0.00065	0.00070	0.00065	0.00065			
Silicon SiO2	mg/L				0.62	0.61	0.61	0.62	0.61			
Silver Ag	mg/L				0.0000064	0.0000066	0.0000063	0.0000064	0.0000062			
Sodium Na	mg/L				47	40	42	40	39			
Strontium Sr	mg/L				0.042	0.043	0.037	0.042	0.041			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L				0.000007	0.000007	0.000007	0.000008	0.000008			
Tin Sn	mg/L				0.00043	0.00043	0.00043	0.00043	0.00043			
Titanium Ti	mg/L				0.0072	0.0072	0.0073	0.0074	0.0073			
Uranium U	mg/L				0.000030	0.000035	0.000043	0.000037	0.000037			
Vanadium V	mg/L				0.0008	0.0003	0.0005	0.0004	0.0004			
Zinc Zn	mg/L				0.0014	0.0035	0.0032	0.0021	0.0021			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

Table I-3-b-B.3

Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				656446	359057	157466	234311	82724				
TSS				18095	16391	7057	10526	3676				
Free CN				0.33	0.04	0.03	0.04	0.01				
Total CN				12	6	3	3	1				
WAD CN				0.44	0.06	0.04	0.05	0.02				
CNO				366	49	30	41	14				
SCN				5	4	2	3	1				
Sulphate				17133	11126	5202	7430	2771				
Chloride				285868	180703	75281	104376	37089				
Total Ammonia				92	126	33	47	17				
Nitrate				404	350	183	277	111				
Nitrite				48	38	16	22	8				
Alkalinity				126598	73045	32843	41595	14601				
OrthoPhosphate-P				10	7	3	5	2				
Phosphate-P				80	54	30	33	12				
Org. Carbon				25012	14510	8870	7661	2675				
Hardness CaCO3				209601	123133	51967	69346	24381				
Total Metals												
Aluminum Al				155	170	96	111	39				
Antimony Sb				2.0	2.8	3.6	1.1	0.4				
Arsenic As				2.3	1.3	0.5	0.7	0.2				
Barium Ba				13	9	4	5	2				
Beryllium Be				0.09	0.06	0.03	0.04	0.01				
Bismuth Bi				0.53	0.58	0.32	0.49	0.20				
Boron B				156	64	28	35	12				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				50604	31112	13741	18672	6982				
Chromium Cr				3	1	1	1	0				
Cobalt Co				0.74	0.78	1.24	0.44	0.17				
Copper Cu				6	5	2	3	1				
Iron Fe				233	348	100	137	48				
Lead Pb				0.12	0.20	0.06	0.08	0.03				
Lithium Li				13	8	3	4	2				
Magnesium Mg				33124	18593	7937	9999	3504				
Manganese Mn				31	58	16	16	6				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.15	0.76	0.39	0.52	0.20				
Nickel Ni				2.25	1.92	0.72	0.93	0.34				
Phosphorus P				88	60	33	37	13				
Potassium K				14689	8263	3608	4771	1742				
Selenium Se				4.05	1.62	0.74	0.86	0.30				
Silicon SiO2				2538	1605	690	906	323				
Silver Ag				0.02	0.02	0.01	0.01	0.00				
Sodium Na				177636	93451	41037	49432	17328				
Strontium Sr				186	120	44	63	22				
Tellurium Te				227	141	59	76	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				1.86	1.19	0.52	0.67	0.24				
Titanium Ti				27	17	7	9	3				
Uranium U				0.13	0.09	0.05	0.05	0.02				
Vanadium V				2.65	0.30	0.36	0.34	0.13				
Zinc Zn				5.25	9.64	3.78	3.28	1.19				
Zirconium Zr				23	14	6	8	3				

Table I-3-b-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				732661	400426	173891	255348	89909				
TSS				18256	16476	7091	10569	3691				
Free CN				0.79	0.01	0.03	0.03	0.01				
Total CN				16	6	3	3	1				
WAD CN				1.05	0.02	0.03	0.05	0.02				
CNO				864	15	29	37	13				
SCN				21	12	5	7	3				
Sulphate				31346	18834	8260	11348	4109				
Chloride				336896	208308	86220	118384	41871				
Total Ammonia				188	222	26	46	16				
Nitrate				1251	846	379	540	199				
Nitrite				130	38	16	8	8				
Alkalinity				133090	76558	34235	43377	15209				
OrthoPhosphate-P				30	18	8	11	4				
Phosphate-P				100	65	35	39	14				
Org. Carbon				24992	14495	8863	7652	2672				
Hardness CaCO3				223730	130794	55005	73236	25710				
Total Metals												
Aluminum Al				161	173	97	112	39				
Antimony Sb				3.9	3.8	4.0	1.7	0.6				
Arsenic As				2.8	1.5	0.6	0.8	0.3				
Barium Ba				15	10	4	5	2				
Beryllium Be				0.15	0.09	0.04	0.05	0.02				
Bismuth Bi				2.33	1.54	0.70	0.97	0.36				
Boron B				159	66	29	36	12				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				89009	51987	22034	29296	10611				
Chromium Cr				4	2	1	1	0				
Cobalt Co				2.36	1.66	1.59	0.89	0.33				
Copper Cu				7	5	2	3	1				
Iron Fe				238	351	101	138	48				
Lead Pb				0.18	0.23	0.07	0.09	0.03				
Lithium Li				13	8	4	5	2				
Magnesium Mg				34210	19178	8169	10295	3605				
Manganese Mn				35	61	17	17	6				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.55	1.52	0.69	0.90	0.33				
Nickel Ni				3.51	2.60	0.99	1.27	0.46				
Phosphorus P				121	78	40	46	17				
Potassium K				21018	11703	4975	6522	2340				
Selenium Se				4.09	1.64	0.75	0.87	0.30				
Silicon SiO2				3079	1898	807	1055	374				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				183619	96694	42323	51079	17890				
Strontium Sr				198	126	46	66	23				
Tellurium Te				227	141	59	76	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				2.13	1.34	0.57	0.75	0.26				
Titanium Ti				27	17	7	9	3				
Uranium U				0.13	0.10	0.05	0.05	0.02				
Vanadium V				3.09	0.54	0.46	0.46	0.17				
Zinc Zn				8.74	11.53	4.53	4.24	1.52				
Zirconium Zr				23	14	6	8	3				

Table I-3-b-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				777994	425550	183429	266884	93618				
TSS				18332	16514	7103	10579	3692				
Free CN				0.46								
Total CN				13	5	2	3	1				
WAD CN				0.62								
CNO				508								
SCN				27	15	6	8	3				
Sulphate				37826	22000	9254	12252	4289				
Chloride				372322	228924	94589	129304	45675				
Total Ammonia				149	145	22	29	10				
Nitrate				1721	1072	450	608	216				
Nitrite				113	31	15	6	2				
Alkalinity				135895	77895	34625	43679	15245				
OrthoPhosphate-P				44	26	11	15	5				
Phosphate-P				114	73	38	43	15				
Org. Carbon				25003	14507	8868	7659	2674				
Hardness CaCO3				229770	133651	55834	73868	25777				
Total Metals												
Aluminum Al				164	175	98	113	39				
Antimony Sb				5.2	4.5	4.3	2.0	0.7				
Arsenic As				3.0	1.6	0.6	0.8	0.3				
Barium Ba				15	10	4	5	2				
Beryllium Be				0.19	0.11	0.05	0.06	0.02				
Bismuth Bi				3.56	2.25	0.98	1.34	0.49				
Boron B				161	67	29	36	13				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				105217	59581	24221	30935	10767				
Chromium Cr				5	2	1	1	0				
Cobalt Co				3.06	1.99	1.68	0.97	0.34				
Copper Cu				8	6	2	3	1				
Iron Fe				240	352	102	139	48				
Lead Pb				0.21	0.25	0.08	0.10	0.03				
Lithium Li				14	8	4	5	2				
Magnesium Mg				34730	19439	8253	10376	3624				
Manganese Mn				37	62	17	17	6				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.14	1.80	0.77	0.96	0.34				
Nickel Ni				4.08	2.88	1.08	1.35	0.47				
Phosphorus P				141	89	45	52	18				
Potassium K				23680	12950	5333	6788	2364				
Selenium Se				4.11	1.65	0.75	0.87	0.30				
Silicon SiO2				3316	2010	839	1082	378				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				186186	97910	42677	51351	17920				
Strontium Sr				203	129	47	66	23				
Tellurium Te				227	141	59	76	27				
Thallium Tl				0.15	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				2.33	1.45	0.62	0.80	0.28				
Titanium Ti				27	17	7	9	3				
Uranium U				0.13	0.10	0.05	0.05	0.02				
Vanadium V				3.36	0.68	0.51	0.53	0.19				
Zinc Zn				10.30	12.28	4.76	4.44	1.55				
Zirconium Zr				23	14	6	8	3				

Table I-3-b-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				794453	453184	202476	302433	109841				
TSS				18325	16601	7156	10657	3723				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				23	13	5	7	2				
Sulphate				35427	20404	8539	11281	3934				
Chloride				398694	255065	109678	154983	56774				
Total Ammonia				58	39	23	28	10				
Nitrate				1664	990	409	537	189				
Nitrite				42	8	4	5	2				
Alkalinity				134412	77076	34303	43276	15110				
OrthoPhosphate-P				54	30	12	16	6				
Phosphate-P				124	78	40	45	16				
Org. Carbon				25092	14559	8890	7689	2685				
Hardness CaCO3				226254	131699	55059	72892	25448				
Total Metals												
Aluminum Al				165	182	103	119	42				
Antimony Sb				6.2	4.9	4.3	2.0	0.7				
Arsenic As				2.9	1.6	0.6	0.8	0.3				
Barium Ba				15	10	4	5	2				
Beryllium Be				0.22	0.12	0.05	0.07	0.02				
Bismuth Bi				4.58	2.58	1.05	1.37	0.48				
Boron B				161	68	29	37	13				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				94621	54906	22883	29965	10704				
Chromium Cr				4	2	1	1	0				
Cobalt Co				2.68	1.77	1.59	0.85	0.30				
Copper Cu				8	5	2	3	1				
Iron Fe				240	359	106	145	51				
Lead Pb				0.21	0.25	0.08	0.10	0.03				
Lithium Li				14	8	4	5	2				
Magnesium Mg				34639	19468	8280	10417	3640				
Manganese Mn				36	61	17	17	6				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.76	1.59	0.69	0.86	0.30				
Nickel Ni				3.89	2.75	1.02	1.28	0.45				
Phosphorus P				150	93	46	52	18				
Potassium K				21913	12037	4983	6349	2217				
Selenium Se				4.11	1.68	0.77	0.90	0.31				
Silicon SiO2				3194	1959	822	1062	372				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				184730	105479	49005	63738	23725				
Strontium Sr				201	128	47	66	23				
Tellurium Te				228	141	60	76	27				
Thallium Tl				0.15	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				2.48	1.50	0.63	0.81	0.28				
Titanium Ti				28	18	7	10	3				
Uranium U				0.13	0.10	0.05	0.06	0.02				
Vanadium V				3.47	0.78	0.55	0.58	0.20				
Zinc Zn				9.63	11.91	4.61	4.24	1.48				
Zirconium Zr				23	14	6	8	3				

Table I-3-b-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)													
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12	
Parameter													
TDS				946824	516564	218887	311947	108820					
TSS				18604	16763	7223	10745	3754					
Free CN													
Total CN				9	6	2	3	1					
WAD CN													
CNO													
SCN				19	11	4	6	2					
Sulphate				32330	18590	7790	10305	3592					
Chloride				493940	295079	120248	161547	56423					
Total Ammonia				47	40	23	28	10					
Nitrate				1443	845	351	461	163					
Nitrite				13	9	4	5	2					
Alkalinity				133556	76571	34094	43007	15016					
OrthoPhosphate-P				47	26	11	14	5					
Phosphate-P				119	75	38	43	15					
Org. Carbon				25199	14621	8916	7723	2697					
Hardness CaCO3				224032	130391	54519	72193	25204					
Total Metals													
Aluminum Al				187	195	108	127	44					
Antimony Sb				5.6	4.5	4.2	1.8	0.6					
Arsenic As				2.9	1.6	0.6	0.8	0.3					
Barium Ba				15	10	4	5	2					
Beryllium Be				0.20	0.11	0.05	0.06	0.02					
Bismuth Bi				3.96	2.22	0.90	1.17	0.41					
Boron B				163	69	30	37	13					
Cadmium Cd				0.03	0.02	0.01	0.01	0.00					
Calcium Ca				97297	54948	22325	28540	9949					
Chromium Cr				4	2	1	1	0					
Cobalt Co				2.35	1.58	1.51	0.75	0.26					
Copper Cu				7	5	2	3	1					
Iron Fe				262	372	111	152	53					
Lead Pb				0.21	0.24	0.07	0.10	0.03					
Lithium Li				14	9	4	5	2					
Magnesium Mg				34775	19546	8311	10460	3656					
Manganese Mn				36	61	17	17	6					
Mercury Hg				0.01	0.00	0.00	0.00	0.00					
Molybdenum Mo				2.50	1.44	0.62	0.78	0.27					
Nickel Ni				3.64	2.61	0.96	1.20	0.42					
Phosphorus P				141	87	43	49	17					
Potassium K				20885	11434	4733	6025	2104					
Selenium Se				4.20	1.74	0.79	0.93	0.32					
Silicon SiO2				3161	1939	814	1051	368					
Silver Ag				0.04	0.03	0.01	0.01	0.00					
Sodium Na				245440	132443	56896	70092	24505					
Strontium Sr				200	127	46	66	23					
Tellurium Te				228	142	60	77	27					
Thallium Tl				0.15	0.09	0.04	0.05	0.02					
Thorium Th				0.03	0.02	0.01	0.01	0.00					
Tin Sn				2.40	1.45	0.61	0.78	0.27					
Titanium Ti				29	18	8	10	4					
Uranium U				0.14	0.10	0.05	0.06	0.02					
Vanadium V				3.54	0.82	0.57	0.60	0.21					
Zinc Zn				9.07	11.58	4.47	4.06	1.42					
Zirconium Zr				23	14	6	8	3					

Table I-3-b-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				901703	490258	208045	297821	103883				
TSS				18861	16912	7284	10826	3783				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				16	9	4	5	2				
Sulphate				29294	16813	7057	9350	3259				
Chloride				468694	280341	114166	153647	53665				
Total Ammonia				23	26	17	20	7				
Nitrate				1027	600	249	330	117				
Nitrite				9	6	3	3	1				
Alkalinity				132765	76106	33902	42761	14930				
OrthoPhosphate-P				40	22	9	12	4				
Phosphate-P				114	73	37	41	14				
Org. Carbon				25298	14678	8939	7755	2708				
Hardness CaCO3				221981	129189	54023	71551	24980				
Total Metals												
Aluminum Al				203	204	111	131	46				
Antimony Sb				5.0	4.1	4.0	1.7	0.6				
Arsenic As				2.7	1.5	0.6	0.7	0.3				
Barium Ba				15	10	4	5	2				
Beryllium Be				0.17	0.09	0.04	0.05	0.02				
Bismuth Bi				3.37	1.87	0.75	0.99	0.34				
Boron B				164	70	30	38	13				
Cadmium Cd				0.02	0.02	0.01	0.01	0.00				
Calcium Ca				88521	49821	20211	25786	8987				
Chromium Cr				4	1	1	1	0				
Cobalt Co				2.03	1.39	1.44	0.65	0.23				
Copper Cu				7	5	2	3	1				
Iron Fe				281	383	116	158	55				
Lead Pb				0.18	0.23	0.07	0.09	0.03				
Lithium Li				14	9	4	5	2				
Magnesium Mg				34869	19599	8332	10489	3666				
Manganese Mn				35	61	17	17	6				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.26	1.30	0.57	0.70	0.25				
Nickel Ni				3.39	2.46	0.90	1.12	0.39				
Phosphorus P				128	80	40	45	16				
Potassium K				19928	10875	4503	5725	2000				
Selenium Se				4.27	1.77	0.81	0.95	0.33				
Silicon SiO2				3073	1885	791	1022	358				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				239809	129148	55532	68332	23892				
Strontium Sr				199	127	46	66	23				
Tellurium Te				229	142	60	77	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				2.30	1.40	0.58	0.75	0.26				
Titanium Ti				30	19	8	10	4				
Uranium U				0.13	0.10	0.05	0.06	0.02				
Vanadium V				3.56	0.83	0.57	0.60	0.21				
Zinc Zn				8.43	11.20	4.31	3.86	1.35				
Zirconium Zr				23	14	6	8	3				

Table I-3-b-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				860386	466314	198205	284990	99401				
TSS				19096	17047	7339	10899	3808				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				14	8	3	4	1				
Sulphate				26675	15285	6426	8526	2970				
Chloride				445575	266924	108642	146470	51161				
Total Ammonia				23	22	16	19	7				
Nitrate				823	453	181	237	82				
Nitrite				9	6	2	3	1				
Alkalinity				132041	75682	33727	42536	14852				
OrthoPhosphate-P				34	19	8	10	3				
Phosphate-P				110	70	36	40	14				
Org. Carbon				25388	14730	8960	7783	2718				
Hardness CaCO3				220103	128093	53573	70968	24777				
Total Metals												
Aluminum Al				222	215	116	137	48				
Antimony Sb				4.4	3.8	3.9	1.5	0.5				
Arsenic As				2.7	1.4	0.6	0.7	0.3				
Barium Ba				14	10	4	5	2				
Beryllium Be				0.15	0.08	0.03	0.04	0.02				
Bismuth Bi				2.85	1.57	0.63	0.82	0.29				
Boron B				166	71	31	38	13				
Cadmium Cd				0.03	0.01	0.01	0.01	0.00				
Calcium Ca				80762	45307	18351	23358	8137				
Chromium Cr				4	1	1	1	0				
Cobalt Co				1.75	1.23	1.37	0.56	0.19				
Copper Cu				7	5	2	3	1				
Iron Fe				300	394	120	164	57				
Lead Pb				0.17	0.22	0.07	0.08	0.03				
Lithium Li				14	9	4	5	2				
Magnesium Mg				34984	19662	8357	10523	3678				
Manganese Mn				35	60	17	17	6				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.05	1.17	0.51	0.64	0.22				
Nickel Ni				3.18	2.34	0.85	1.05	0.37				
Phosphorus P				120	75	38	43	15				
Potassium K				19058	10370	4295	5455	1905				
Selenium Se				4.35	1.82	0.82	0.97	0.34				
Silicon SiO2				3044	1865	782	1010	354				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				234659	126151	54293	66734	23336				
Strontium Sr				199	127	46	66	23				
Tellurium Te				230	143	60	77	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				2.23	1.35	0.57	0.73	0.25				
Titanium Ti				31	20	8	11	4				
Uranium U				0.14	0.10	0.05	0.06	0.02				
Vanadium V				3.62	0.86	0.58	0.62	0.22				
Zinc Zn				7.95	10.91	4.19	3.70	1.30				
Zirconium Zr				23	14	6	8	3				

Table I-3-b-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				822929	444759	189375	273469	95379				
TSS				19309	17169	7388	10965	3832				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				11	6	2	3	1				
Sulphate				24263	13897	5858	7784	2711				
Chloride				424612	254842	103682	140024	48913				
Total Ammonia				22	22	16	19	7				
Nitrate				520	284	113	148	51				
Nitrite				9	6	2	3	1				
Alkalinity				131384	75299	33570	42335	14782				
OrthoPhosphate-P				29	16	6	8	3				
Phosphate-P				106	68	35	39	14				
Org. Carbon				25470	14776	8979	7808	2727				
Hardness CaCO3				218400	127106	53168	70444	24595				
Total Metals												
Aluminum Al				238	224	119	142	50				
Antimony Sb				4.0	3.6	3.8	1.3	0.5				
Arsenic As				2.6	1.4	0.6	0.7	0.2				
Barium Ba				14	9	4	5	2				
Beryllium Be				0.14	0.07	0.03	0.04	0.01				
Bismuth Bi				2.38	1.30	0.52	0.68	0.23				
Boron B				168	72	31	39	14				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				73663	41223	16679	21175	7375				
Chromium Cr				4	1	1	1	0				
Cobalt Co				1.50	1.08	1.31	0.48	0.17				
Copper Cu				7	5	2	3	1				
Iron Fe				316	403	124	169	59				
Lead Pb				0.16	0.22	0.06	0.08	0.03				
Lithium Li				14	9	4	5	2				
Magnesium Mg				35081	19716	8378	10553	3689				
Manganese Mn				35	60	17	17	6				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.85	1.06	0.47	0.58	0.20				
Nickel Ni				2.98	2.23	0.80	0.99	0.35				
Phosphorus P				112	71	36	40	14				
Potassium K				18268	9915	4108	5212	1821				
Selenium Se				4.41	1.85	0.84	0.99	0.35				
Silicon SiO2				3006	1843	773	999	350				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				229986	123449	53177	65298	22836				
Strontium Sr				198	126	46	65	23				
Tellurium Te				231	143	60	77	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				2.16	1.31	0.55	0.71	0.25				
Titanium Ti				32	20	9	11	4				
Uranium U				0.14	0.10	0.05	0.06	0.02				
Vanadium V				3.67	0.88	0.59	0.63	0.22				
Zinc Zn				7.49	10.65	4.08	3.56	1.25				
Zirconium Zr				23	14	6	8	3				

Table I-3-b-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				789368	425605	181561	263265	91199				
TSS				19499	17276	7431	11023	3843				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				9	5	2	3	1				
Sulphate				22102	12664	5356	7127	2447				
Chloride				405829	244103	99286	134314	46386				
Total Ammonia				22	22	16	19	7				
Nitrate				255	139	55	72	24				
Nitrite				9	6	2	3	1				
Alkalinity				130796	74959	33430	42157	14683				
OrthoPhosphate-P				24	13	5	7	2				
Phosphate-P				102	66	34	38	13				
Org. Carbon				25543	14817	8995	7831	2729				
Hardness CaCO3				216874	126227	52808	69981	24371				
Total Metals												
Aluminum Al				252	232	123	146	51				
Antimony Sb				3.5	3.3	3.7	1.2	0.4				
Arsenic As				2.6	1.4	0.5	0.7	0.2				
Barium Ba				14	9	4	5	2				
Beryllium Be				0.12	0.06	0.03	0.03	0.01				
Bismuth Bi				1.95	1.06	0.42	0.55	0.18				
Boron B				170	73	31	39	14				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				67303	37594	15199	19241	6593				
Chromium Cr				4	1	1	1	0				
Cobalt Co				1.27	0.95	1.26	0.41	0.14				
Copper Cu				7	5	2	3	1				
Iron Fe				331	412	127	173	60				
Lead Pb				0.16	0.21	0.06	0.08	0.03				
Lithium Li				14	9	4	5	2				
Magnesium Mg				35168	19764	8397	10579	3685				
Manganese Mn				34	60	17	17	6				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.67	0.96	0.43	0.52	0.18				
Nickel Ni				2.81	2.13	0.76	0.94	0.32				
Phosphorus P				105	66	35	38	13				
Potassium K				17560	9510	3942	4997	1726				
Selenium Se				4.47	1.89	0.85	1.01	0.35				
Silicon SiO2				2972	1823	765	988	343				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				225798	121047	52187	64025	22181				
Strontium Sr				198	126	46	65	23				
Tellurium Te				231	143	60	78	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				2.10	1.28	0.54	0.69	0.24				
Titanium Ti				33	21	9	11	4				
Uranium U				0.14	0.10	0.05	0.06	0.02				
Vanadium V				3.71	0.91	0.60	0.65	0.22				
Zinc Zn				7.08	10.41	3.98	3.43	1.19				
Zirconium Zr				23	14	6	8	3				

Table I-3-b-B.3
Scenario 3 - Upper Limit :

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				748576	403720	172925	251956	87422				
TSS				19511	17283	7433	11026	3844				
Free CN												
Total CN				9	6	2	3	1				
WAD CN												
CNO												
SCN				7	4	1	2	1				
Sulphate				19575	11308	4821	6426	2213				
Chloride				379561	230015	93727	127037	43956				
Total Ammonia				22	22	16	19	7				
Nitrate				27	17	7	9	3				
Nitrite				9	6	2	3	1				
Alkalinity				129595	74315	33176	41825	14572				
OrthoPhosphate-P				19	10	4	5	2				
Phosphate-P				97	63	33	36	13				
Org. Carbon				25507	14798	8988	7821	2726				
Hardness CaCO3				214402	124901	52286	69296	24142				
Total Metals												
Aluminum Al				255	234	123	147	51				
Antimony Sb				3.0	3.0	3.6	1.1	0.4				
Arsenic As				2.5	1.3	0.5	0.7	0.2				
Barium Ba				14	9	4	5	2				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				1.46	0.79	0.31	0.41	0.14				
Boron B				169	73	31	39	14				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				59759	33546	13601	17149	5895				
Chromium Cr				4	1	1	1	0				
Cobalt Co				1.00	0.80	1.20	0.34	0.11				
Copper Cu				6	5	2	3	1				
Iron Fe				335	414	128	174	61				
Lead Pb				0.14	0.20	0.06	0.07	0.03				
Lithium Li				14	9	4	5	2				
Magnesium Mg				35011	19680	8364	10536	3671				
Manganese Mn				34	60	17	16	6				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.45	0.84	0.38	0.46	0.16				
Nickel Ni				2.59	2.01	0.71	0.88	0.30				
Phosphorus P				97	62	33	36	12				
Potassium K				16580	8984	3735	4725	1635				
Selenium Se				4.48	1.89	0.85	1.01	0.35				
Silicon SiO2				2884	1776	746	964	335				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				218261	117007	50593	61939	21484				
Strontium Sr				196	125	46	65	23				
Tellurium Te				231	143	60	77	27				
Thallium Tl				0.14	0.09	0.04	0.05	0.02				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				2.03	1.24	0.52	0.67	0.23				
Titanium Ti				33	21	9	11	4				
Uranium U				0.14	0.10	0.05	0.06	0.02				
Vanadium V				3.64	0.87	0.59	0.63	0.22				
Zinc Zn				6.50	10.10	3.86	3.27	1.14				
Zirconium Zr				23	14	6	8	3				

Appendix I

SedLoad2 Table I-3-b-C.1
Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		550000 m3/year					
Degradation Base		Tail Lk Cu < CME Year		30			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1427	203	193	
TSS	mg/L			8.5	7.1	8.2	
Free CN	mg/L		0.005	0.0033	0.00017	0.00009	3%
Total CN	mg/L	1.0		0.032	0.004	0.003	
WAD CN	mg/L			0.0044	0.0002	0.0001	
CNO	mg/L			3.7	0.19	0.10	
SCN	mg/L			0.119	0.006	0.003	
Sulphate	mg/L			109	8.1	7.2	
Chloride	mg/L			987	106	88	
Total Ammonia	mg/L		0.97	1.26	0.077	0.041	8%
Nitrate	mg/L		2.9	7.0	0.40	0.21	14%
Nitrite	mg/L		0.018	0.49	0.028	0.015	152%
Alkalinity	mg/L			62	29	26	
OrthoPhosphate-P	mg/L			0.2166	0.0115	0.0065	
Phosphate-P	mg/L			0.2195	0.0326	0.0296	
Org. Carbon	mg/L			5.4	7.4	7.1	
Hardness CaCO3	mg/L			124	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.54	0.10	0.26	102%
Antimony Sb	mg/L			0.0197	0.0036	0.0022	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0124	0.0036	0.0054	
Beryllium Be	mg/L			0.00073	0.00005	0.00003	
Bismuth Bi	mg/L			0.01903	0.00098	0.00059	
Boron B	mg/L			0.079	0.036	0.031	
Cadmium Cd	mg/L		0.000038	0.000066	0.0000069	0.0000167	18%
Calcium Ca	mg/L			296	23	15	
Chromium Cr	mg/L		0.001	0.0078	0.001	0.001	100%
Cobalt Co	mg/L			0.0124	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0020	0.0021	98%
Iron Fe	mg/L		0.3	0.54	0.14	0.29	48%
Lead Pb	mg/L	0.2	0.002	0.00049	0.00009	0.00027	4%
Lithium Li	mg/L			0.0084	0.0031	0.0030	
Magnesium Mg	mg/L			12.5	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000423	0.0000027	0.0000017	3%
Molybdenum Mo	mg/L		0.073	0.0107	0.00067	0.00047	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.317	0.037	0.033	
Potassium K	mg/L			49	5.1	3.9	
Selenium Se	mg/L		0.001	0.00243	0.00096	0.00088	96%
Silicon SiO2	mg/L			4.6	0.71	0.62	
Silver Ag	mg/L		0.0001	0.00014	0.0000091	0.0000074	9%
Sodium Na	mg/L			312	53	45	
Strontium Sr	mg/L			0.102	0.045	0.048	
Tellurium Te	mg/L			0.044	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000047	0.000031	0.002001	4%
Thorium Th	mg/L			0.000156	0.0000079	0.0000041	
Tin Sn	mg/L			0.00297	0.00053	0.00008	
Titanium Ti	mg/L			0.0343	0.0074	0.0069	
Uranium U	mg/L			0.000148	0.000043	0.000046	
Vanadium V	mg/L			0.0056	0.0008	0.0006	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0050	0.0050	0.0051	

Appendix I

Table I-3-b-C.2

Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				154	155	145	166	167				
TSS	mg/L				7.0	8.0	4.0	5.1	5.1				
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.04	0.01	0.01	0.01	0.01				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.3	5.5	5.4	5.6				
Chloride	mg/L				63	61	60	69	70				
Total Ammonia	mg/L				0.013	0.024	0.007	0.016	0.016				
Nitrate	mg/L				0.05	0.07	0.07	0.09	0.11				
Nitrite	mg/L				0.006	0.008	0.006	0.008	0.008				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0019	0.0021	0.0023	0.0025				
Phosphate-P	mg/L				0.0248	0.0170	0.0081	0.0204	0.0206				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0004	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00002				
Bismuth Bi	mg/L				0.00014	0.00019	0.00022	0.00025	0.00027				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000034	0.0000050	0.0000157	0.0000033	0.0000034				
Calcium Ca	mg/L				9	8	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0028	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00023	0.00022	0.00031	0.00029	0.00030				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.018	0.009	0.022	0.022				
Potassium K	mg/L				2.9	2.5	2.5	2.9	3.0				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.55	0.55	0.56				
Silver Ag	mg/L				0.0000055	0.0000031	0.0000057	0.0000042	0.0000043				
Sodium Na	mg/L				38	31	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000045				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-b-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				162	162	152	173	174				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00009	0.00000	0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.10	0.00	0.01	0.01	0.01				
SCN	mg/L				0.002	0.002	0.002	0.002	0.003				
Sulphate	mg/L				5.9	5.7	6.8	6.7	6.9				
Chloride	mg/L				69	66	65	74	74				
Total Ammonia	mg/L				0.023	0.041	0.004	0.016	0.016				
Nitrate	mg/L				0.14	0.15	0.16	0.18	0.19				
Nitrite	mg/L				0.015	0.008	0.006	0.004	0.008				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0039	0.0038	0.0039	0.0041	0.0043				
Phosphate-P	mg/L				0.0270	0.0189	0.0100	0.0222	0.0224				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0020	0.0015	0.0009	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00034	0.00036	0.00038	0.00041	0.00043				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000043	0.0000059	0.0000165	0.0000041	0.0000042				
Calcium Ca	mg/L				13	12	12	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00038	0.00036	0.00044	0.00042	0.00043				
Nickel Ni	mg/L				0.0008	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.029	0.021	0.012	0.025	0.025				
Potassium K	mg/L				3.6	3.1	3.1	3.5	3.5				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00061	0.00061				
Silicon SiO2	mg/L				0.60	0.59	0.60	0.60	0.61				
Silver Ag	mg/L				0.0000064	0.0000039	0.0000064	0.0000049	0.0000050				
Sodium Na	mg/L				38	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00004	0.00004	0.00005	0.00005	0.00005				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0040	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-b-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow											
Date		Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3
		Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10
Parameter													
TDS	mg/L				167	166	156	177	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00005								
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.06								
SCN	mg/L				0.003	0.003	0.003	0.003	0.003				
Sulphate	mg/L				6.6	6.3	7.2	7.0	7.0				
Chloride	mg/L				73	69	68	77	78				
Total Ammonia	mg/L				0.019	0.027	0.003	0.010	0.010				
Nitrate	mg/L				0.19	0.19	0.19	0.20	0.21				
Nitrite	mg/L				0.014	0.006	0.005	0.003	0.003				
Alkalinity	mg/L				25	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0055	0.0052	0.0053	0.0056	0.0058				
Phosphate-P	mg/L				0.0285	0.0203	0.0114	0.0236	0.0238				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0021	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00048	0.00049	0.00050	0.00053	0.00055				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000048	0.0000062	0.0000167	0.0000042	0.0000042				
Calcium Ca	mg/L				15	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0016	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.3	5.4	7.3	7.4				
Manganese Mn	mg/L				0.025	0.009	0.013	0.009	0.009				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00045	0.00041	0.00047	0.00044	0.00043				
Nickel Ni	mg/L				0.0009	0.0007	0.0009	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.023	0.014	0.027	0.027				
Potassium K	mg/L				3.9	3.3	3.2	3.6	3.6				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.62	0.61	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000070	0.0000043	0.0000068	0.0000053	0.0000053				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00006	0.00006	0.00007	0.00007				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0042	0.0023	0.0022	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-b-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				169	171	164	189	193				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.3	6.0	6.9	6.7	6.7				
Chloride	mg/L				75	74	75	86	88				
Total Ammonia	mg/L				0.009	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.19	0.18	0.17	0.18	0.18				
Nitrite	mg/L				0.006	0.002	0.001	0.003	0.003				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0065	0.0060	0.0058	0.0059	0.0059				
Phosphate-P	mg/L				0.0296	0.0212	0.0121	0.0242	0.0242				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	42	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.16	0.16				
Antimony Sb	mg/L				0.0009	0.0022	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00059	0.00054	0.00053	0.00054	0.00053				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000046	0.0000061	0.0000166	0.0000042	0.0000042				
Calcium Ca	mg/L				14	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.3	5.4	7.4	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000009	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00041	0.00037	0.00044	0.00040	0.00040				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.033	0.024	0.015	0.027	0.027				
Potassium K	mg/L				3.7	3.1	3.1	3.4	3.4				
Selenium Se	mg/L				0.00065	0.00039	0.00084	0.00062	0.00062				
Silicon SiO2	mg/L				0.61	0.60	0.60	0.61	0.61				
Silver Ag	mg/L				0.0000073	0.0000046	0.0000070	0.0000055	0.0000055				
Sodium Na	mg/L				39	34	37	41	43				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00008	0.00007	0.00007	0.00007	0.00007				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0063				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000046				
Vanadium V	mg/L				0.0005	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-b-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				186	183	171	192	192				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.7	6.6	6.4	6.4				
Chloride	mg/L				86	81	79	88	88				
Total Ammonia	mg/L				0.008	0.008	0.003	0.010	0.010				
Nitrate	mg/L				0.16	0.15	0.14	0.16	0.16				
Nitrite	mg/L				0.003	0.003	0.001	0.003	0.003				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0058	0.0053	0.0051	0.0052	0.0052				
Phosphate-P	mg/L				0.0290	0.0207	0.0115	0.0236	0.0236				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0009	0.0021	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00052	0.00048	0.00046	0.00047	0.00047				
Boron B	mg/L				0.030	0.021	0.029	0.028	0.028				
Cadmium Cd	mg/L				0.0000046	0.0000061	0.0000166	0.0000042	0.0000042				
Calcium Ca	mg/L				14	13	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0030	0.0030	0.0030				
Magnesium Mg	mg/L				7.2	5.3	5.5	7.4	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000010	0.0000011	0.0000011	0.0000012	0.0000012				
Molybdenum Mo	mg/L				0.00038	0.00035	0.00041	0.00037	0.00037				
Nickel Ni	mg/L				0.0008	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.031	0.023	0.014	0.026	0.026				
Potassium K	mg/L				3.6	3.0	3.0	3.3	3.3				
Selenium Se	mg/L				0.00067	0.00040	0.00085	0.00063	0.00063				
Silicon SiO2	mg/L				0.60	0.60	0.60	0.60	0.60				
Silver Ag	mg/L				0.0000074	0.0000047	0.0000071	0.0000056	0.0000056				
Sodium Na	mg/L				45	38	41	43	43				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000004	0.000004				
Tin Sn	mg/L				0.00007	0.00006	0.00006	0.00006	0.00006				
Titanium Ti	mg/L				0.0063	0.0063	0.0064	0.0064	0.0064				
Uranium U	mg/L				0.000038	0.000035	0.000038	0.000046	0.000046				
Vanadium V	mg/L				0.0005	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0040	0.0022	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-b-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				181	178	167	187	187				
TSS	mg/L				7.1	8.1	4.1	5.2	5.2				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.6	5.3	6.2	6.1	6.1				
Chloride	mg/L				83	78	77	85	85				
Total Ammonia	mg/L				0.005	0.006	0.000	0.007	0.007				
Nitrate	mg/L				0.12	0.11	0.10	0.11	0.11				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0051	0.0046	0.0045	0.0045	0.0045				
Phosphate-P	mg/L				0.0285	0.0202	0.0110	0.0231	0.0231				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0008	0.0020	0.0015	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00046	0.00042	0.00040	0.00041	0.00041				
Boron B	mg/L				0.031	0.021	0.030	0.028	0.028				
Cadmium Cd	mg/L				0.0000040	0.0000055	0.0000160	0.0000035	0.0000036				
Calcium Ca	mg/L				13	12	12	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.19	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg	mg/L				7.2	5.3	5.5	7.4	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000011	0.0000012	0.0000012	0.0000013	0.0000013				
Molybdenum Mo	mg/L				0.00035	0.00032	0.00038	0.00035	0.00035				
Nickel Ni	mg/L				0.0008	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.030	0.021	0.012	0.024	0.024				
Potassium K	mg/L				3.5	2.9	2.9	3.2	3.2				
Selenium Se	mg/L				0.00067	0.00040	0.00086	0.00063	0.00063				
Silicon SiO2	mg/L				0.59	0.59	0.59	0.59	0.59				
Silver Ag	mg/L				0.0000066	0.0000039	0.0000063	0.0000048	0.0000048				
Sodium Na	mg/L				45	38	40	43	43				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005				
Titanium Ti	mg/L				0.0064	0.0065	0.0065	0.0065	0.0065				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0021	0.0020	0.0055	0.0055				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-b-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				177	174	163	183	183				
TSS	mg/L				7.2	8.2	4.2	5.2	5.2				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.3	5.1	6.0	5.8	5.8				
Chloride	mg/L				81	76	74	83	83				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.09	0.08	0.07	0.08	0.08				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0044	0.0040	0.0039	0.0039	0.0039				
Phosphate-P	mg/L				0.0280	0.0197	0.0106	0.0227	0.0227				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0007	0.0020	0.0014	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00040	0.00036	0.00035	0.00036	0.00036				
Boron B	mg/L				0.031	0.022	0.030	0.028	0.028				
Cadmium Cd	mg/L				0.0000040	0.0000054	0.0000159	0.0000034	0.0000034				
Calcium Ca	mg/L				12	11	11	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0003	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.29	0.15	0.19	0.16	0.17				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg	mg/L				7.3	5.3	5.5	7.4	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000013	0.0000013	0.0000014	0.0000014	0.0000014				
Molybdenum Mo	mg/L				0.00033	0.00030	0.00036	0.00033	0.00033				
Nickel Ni	mg/L				0.0008	0.0006	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.029	0.021	0.011	0.023	0.023				
Potassium K	mg/L				3.4	2.8	2.8	3.1	3.1				
Selenium Se	mg/L				0.00068	0.00041	0.00087	0.00064	0.00064				
Silicon SiO2	mg/L				0.59	0.59	0.59	0.59	0.59				
Silver Ag	mg/L				0.0000067	0.0000039	0.0000063	0.0000047	0.0000047				
Sodium Na	mg/L				44	37	40	42	42				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000004				
Tin Sn	mg/L				0.00005	0.00005	0.00004	0.00004	0.00004				
Titanium Ti	mg/L				0.0065	0.0066	0.0066	0.0066	0.0067				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000046	0.000046				
Vanadium V	mg/L				0.0006	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0021	0.0019	0.0055	0.0055				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-b-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				172	170	159	179	179				
TSS	mg/L				7.2	8.2	4.2	5.2	5.2				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.1	4.8	5.7	5.5	5.5				
Chloride	mg/L				78	74	72	81	81				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.06	0.05	0.04	0.05	0.05				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0038	0.0035	0.0033	0.0034	0.0034				
Phosphate-P	mg/L				0.0276	0.0193	0.0102	0.0223	0.0223				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0007	0.0019	0.0014	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00001	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00035	0.00032	0.00030	0.00031	0.00031				
Boron B	mg/L				0.031	0.022	0.030	0.028	0.028				
Cadmium Cd	mg/L				0.0000038	0.0000053	0.0000158	0.0000033	0.0000033				
Calcium Ca	mg/L				12	10	10	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0015	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.29	0.15	0.19	0.17	0.17				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg	mg/L				7.3	5.3	5.5	7.4	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000014	0.0000015	0.0000015	0.0000015	0.0000016				
Molybdenum Mo	mg/L				0.00031	0.00028	0.00034	0.00031	0.00031				
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.028	0.020	0.011	0.023	0.023				
Potassium K	mg/L				3.3	2.8	2.7	3.0	3.0				
Selenium Se	mg/L				0.00069	0.00042	0.00087	0.00065	0.00065				
Silicon SiO2	mg/L				0.59	0.58	0.58	0.59	0.59				
Silver Ag	mg/L				0.0000066	0.0000038	0.0000062	0.0000046	0.0000046				
Sodium Na	mg/L				44	37	39	42	42				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000003	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Titanium Ti	mg/L				0.0066	0.0067	0.0067	0.0067	0.0068				
Uranium U	mg/L				0.000039	0.000035	0.000037	0.000046	0.000046				
Vanadium V	mg/L				0.0006	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0038	0.0020	0.0019	0.0054	0.0055				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-b-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				169	166	156	176	175				
TSS	mg/L				7.2	8.2	4.2	5.2	5.2				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.8	4.6	5.5	5.3	5.3				
Chloride	mg/L				76	72	70	79	78				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0033	0.0030	0.0029	0.0029	0.0028				
Phosphate-P	mg/L				0.0272	0.0189	0.0098	0.0219	0.0218				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.13	0.20	0.16	0.16				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00030	0.00027	0.00026	0.00027	0.00026				
Boron B	mg/L				0.031	0.022	0.030	0.028	0.028				
Cadmium Cd	mg/L				0.0000037	0.0000052	0.0000157	0.0000032	0.0000032				
Calcium Ca	mg/L				11	9	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.29	0.15	0.19	0.17	0.17				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg	mg/L				7.3	5.3	5.5	7.4	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000015	0.0000016	0.0000016	0.0000016	0.0000016				
Molybdenum Mo	mg/L				0.00029	0.00026	0.00033	0.00029	0.00029				
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.028	0.019	0.010	0.022	0.022				
Potassium K	mg/L				3.2	2.7	2.6	3.0	2.9				
Selenium Se	mg/L				0.00069	0.00042	0.00088	0.00065	0.00065				
Silicon SiO2	mg/L				0.58	0.58	0.58	0.58	0.58				
Silver Ag	mg/L				0.0000065	0.0000037	0.0000061	0.0000045	0.0000044				
Sodium Na	mg/L				43	36	39	41	41				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Titanium Ti	mg/L				0.0067	0.0068	0.0068	0.0068	0.0068				
Uranium U	mg/L				0.000039	0.000035	0.000037	0.000046	0.000046				
Vanadium V	mg/L				0.0006	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0038	0.0020	0.0018	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-3-b-C.2
Scenario 3 - Upper Limit Sediment L

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				164	163	152	172	172			
TSS	mg/L				7.2	8.2	4.2	5.2	5.2			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.001	0.001	0.001	0.001	0.001			
Sulphate	mg/L				4.6	4.4	5.3	5.1	5.1			
Chloride	mg/L				73	69	68	76	76			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0027	0.0025	0.0024	0.0024	0.0023			
Phosphate-P	mg/L				0.0266	0.0184	0.0094	0.0214	0.0214			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.25	0.13	0.20	0.16	0.16			
Antimony Sb	mg/L				0.0006	0.0018	0.0013	0.0007	0.0007			
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005			
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043			
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00025	0.00023	0.00022	0.00022	0.00022			
Boron B	mg/L				0.031	0.022	0.030	0.028	0.028			
Cadmium Cd	mg/L				0.0000035	0.0000050	0.0000155	0.0000030	0.0000030			
Calcium Ca	mg/L				10	9	9	10	9			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002			
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0020			
Iron Fe	mg/L				0.29	0.15	0.19	0.17	0.17			
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026			
Lithium Li	mg/L				0.0030	0.0030	0.0030	0.0030	0.0030			
Magnesium Mg	mg/L				7.3	5.3	5.5	7.4	7.4			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000016	0.0000016	0.0000016	0.0000017	0.0000016			
Molybdenum Mo	mg/L				0.00026	0.00024	0.00031	0.00027	0.00027			
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.027	0.018	0.009	0.021	0.021			
Potassium K	mg/L				3.1	2.6	2.6	2.9	2.9			
Selenium Se	mg/L				0.00070	0.00042	0.00088	0.00065	0.00065			
Silicon SiO2	mg/L				0.57	0.57	0.57	0.57	0.57			
Silver Ag	mg/L				0.0000061	0.0000034	0.0000058	0.0000042	0.0000041			
Sodium Na	mg/L				42	36	38	41	41			
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004			
Tin Sn	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002			
Titanium Ti	mg/L				0.0068	0.0068	0.0068	0.0069	0.0068			
Uranium U	mg/L				0.000039	0.000035	0.000037	0.000046	0.000046			
Vanadium V	mg/L				0.0006	0.0002	0.0006	0.0004	0.0004			
Zinc Zn	mg/L				0.0037	0.0019	0.0018	0.0054	0.0053			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Appendix I

Table I-3-b-C.3
Scenario 3 - Upper Limit Sediment Loadings, Runoff Yield 180 mm

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	150	152				
TSS				3.9	5.7	5.8	6.7	6.8				
Free CN				0.00007	0.00002	0.00002	0.00002	0.00002				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.08	0.02	0.03	0.03	0.03				
SCN				0.001	0.001	0.002	0.002	0.002				
Sulphate				3.7	3.8	4.3	4.8	5.1				
Chloride				61	62	62	67	68				
Total Ammonia				0.020	0.044	0.027	0.030	0.031				
Nitrate				0.09	0.12	0.15	0.18	0.20				
Nitrite				0.010	0.013	0.013	0.014	0.014				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0021	0.0024	0.0028	0.0033	0.0037				
Phosphate-P				0.0173	0.0188	0.0250	0.0213	0.0217				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	44	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0007	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi				0.00011	0.00020	0.00026	0.00031	0.00036				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000042	0.0000045	0.0000042	0.0000044	0.0000047				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00025	0.00026	0.00032	0.00033	0.00036				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.021	0.027	0.024	0.025				
Potassium K				3.2	2.9	3.0	3.1	3.2				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.54	0.55	0.57	0.58	0.59				
Silver Ag				0.0000053	0.0000060	0.0000061	0.0000064	0.0000066				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000026	0.0000029	0.0000031	0.0000033	0.0000034				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0050				

Appendix I

Table I-3-b-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				157	138	143	164	165				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00017	0.00000	0.00002	0.00002	0.00002				
Total CN				0.004	0.002	0.002	0.002	0.002				
WAD CN				0.0002	0.0000	0.0000	0.0000	0.0000				
CNO				0.19	0.01	0.02	0.02	0.02				
SCN				0.004	0.004	0.004	0.005	0.005				
Sulphate				6.7	6.5	6.8	7.3	7.6				
Chloride				72	72	71	76	77				
Total Ammonia				0.040	0.077	0.021	0.029	0.029				
Nitrate				0.27	0.29	0.31	0.35	0.37				
Nitrite				0.028	0.013	0.013	0.005	0.014				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0064	0.0062	0.0063	0.0068	0.0072				
Phosphate-P				0.0215	0.0226	0.0286	0.0248	0.0252				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0008	0.0013	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0033	0.0034	0.0035				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00004				
Bismuth Bi				0.00050	0.00053	0.00057	0.00062	0.00066				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000060	0.0000061	0.0000057	0.0000059	0.0000061				
Calcium Ca				19	18	18	19	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0005	0.0006	0.0013	0.0006	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000010	0.0000010				
Molybdenum Mo				0.00055	0.00053	0.00056	0.00058	0.00060				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P				0.026	0.027	0.033	0.030	0.030				
Potassium K				4.5	4.0	4.1	4.2	4.3				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.66	0.66	0.66	0.68	0.69				
Silver Ag				0.0000070	0.0000075	0.0000075	0.0000078	0.0000080				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.042	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000033	0.0000035	0.0000037	0.0000038	0.0000039				
Tin Sn				0.00046	0.00046	0.00047	0.00048	0.00048				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0019	0.0040	0.0037	0.0027	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Appendix I

Table I-3-b-C.3

Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				167	147	151	171	172				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00010								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001								
CNO				0.11								
SCN				0.006	0.005	0.005	0.005	0.005				
Sulphate				8.1	7.6	7.6	7.9	7.9				
Chloride				80	79	78	83	84				
Total Ammonia				0.032	0.050	0.018	0.019	0.019				
Nitrate				0.37	0.37	0.37	0.39	0.40				
Nitrite				0.024	0.011	0.012	0.004	0.004				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0094	0.0090	0.0090	0.0096	0.0100				
Phosphate-P				0.0245	0.0254	0.0313	0.0275	0.0279				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				49	46	46	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0011	0.0016	0.0035	0.0013	0.0013				
Arsenic As				0.0006	0.0006	0.0005	0.0005	0.0005				
Barium Ba				0.0033	0.0036	0.0034	0.0035	0.0035				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00076	0.00078	0.00081	0.00086	0.00090				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000069	0.0000067	0.0000062	0.0000062	0.0000063				
Calcium Ca				23	21	20	20	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00009	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.8	6.7	6.7				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00067	0.00062	0.00063	0.00062	0.00062				
Nickel Ni				0.0009	0.0010	0.0009	0.0009	0.0009				
Phosphorus P				0.030	0.031	0.037	0.033	0.034				
Potassium K				5.1	4.5	4.4	4.4	4.3				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.71	0.69	0.69	0.69	0.69				
Silver Ag				0.0000081	0.0000084	0.0000082	0.0000084	0.0000085				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.044	0.045	0.039	0.043	0.043				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000037	0.0000038	0.0000039	0.0000040	0.0000040				
Tin Sn				0.00050	0.00050	0.00051	0.00051	0.00052				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000029	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0022	0.0042	0.0039	0.0028	0.0029				
Zirconium Zr				0.0049	0.0049	0.0050	0.0050	0.0050				

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Table I-3-b-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				170	157	166	194	202				
TSS				3.9	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.005	0.004	0.004	0.004	0.004				
Sulphate				7.6	7.1	7.0	7.2	7.2				
Chloride				86	88	90	99	104				
Total Ammonia				0.012	0.014	0.019	0.018	0.018				
Nitrate				0.36	0.34	0.34	0.34	0.35				
Nitrite				0.009	0.003	0.003	0.003	0.003				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0115	0.0105	0.0101	0.0103	0.0103				
Phosphate-P				0.0266	0.0271	0.0326	0.0286	0.0286				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				49	46	45	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0013	0.0017	0.0036	0.0013	0.0013				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0035	0.0033	0.0034	0.0034				
Beryllium Be				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00098	0.00089	0.00086	0.00088	0.00087				
Boron B				0.035	0.023	0.024	0.024	0.024				
Cadmium Cd				0.0000066	0.0000065	0.0000061	0.0000062	0.0000062				
Calcium Ca				20	19	19	19	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0005	0.0005				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00005	0.00009	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0030	0.0030				
Magnesium Mg				7.4	6.7	6.8	6.7	6.7				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000012	0.0000013	0.0000013	0.0000014				
Molybdenum Mo				0.00059	0.00055	0.00056	0.00055	0.00055				
Nickel Ni				0.0008	0.0010	0.0008	0.0008	0.0008				
Phosphorus P				0.032	0.032	0.037	0.033	0.033				
Potassium K				4.7	4.2	4.1	4.1	4.1				
Selenium Se				0.00088	0.00058	0.00063	0.00057	0.00058				
Silicon SiO2				0.69	0.68	0.68	0.68	0.68				
Silver Ag				0.0000086	0.0000088	0.0000086	0.0000088	0.0000089				
Sodium Na				40	36	40	41	44				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000040	0.0000048	0.0000052	0.0000054	0.0000056				
Tin Sn				0.00053	0.00052	0.00052	0.00052	0.00052				
Titanium Ti				0.0059	0.0061	0.0061	0.0062	0.0062				
Uranium U				0.000029	0.000034	0.000042	0.000036	0.000036				
Vanadium V				0.0007	0.0003	0.0005	0.0004	0.0004				
Zinc Zn				0.0021	0.0041	0.0038	0.0027	0.0027				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-3-b-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				203	179	180	200	200				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.004	0.004	0.004	0.004	0.004				
Sulphate				6.9	6.4	6.4	6.6	6.6				
Chloride				106	102	99	104	104				
Total Ammonia				0.010	0.014	0.019	0.018	0.018				
Nitrate				0.31	0.29	0.29	0.30	0.30				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0100	0.0091	0.0087	0.0089	0.0089				
Phosphate-P				0.0255	0.0260	0.0316	0.0275	0.0276				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	45	46	46				
Total Metals												
Aluminum Al				0.04	0.07	0.09	0.08	0.08				
Antimony Sb				0.0012	0.0016	0.0034	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0033	0.0034	0.0034				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00085	0.00077	0.00074	0.00075	0.00075				
Boron B				0.035	0.024	0.025	0.024	0.024				
Cadmium Cd				0.0000066	0.0000065	0.0000061	0.0000062	0.0000062				
Calcium Ca				21	19	18	18	18				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0005	0.0005	0.0012	0.0005	0.0005				
Copper Cu				0.0016	0.0019	0.0016	0.0018	0.0018				
Iron Fe				0.06	0.13	0.09	0.10	0.10				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg				7.5	6.8	6.8	6.7	6.7				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000013	0.0000015	0.0000016	0.0000017	0.0000017				
Molybdenum Mo				0.00054	0.00050	0.00051	0.00050	0.00050				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P				0.030	0.030	0.036	0.032	0.031				
Potassium K				4.5	4.0	3.9	3.9	3.9				
Selenium Se				0.00090	0.00060	0.00065	0.00059	0.00060				
Silicon SiO2				0.68	0.67	0.67	0.67	0.68				
Silver Ag				0.0000089	0.0000090	0.0000088	0.0000090	0.0000091				
Sodium Na				53	46	47	45	45				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000056	0.0000063	0.0000067	0.0000070	0.0000072				
Tin Sn				0.00052	0.00050	0.00050	0.00050	0.00050				
Titanium Ti				0.0062	0.0063	0.0064	0.0065	0.0065				
Uranium U				0.000030	0.000035	0.000043	0.000037	0.000037				
Vanadium V				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn				0.0019	0.0040	0.0037	0.0026	0.0026				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-3-b-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				193	170	171	191	191				
TSS				4.0	5.8	6.0	6.9	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.004	0.003	0.003	0.003	0.003				
Sulphate				6.3	5.8	5.8	6.0	6.0				
Chloride				101	97	94	99	99				
Total Ammonia				0.005	0.009	0.014	0.013	0.013				
Nitrate				0.22	0.21	0.20	0.21	0.21				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0086	0.0078	0.0074	0.0076	0.0076				
Phosphate-P				0.0244	0.0251	0.0306	0.0266	0.0266				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.04	0.07	0.09	0.08	0.08				
Antimony Sb				0.0011	0.0014	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0031	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00072	0.00065	0.00062	0.00063	0.00063				
Boron B				0.035	0.024	0.025	0.024	0.024				
Cadmium Cd				0.0000054	0.0000053	0.0000048	0.0000049	0.0000050				
Calcium Ca				19	17	17	17	17				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.06	0.13	0.10	0.10	0.10				
Lead Pb				0.00004	0.00008	0.00006	0.00005	0.00006				
Lithium Li				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg				7.5	6.8	6.8	6.7	6.7				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000016	0.0000017	0.0000018	0.0000019	0.0000019				
Molybdenum Mo				0.00049	0.00045	0.00046	0.00045	0.00045				
Nickel Ni				0.0007	0.0009	0.0007	0.0007	0.0007				
Phosphorus P				0.028	0.028	0.033	0.029	0.029				
Potassium K				4.3	3.8	3.7	3.7	3.7				
Selenium Se				0.00092	0.00061	0.00066	0.00061	0.00061				
Silicon SiO2				0.66	0.65	0.65	0.66	0.66				
Silver Ag				0.0000073	0.0000075	0.0000073	0.0000075	0.0000075				
Sodium Na				51	45	46	44	44				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000046	0.0000052	0.0000055	0.0000058	0.0000061				
Tin Sn				0.00049	0.00048	0.00048	0.00048	0.00048				
Titanium Ti				0.0065	0.0066	0.0066	0.0067	0.0067				
Uranium U				0.000029	0.000034	0.000042	0.000036	0.000036				
Vanadium V				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn				0.0018	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-3-b-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				185	161	163	183	183				
TSS				4.1	5.9	6.0	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.003	0.002	0.003	0.003				
Sulphate				5.7	5.3	5.3	5.5	5.5				
Chloride				96	92	89	94	94				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.18	0.16	0.15	0.15	0.15				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0073	0.0066	0.0063	0.0064	0.0064				
Phosphate-P				0.0235	0.0242	0.0298	0.0257	0.0257				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	46	46				
Total Metals												
Aluminum Al				0.05	0.07	0.09	0.09	0.09				
Antimony Sb				0.0010	0.0013	0.0032	0.0010	0.0010				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0031	0.0033	0.0032	0.0033	0.0033				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00061	0.00054	0.00052	0.00053	0.00053				
Boron B				0.036	0.025	0.025	0.025	0.025				
Cadmium Cd				0.0000054	0.0000052	0.0000046	0.0000047	0.0000047				
Calcium Ca				17	16	15	15	15				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0004	0.0004				
Copper Cu				0.0015	0.0018	0.0015	0.0017	0.0017				
Iron Fe				0.06	0.14	0.10	0.10	0.11				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0030	0.0030	0.0030	0.0030	0.0030				
Magnesium Mg				7.5	6.8	6.9	6.7	6.8				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000019	0.0000020	0.0000021	0.0000021	0.0000022				
Molybdenum Mo				0.00044	0.00041	0.00042	0.00041	0.00041				
Nickel Ni				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P				0.026	0.026	0.031	0.027	0.027				
Potassium K				4.1	3.6	3.5	3.5	3.5				
Selenium Se				0.00093	0.00063	0.00068	0.00062	0.00062				
Silicon SiO2				0.65	0.64	0.64	0.65	0.65				
Silver Ag				0.0000075	0.0000075	0.0000072	0.0000073	0.0000073				
Sodium Na				50	44	45	43	43				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000060	0.0000062	0.0000064	0.0000067	0.0000068				
Tin Sn				0.00048	0.00047	0.00046	0.00047	0.00047				
Titanium Ti				0.0067	0.0068	0.0069	0.0069	0.0070				
Uranium U				0.000030	0.000035	0.000042	0.000036	0.000036				
Vanadium V				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn				0.0017	0.0038	0.0034	0.0024	0.0024				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-3-b-C.3

Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				177	154	155	175	175				
TSS				4.1	5.9	6.1	7.0	7.0				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				5.2	4.8	4.8	5.0	5.0				
Chloride				91	88	85	90	90				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.11	0.10	0.09	0.09	0.09				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0062	0.0055	0.0052	0.0053	0.0053				
Phosphate-P				0.0226	0.0234	0.0290	0.0249	0.0249				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.05	0.08	0.10	0.09	0.09				
Antimony Sb				0.0008	0.0012	0.0031	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00003	0.00003	0.00002	0.00002	0.00002				
Bismuth Bi				0.00051	0.00045	0.00042	0.00043	0.00043				
Boron B				0.036	0.025	0.026	0.025	0.025				
Cadmium Cd				0.0000051	0.0000049	0.0000044	0.0000044	0.0000045				
Calcium Ca				16	14	14	14	14				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0017	0.0015	0.0017	0.0017				
Iron Fe				0.07	0.14	0.10	0.11	0.11				
Lead Pb				0.00004	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0030	0.0030	0.0030	0.0031	0.0031				
Magnesium Mg				7.5	6.8	6.9	6.8	6.8				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000022	0.0000023	0.0000023	0.0000024	0.0000024				
Molybdenum Mo				0.00040	0.00037	0.00038	0.00037	0.00037				
Nickel Ni				0.0006	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.024	0.024	0.030	0.026	0.026				
Potassium K				3.9	3.4	3.4	3.3	3.3				
Selenium Se				0.00095	0.00064	0.00069	0.00063	0.00064				
Silicon SiO2				0.64	0.64	0.63	0.64	0.64				
Silver Ag				0.0000073	0.0000073	0.0000070	0.0000072	0.0000071				
Sodium Na				49	43	44	42	42				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000067	0.0000069	0.0000070	0.0000073	0.0000075				
Tin Sn				0.00046	0.00045	0.00045	0.00045	0.00045				
Titanium Ti				0.0069	0.0070	0.0071	0.0071	0.0072				
Uranium U				0.000030	0.000035	0.000043	0.000037	0.000037				
Vanadium V				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn				0.0016	0.0037	0.0033	0.0023	0.0023				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-3-b-C.3
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				169	147	149	169	168				
TSS				4.2	6.0	6.1	7.1	7.1				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				4.7	4.4	4.4	4.6	4.5				
Chloride				87	84	81	86	85				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.05	0.05	0.05	0.05	0.04				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0052	0.0046	0.0043	0.0044	0.0043				
Phosphate-P				0.0219	0.0227	0.0283	0.0242	0.0240				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	43	45	45				
Total Metals												
Aluminum Al				0.05	0.08	0.10	0.09	0.09				
Antimony Sb				0.0008	0.0011	0.0030	0.0008	0.0008				
Arsenic As				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00042	0.00036	0.00034	0.00035	0.00034				
Boron B				0.036	0.025	0.026	0.025	0.025				
Cadmium Cd				0.0000049	0.0000047	0.0000042	0.0000042	0.0000042				
Calcium Ca				14	13	12	12	12				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0014	0.0017	0.0015	0.0017	0.0017				
Iron Fe				0.07	0.14	0.10	0.11	0.11				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0031	0.0031	0.0031	0.0031	0.0031				
Magnesium Mg				7.5	6.8	6.9	6.8	6.8				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000024	0.0000025	0.0000025	0.0000026	0.0000026				
Molybdenum Mo				0.00036	0.00033	0.00035	0.00033	0.00033				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.023	0.023	0.028	0.024	0.024				
Potassium K				3.8	3.3	3.2	3.2	3.2				
Selenium Se				0.00096	0.00065	0.00070	0.00065	0.00064				
Silicon SiO2				0.64	0.63	0.63	0.63	0.63				
Silver Ag				0.0000071	0.0000072	0.0000068	0.0000070	0.0000067				
Sodium Na				48	42	43	41	41				
Strontium Sr				0.042	0.044	0.038	0.042	0.042				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000073	0.0000075	0.0000075	0.0000079	0.0000078				
Tin Sn				0.00045	0.00044	0.00044	0.00044	0.00044				
Titanium Ti				0.0071	0.0072	0.0072	0.0073	0.0073				
Uranium U				0.000031	0.000035	0.000043	0.000037	0.000037				
Vanadium V				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn				0.0015	0.0036	0.0033	0.0022	0.0022				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-3-b-C.3

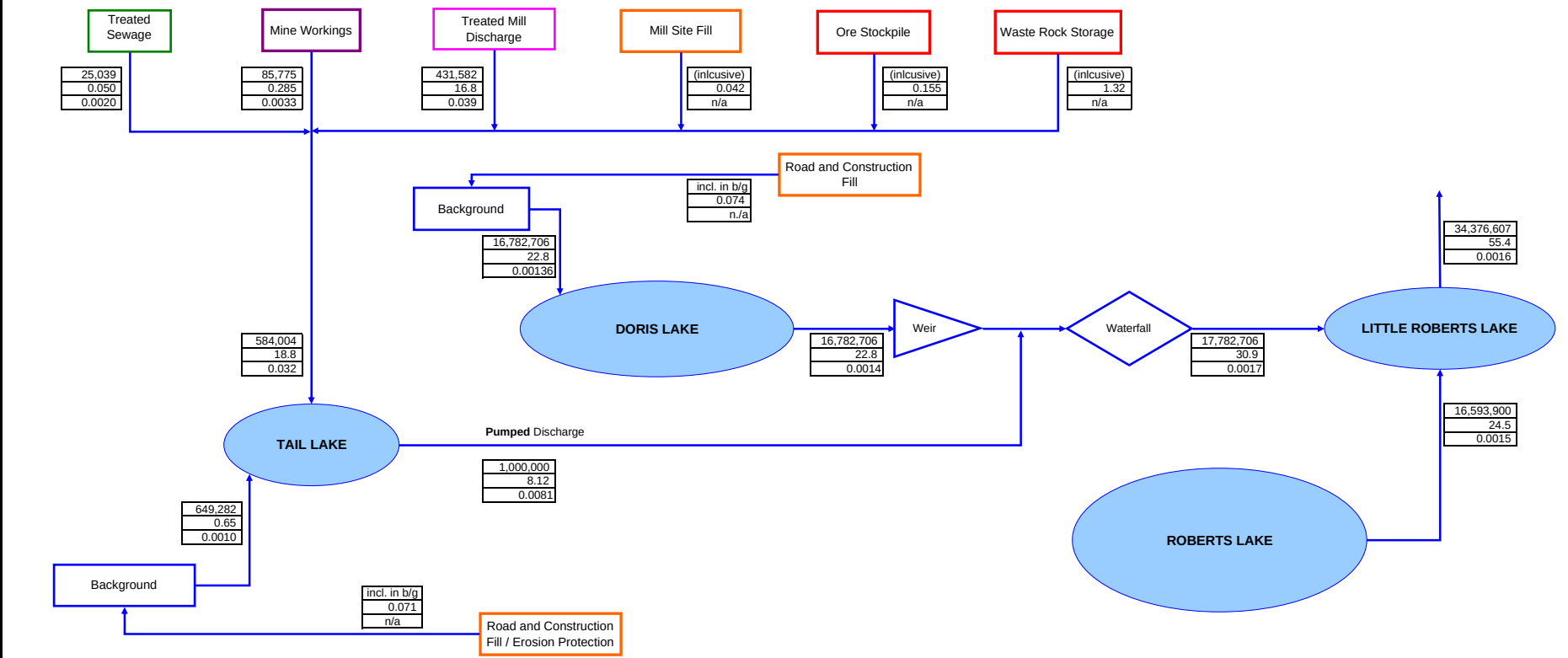
Scenario 3 - Upper Limit :

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

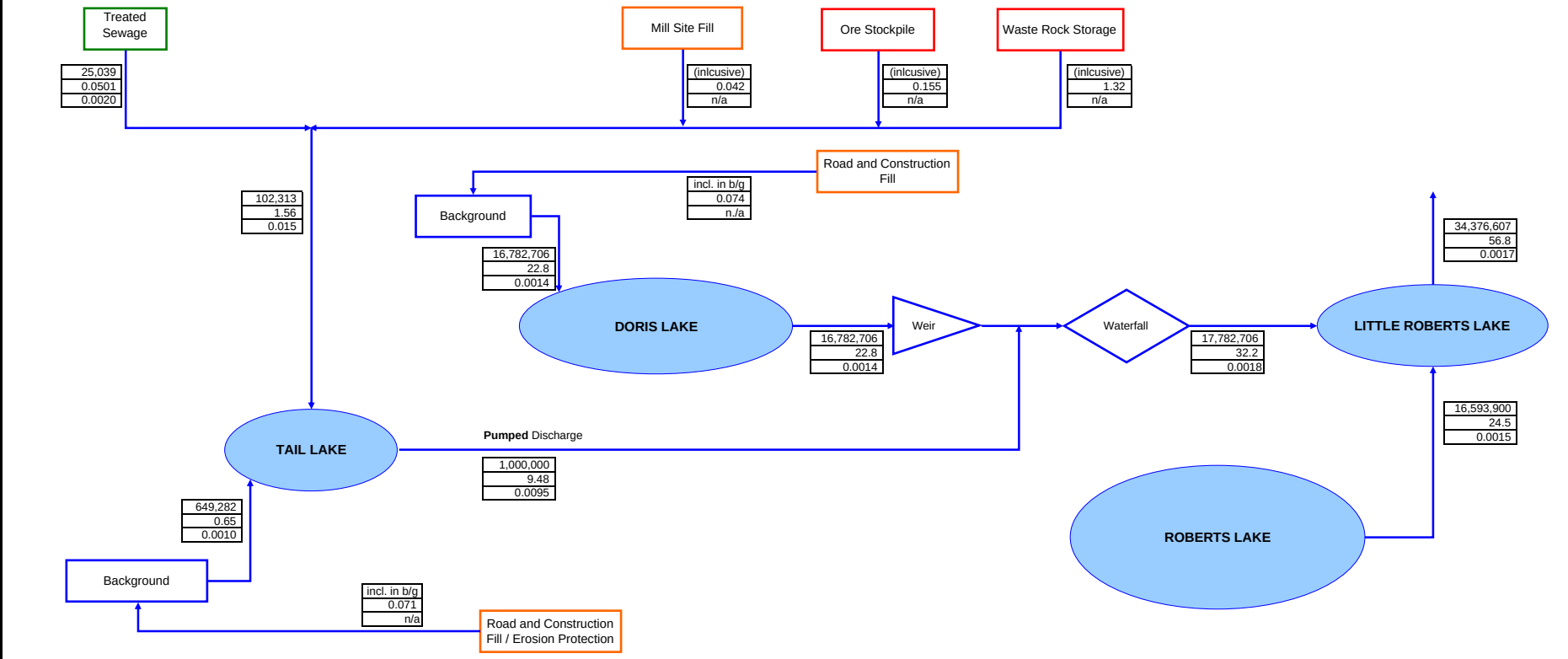
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Parameter												
TDS				161	140	142	162	161				
TSS				4.2	6.0	6.1	7.1	7.1				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				4.2	3.9	4.0	4.1	4.1				
Chloride				81	80	77	81	81				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0040	0.0035	0.0034	0.0034	0.0033				
Phosphate-P				0.0207	0.0217	0.0274	0.0233	0.0231				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.05	0.08	0.10	0.09	0.09				
Antimony Sb				0.0006	0.0011	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00031	0.00027	0.00026	0.00026	0.00025				
Boron B				0.036	0.025	0.026	0.025	0.025				
Cadmium Cd				0.0000045	0.0000044	0.0000038	0.0000039	0.0000039				
Calcium Ca				13	12	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0014	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.07	0.14	0.11	0.11	0.11				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0030	0.0031	0.0031	0.0031	0.0031				
Magnesium Mg				7.5	6.8	6.9	6.8	6.7				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000024	0.0000025	0.0000025	0.0000026	0.0000026				
Molybdenum Mo				0.00031	0.00029	0.00031	0.00030	0.00029				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.021	0.021	0.027	0.023	0.023				
Potassium K				3.6	3.1	3.1	3.0	3.0				
Selenium Se				0.00096	0.00065	0.00070	0.00065	0.00065				
Silicon SiO2				0.62	0.61	0.61	0.62	0.61				
Silver Ag				0.0000064	0.0000066	0.0000063	0.0000064	0.0000062				
Sodium Na				47	40	42	40	39				
Strontium Sr				0.042	0.043	0.037	0.042	0.041				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000072	0.0000074	0.0000075	0.0000079	0.0000077				
Tin Sn				0.00043	0.00043	0.00043	0.00043	0.00043				
Titanium Ti				0.0072	0.0072	0.0073	0.0074	0.0073				
Uranium U				0.000030	0.000035	0.000043	0.000037	0.000037				
Vanadium V				0.0008	0.0003	0.0005	0.0004	0.0004				
Zinc Zn				0.0014	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

SedCont1

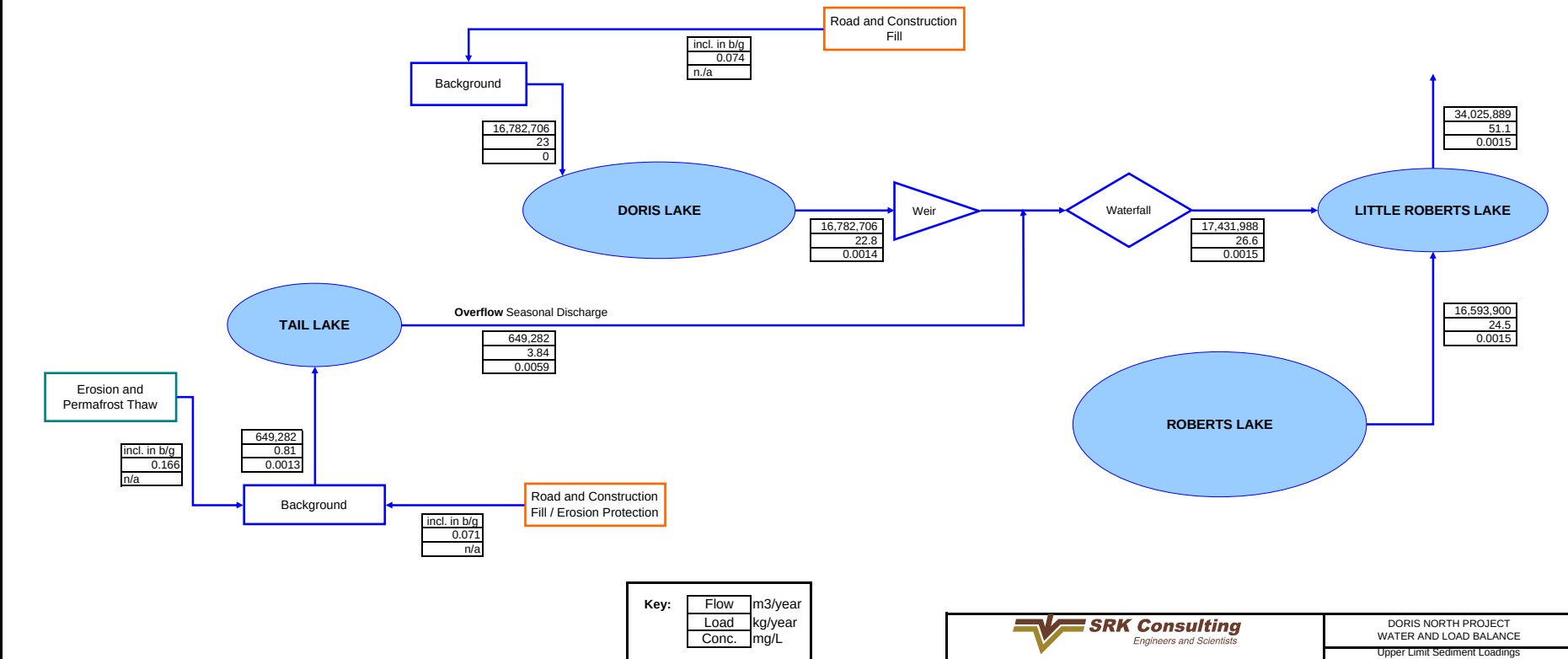
Sediment Control Option 1 - OPERATIONAL CONDITIONS
Year 2



POST MILLING OPERATIONAL CONDITIONS
Year 3



POST CLOSURE CONDITIONS
Year 5



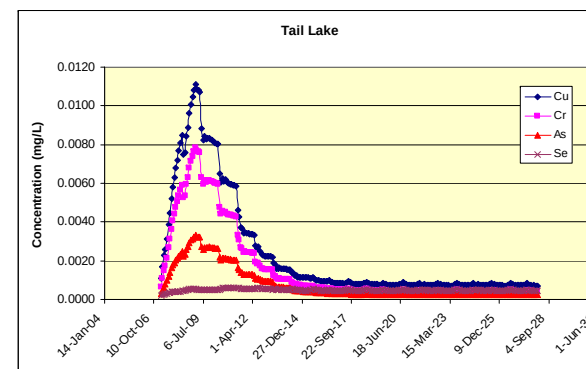
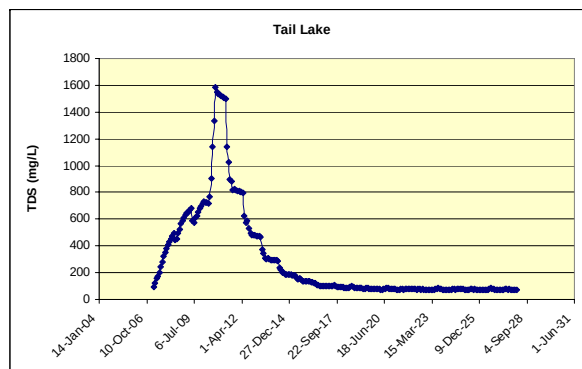
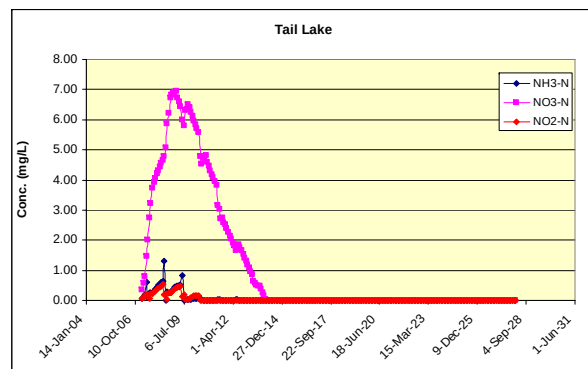
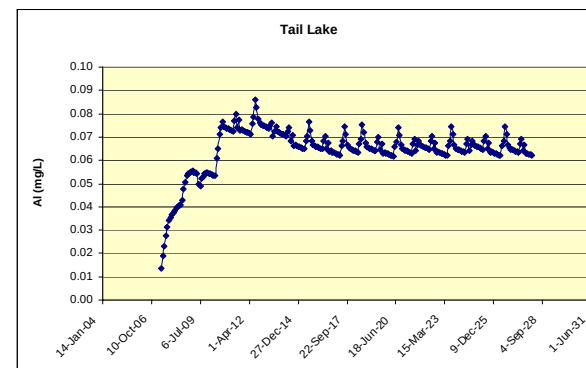
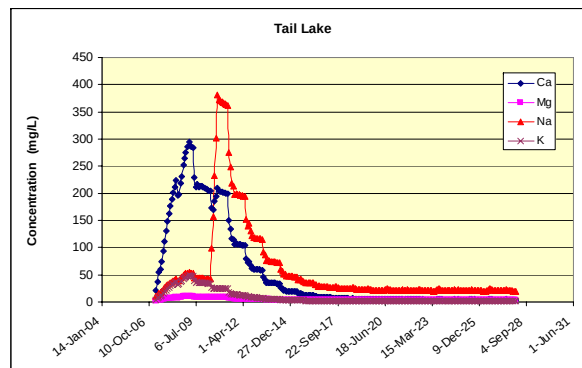
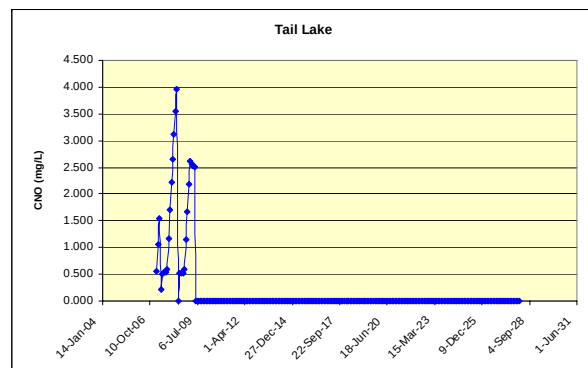
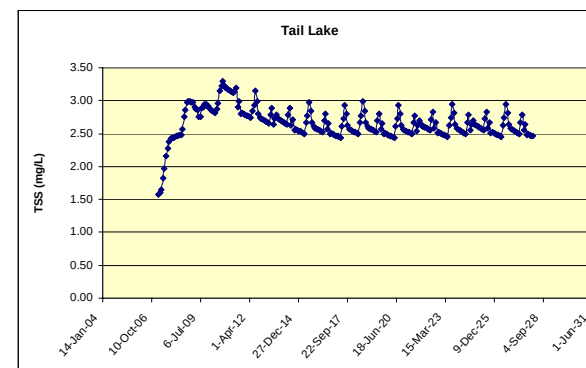
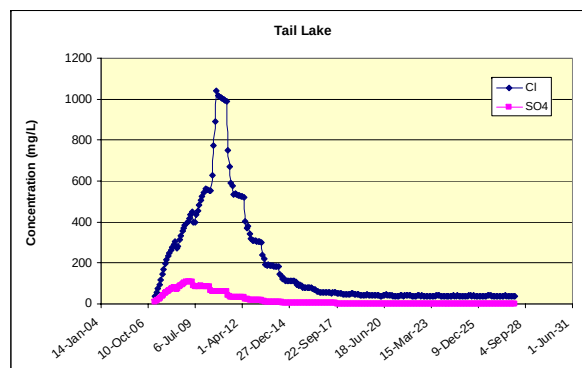
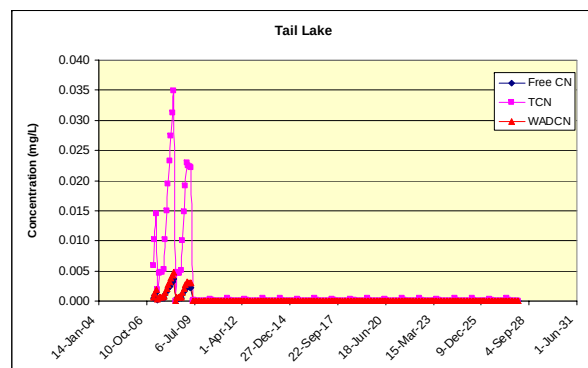
Key:

Flow	m ³ /year
Load	kg/year
Conc.	mg/L

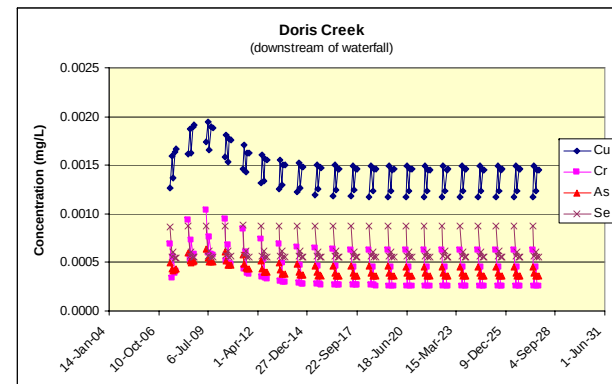
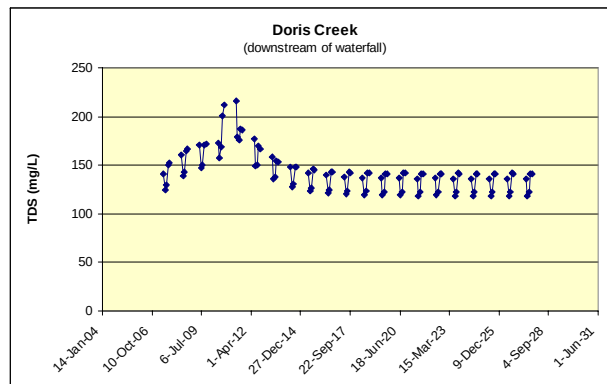
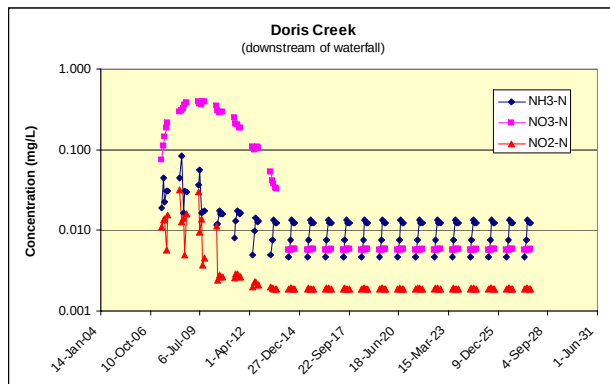
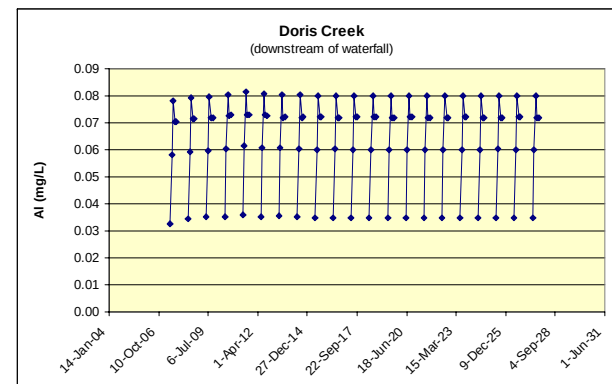
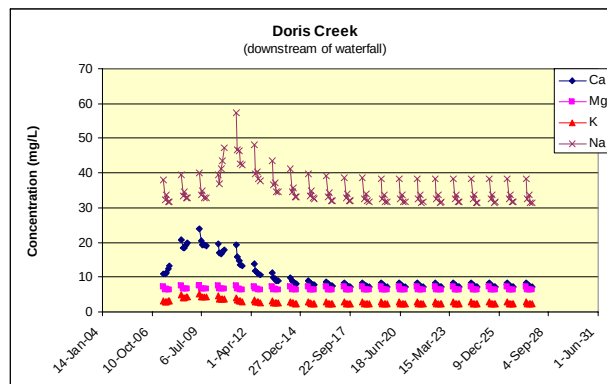
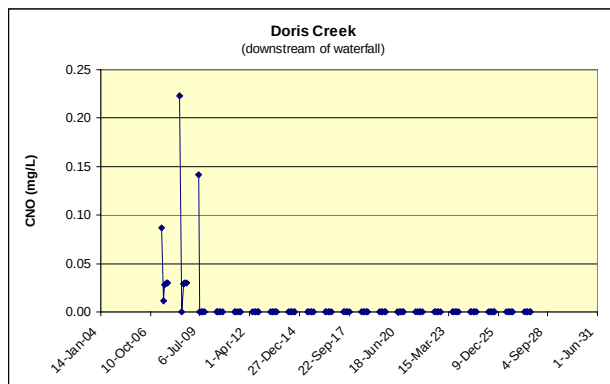
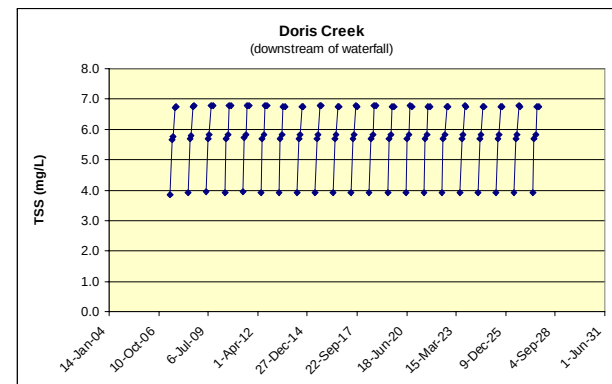
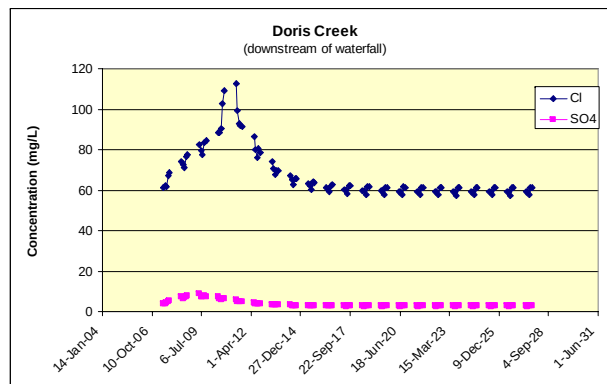
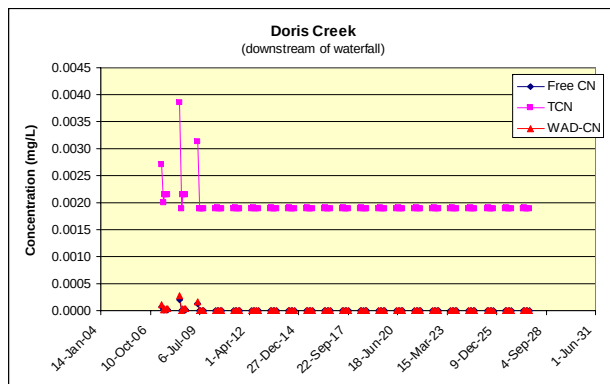
 MIRAMAR HOPE BAY LIMITED		DORIS NORTH PROJECT WATER AND LOAD BALANCE			
		Upper Limit Sediment Loadings 20 % to 29.4 Erosion Control			
PROJECT:	Date:	Approved:	FIGURE		
1CM014.06	Oct-05	JTC	I-4-a-1		

Appendix I

Sediment Control Option 1



Sediment Control Option 1



Appendix I

Table I-4-a-A.1
Scenario 3 - Sediment Control Option 1

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.3	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1043	113	91	
Total Ammonia	mg/L		0.97	1.31	0.085	0.045	9%
Nitrate	mg/L		2.9	6.9	0.39	0.21	13%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.09	0.08	0.25	81%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00072	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.032	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000067	0.0000068	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.00194	0.0021	97%
Iron Fe	mg/L		0.3	0.09	0.12	0.28	41%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.000069	0.00000101	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.306	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00062	0.0009	0.00084	88%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000089	0.0000074	9%
Sodium Na	mg/L			381	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.0020	4%
Thorium Th	mg/L			0.000047	0.0000040	0.0000021	
Tin Sn	mg/L			0.00297	0.00054	0.00009	
Titanium Ti	mg/L			0.0080	0.0061	0.0062	
Uranium U	mg/L			0.000076	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0046	0.0050	0.0051	

Table I-4-a-A.2
Scenario 3 - Sediment Control Option 1

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	173	202	245	280	321	353	381	407	429
TSS	mg/L	1.6	1.6	1.6	1.8	2.0	2.2	2.3	2.4	2.4	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00141	0.00019	0.00046	0.00049	0.00048	0.00054	0.00105	0.00155	0.00201	0.00241
Total CN	mg/L	0.006	0.010	0.015	0.002	0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0003	0.0006	0.0007	0.0006	0.0007	0.0014	0.0021	0.0027	0.0032
CNO	mg/L	0.55	1.06	1.55	0.21	0.50	0.54	0.53	0.59	1.16	1.70	2.22	2.65
SCN	mg/L	0.008	0.014	0.021	0.023	0.029	0.037	0.043	0.052	0.058	0.064	0.070	0.075
Sulphate	mg/L	7.5	13.4	19.3	23.0	28.5	36.1	42.4	49.8	55.5	60.6	65.5	69.5
Chloride	mg/L	37	57	77	95	118	147	171	197	216	233	248	262
Total Ammonia	mg/L	0.070	0.133	0.194	0.602	0.107	0.265	0.266	0.262	0.327	0.388	0.446	0.495
Nitrate	mg/L	0.35	0.58	0.80	1.45	2.02	2.75	3.22	3.73	3.91	4.06	4.20	4.31
Nitrite	mg/L	0.054	0.102	0.150	0.195	0.202	0.058	0.233	0.234	0.285	0.331	0.376	0.413
Alkalinity	mg/L	16	18	21	23	26	30	34	37	40	42	44	45
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0313	0.0381	0.0486	0.0572	0.0678	0.0765	0.0842	0.0916	0.0978
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0349	0.0416	0.0522	0.0608	0.0714	0.0800	0.0877	0.0949	0.1010
Org. Carbon	mg/L	3.0	2.9	2.8	3.1	3.4	3.6	3.6	3.6	3.6	3.5	3.3	3.3
Hardness CaCO3	mg/L	23	29	35	38	45	53	60	68	74	78	83	87
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0034	0.0046	0.0057	0.0067	0.0076	0.0080	0.0084	0.0088	0.0091
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0019	0.0020	0.0021
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0032	0.0038	0.0046	0.0053	0.0062	0.0068	0.0073	0.0078	0.0082
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00022	0.00027	0.00031	0.00035	0.00038	0.00039	0.00040	0.00041	0.00042
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00318	0.00436	0.00540	0.00636	0.00717	0.00759	0.00794	0.00827	0.00854
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.016	0.018	0.020	0.021	0.021	0.022	0.023
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000155	0.0000201	0.0000250	0.0000293	0.0000336	0.0000364	0.0000388	0.0000411	0.0000430
Calcium Ca	mg/L	21	38	54	61	74	94	111	131	148	162	176	188
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0025	0.0031	0.0039	0.0047	0.0055	0.0062	0.0068	0.0074	0.0078
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0026	0.0031	0.0039	0.0045	0.0052	0.0058	0.0063	0.0068	0.0072
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00012	0.00016	0.00019	0.00022	0.00025	0.00027	0.00028	0.00030	0.00031
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0028	0.0032	0.0034	0.0037	0.0038	0.0039	0.0040	0.0041
Magnesium Mg	mg/L	2.5	2.9	3.3	3.8	4.4	5.2	5.7	6.3	6.7	7.0	7.3	7.5
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.020	0.022
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000017	0.0000022	0.0000027	0.0000031	0.0000035	0.0000038	0.0000040	0.0000043	0.0000045
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00217	0.00265	0.00338	0.00398	0.00472	0.00532	0.00586	0.00638	0.00681
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0022	0.0027	0.0034	0.0040	0.0046	0.0051	0.0056	0.0060	0.0063
Phosphorus P	mg/L	0.020	0.033	0.047	0.056	0.069	0.087	0.102	0.120	0.133	0.145	0.156	0.165
Potassium K	mg/L	3.8	6.6	9.3	10.4	12.6	15.9	18.7	22.0	24.7	27.2	29.5	31.4
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00028	0.00031	0.00034	0.00036	0.00039	0.00040	0.00040	0.00041	0.00041
Silicon SiO2	mg/L	0.70	0.92	1.14	1.31	1.54	1.85	2.11	2.40	2.61	2.79	2.97	3.11
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000687	0.0000780	0.0000842	0.0000876	0.0000917	0.0000926	0.0000925	0.0000925	0.0000924
Sodium Na	mg/L	11	13	16	17	20	24	26	30	32	34	36	38
Strontium Sr	mg/L	0.017	0.021	0.026	0.029	0.035	0.042	0.047	0.054	0.059	0.063	0.067	0.070
Tellurium Te	mg/L	0.025	0.024	0.024	0.026	0.028	0.029	0.030	0.030	0.030	0.029	0.028	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000022	0.000025	0.000029	0.000031	0.000033	0.000034	0.000035	0.000036	0.000036
Thorium Th	mg/L				0.000008	0.000012	0.000015	0.000017	0.000018	0.000018	0.000017	0.000017	0.000016
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00054	0.00074	0.00090	0.00106	0.00118	0.00124	0.00129	0.00133	0.00137
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0033	0.0036	0.0039	0.0040	0.0041	0.0041	0.0040	0.0039	0.0038
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000034	0.000040	0.000044	0.000046	0.000047	0.000046	0.000045	0.000044	0.000043
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0018	0.0020	0.0021	0.0022	0.0023	0.0024
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0057	0.0070	0.0089	0.0107	0.0126	0.0140	0.0152	0.0164	0.0174
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0028	0.0030	0.0032	0.0033	0.0034	0.0033	0.0032	0.0031	0.0030

Table I-4-a-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	454	475	497	443	450	496	523	564	589	609	628	643
TSS	mg/L	2.5	2.5	2.5	2.5	2.6	2.8	2.9	3.0	3.0	3.0	3.0	3.0
Free CN	mg/L	0.00284	0.00322	0.00360		0.00047	0.00048	0.00048	0.00053	0.00104	0.00152	0.00198	0.00238
Total CN	mg/L	0.027	0.031	0.035		0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0038	0.0043	0.0048		0.0006	0.0006	0.0006	0.0007	0.0014	0.0020	0.0026	0.0032
CNO	mg/L	3.12	3.55	3.96		0.52	0.53	0.52	0.58	1.14	1.68	2.18	2.61
SCN	mg/L	0.080	0.085	0.090	0.078	0.079	0.087	0.092	0.100	0.106	0.110	0.115	0.118
Sulphate	mg/L	74.1	78.0	82.0	72.6	74.0	82.2	87.2	94.4	99.0	102.6	106.1	108.9
Chloride	mg/L	277	290	302	274	282	313	332	357	372	384	395	404
Total Ammonia	mg/L	0.549	0.597	0.644	1.314		0.276	0.261	0.258	0.322	0.383	0.440	0.488
Nitrate	mg/L	4.44	4.55	4.66	4.79	5.06	5.85	6.22	6.72	6.83	6.88	6.92	6.95
Nitrite	mg/L	0.454	0.490	0.526	0.179	0.209	0.045	0.240	0.241	0.290	0.336	0.379	0.416
Alkalinity	mg/L	47	49	50	46	48	52	55	58	60	62	63	64
OrthoPhosphate-P	mg/L	0.1047	0.1107	0.1167	0.1014	0.1024	0.1138	0.1204	0.1308	0.1379	0.1436	0.1490	0.1535
Phosphate-P	mg/L	0.1079	0.1138	0.1197	0.1048	0.1057	0.1172	0.1237	0.1341	0.1412	0.1467	0.1521	0.1565
Org. Carbon	mg/L	3.2	3.1	3.0	3.2	3.5	3.7	3.7	3.8	3.7	3.6	3.4	3.4
Hardness CaCO3	mg/L	91	95	99	89	91	101	106	113	118	121	124	127
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Antimony Sb	mg/L	0.0094	0.0097	0.0100	0.0099	0.0105	0.0117	0.0125	0.0134	0.0137	0.0139	0.0141	0.0142
Arsenic As	mg/L	0.0023	0.0024	0.0025	0.0022	0.0023	0.0026	0.0027	0.0029	0.0031	0.0031	0.0032	0.0033
Barium Ba	mg/L	0.0087	0.0091	0.0095	0.0085	0.0087	0.0096	0.0102	0.0110	0.0114	0.0118	0.0122	0.0125
Beryllium Be	mg/L	0.00043	0.00044	0.00045	0.00045	0.00048	0.00053	0.00055	0.00058	0.00059	0.00060	0.00060	0.00061
Bismuth Bi	mg/L	0.00887	0.00913	0.00940	0.00935	0.01001	0.01113	0.01191	0.01270	0.01299	0.01316	0.01333	0.01345
Boron B	mg/L	0.023	0.024	0.024	0.024	0.025	0.027	0.029	0.031	0.031	0.032	0.032	0.032
Cadmium Cd	mg/L	0.0000452	0.0000471	0.0000489	0.0000459	0.0000480	0.0000533	0.0000567	0.0000609	0.0000630	0.0000645	0.0000660	0.0000672
Calcium Ca	mg/L	201	213	224	195	197	219	232	252	265	276	286	295
Chromium Cr	mg/L	0.005	0.006	0.006	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.008	0.008
Cobalt Co	mg/L	0.0084	0.0089	0.0093	0.0082	0.0083	0.0092	0.0097	0.0106	0.0111	0.0116	0.0120	0.0123
Copper Cu	mg/L	0.0077	0.0081	0.0085	0.0075	0.0076	0.0084	0.0089	0.0096	0.0101	0.0105	0.0108	0.0111
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00032	0.00033	0.00035	0.00033	0.00035	0.00038	0.00041	0.00043	0.00045	0.00046	0.00047	0.00047
Lithium Li	mg/L	0.0042	0.0043	0.0044	0.0042	0.0044	0.0047	0.0050	0.0052	0.0053	0.0054	0.0054	0.0055
Magnesium Mg	mg/L	7.8	8.0	8.3	7.8	8.0	8.8	9.3	9.8	10.1	10.3	10.5	10.6
Manganese Mn	mg/L	0.023	0.024	0.026	0.023	0.023	0.025	0.027	0.029	0.031	0.032	0.033	0.034
Mercury Hg	mg/L	0.0000047	0.0000049	0.0000051	0.0000047	0.0000049	0.0000055	0.0000058	0.0000062	0.0000064	0.0000066	0.0000067	0.0000069
Molybdenum Mo	mg/L	0.00729	0.00771	0.00812	0.00706	0.00714	0.00793	0.00839	0.00912	0.00961	0.01001	0.01038	0.01069
Nickel Ni	mg/L	0.0067	0.0071	0.0074	0.0066	0.0067	0.0075	0.0079	0.0086	0.0090	0.0093	0.0096	0.0098
Phosphorus P	mg/L	0.176	0.185	0.194	0.173	0.176	0.196	0.207	0.224	0.235	0.243	0.251	0.257
Potassium K	mg/L	33.6	35.4	37.3	32.5	32.9	36.5	38.6	41.9	44.1	45.9	47.6	49.0
Selenium Se	mg/L	0.00042	0.00042	0.00042	0.00042	0.00044	0.00048	0.00050	0.00052	0.00053	0.00053	0.00053	0.00053
Silicon SiO2	mg/L	3.28	3.42	3.56	3.23	3.30	3.64	3.84	4.12	4.29	4.42	4.54	4.64
Silver Ag	mg/L	0.0000927	0.0000927	0.0000927	0.0000983	0.0001051	0.0001117	0.0001144	0.0001184	0.0001186	0.0001177	0.0001170	0.0001162
Sodium Na	mg/L	40	41	43	39	40	44	46	49	51	52	54	55
Strontium Sr	mg/L	0.074	0.077	0.080	0.072	0.074	0.081	0.086	0.092	0.096	0.099	0.101	0.104
Tellurium Te	mg/L	0.026	0.026	0.025	0.027	0.028	0.030	0.031	0.031	0.030	0.029	0.029	0.028
Thallium Tl	mg/L	0.000037	0.000037	0.000038	0.000037	0.000039	0.000043	0.000045	0.000047	0.000047	0.000048	0.000048	0.000048
Thorium Th	mg/L	0.000016	0.000015	0.000015	0.000020	0.000023	0.000025	0.000028	0.000029	0.000028	0.000027	0.000026	0.000026
Tin Sn	mg/L	0.00142	0.00145	0.00149	0.00149	0.00161	0.00179	0.00192	0.00204	0.00208	0.00210	0.00212	0.00213
Titanium Ti	mg/L	0.0038	0.0037	0.0037	0.0039	0.0041	0.0044	0.0045	0.0046	0.0046	0.0045	0.0044	0.0043
Uranium U	mg/L	0.000042	0.000041	0.000040	0.000047	0.000051	0.000055	0.000057	0.000058	0.000057	0.000055	0.000054	0.000052
Vanadium V	mg/L	0.0025	0.0026	0.0027	0.0026	0.0027	0.0030	0.0032	0.0034	0.0035	0.0035	0.0036	0.0036
Zinc Zn	mg/L	0.0185	0.0194	0.0204	0.0180	0.0183	0.0203	0.0218	0.0236	0.0247	0.0256	0.0264	0.0271
Zirconium Zr	mg/L	0.0029	0.0028	0.0028	0.0031	0.0033	0.0035	0.0036	0.0037	0.0036	0.0035	0.0034	0.0033

Table I-4-a-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	652	668	684	589	573	612	624	654	679	698	716	733
TSS	mg/L	2.9	2.9	2.9	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L	0.00232	0.00230	0.00228									
Total CN	mg/L	0.022	0.022	0.022		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0031	0.0031	0.0030									
CNO	mg/L	2.56	2.54	2.51									
SCN	mg/L	0.116	0.115	0.114	0.092	0.084	0.086	0.084	0.084	0.084	0.083	0.082	0.082
Sulphate	mg/L	107.1	106.8	106.4	88.2	83.0	85.8	85.0	86.2	86.8	86.6	86.4	86.2
Chloride	mg/L	416	434	451	399	399	435	452	481	506	525	545	563
Total Ammonia	mg/L	0.489	0.495	0.501	0.820		0.029	0.034	0.020	0.033	0.045	0.057	0.068
Nitrate	mg/L	6.72	6.58	6.45	5.98	5.81	6.30	6.35	6.49	6.41	6.25	6.11	5.97
Nitrite	mg/L	0.435	0.458	0.482	0.125	0.201	0.023	0.037	0.037	0.069	0.101	0.133	0.161
Alkalinity	mg/L	63	62	62	53	51	53	53	53	53	52	52	52
OrthoPhosphate-P	mg/L	0.1595	0.1671	0.1749	0.1501	0.1478	0.1611	0.1673	0.1789	0.1895	0.1982	0.2070	0.2149
Phosphate-P	mg/L	0.1624	0.1700	0.1778	0.1535	0.1511	0.1645	0.1707	0.1823	0.1929	0.2016	0.2104	0.2183
Org. Carbon	mg/L	3.3	3.3	3.2	3.5	3.7	4.0	4.0	4.1	4.1	4.0	4.0	4.0
Hardness CaCO3	mg/L	124	123	122	103	98	101	100	101	101	100	99	98
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0144	0.0148	0.0152	0.0142	0.0146	0.0159	0.0166	0.0175	0.0181	0.0186	0.0190	0.0194
Arsenic As	mg/L	0.0032	0.0032	0.0032	0.0027	0.0026	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
Barium Ba	mg/L	0.0122	0.0122	0.0121	0.0101	0.0095	0.0098	0.0097	0.0098	0.0098	0.0098	0.0097	0.0096
Beryllium Be	mg/L	0.00061	0.00061	0.00062	0.00059	0.00060	0.00064	0.00066	0.00068	0.00069	0.00070	0.00071	0.00072
Bismuth Bi	mg/L	0.01369	0.01409	0.01449	0.01362	0.01400	0.01528	0.01603	0.01692	0.01752	0.01794	0.01838	0.01877
Boron B	mg/L	0.032	0.032	0.032	0.029	0.029	0.030	0.031	0.031	0.032	0.032	0.032	0.032
Cadmium Cd	mg/L	0.0000658	0.0000653	0.0000648	0.0000550	0.0000524	0.0000544	0.0000540	0.0000547	0.0000547	0.0000542	0.0000537	0.0000533
Calcium Ca	mg/L	288	286	284	230	213	218	212	213	214	211	209	208
Chromium Cr	mg/L	0.008	0.008	0.008	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0121	0.0120	0.0119	0.0097	0.0090	0.0093	0.0091	0.0092	0.0092	0.0092	0.0091	0.0090
Copper Cu	mg/L	0.0109	0.0108	0.0107	0.0088	0.0082	0.0084	0.0083	0.0083	0.0084	0.0083	0.0082	0.0082
Iron Fe	mg/L	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00047	0.00047	0.00047	0.00042	0.00041	0.00043	0.00043	0.00045	0.00045	0.00045	0.00046	0.00046
Lithium Li	mg/L	0.0054	0.0053	0.0053	0.0049	0.0048	0.0051	0.0051	0.0052	0.0052	0.0052	0.0052	0.0052
Magnesium Mg	mg/L	10.5	10.4	10.4	9.2	9.0	9.4	9.4	9.6	9.6	9.6	9.5	9.5
Manganese Mn	mg/L	0.033	0.033	0.033	0.027	0.025	0.026	0.025	0.025	0.026	0.025	0.025	0.025
Mercury Hg	mg/L	0.0000067	0.0000067	0.0000066	0.0000057	0.0000054	0.0000056	0.0000056	0.0000057	0.0000057	0.0000056	0.0000056	0.0000056
Molybdenum Mo	mg/L	0.01047	0.01038	0.01030	0.00834	0.00770	0.00787	0.00768	0.00772	0.00772	0.00765	0.00758	0.00752
Nickel Ni	mg/L	0.0097	0.0096	0.0096	0.0080	0.0076	0.0078	0.0078	0.0079	0.0079	0.0079	0.0079	0.0079
Phosphorus P	mg/L	0.262	0.270	0.277	0.238	0.232	0.249	0.255	0.269	0.280	0.289	0.298	0.306
Potassium K	mg/L	47.9	47.5	47.1	38.3	35.4	36.2	35.3	35.5	35.5	35.2	34.8	34.6
Selenium Se	mg/L	0.00052	0.00051	0.00051	0.00048	0.00048	0.00050	0.00050	0.00051	0.00051	0.00050	0.00050	0.00049
Silicon SiO2	mg/L	4.54	4.51	4.47	3.78	3.57	3.68	3.64	3.67	3.67	3.64	3.61	3.58
Silver Ag	mg/L	0.0001147	0.0001148	0.0001148	0.0001146	0.0001179	0.0001233	0.0001238	0.0001264	0.0001277	0.0001275	0.0001275	0.0001275
Sodium Na	mg/L	54	53	53	45	43	44	43	44	44	43	43	43
Strontium Sr	mg/L	0.101	0.101	0.100	0.084	0.080	0.083	0.082	0.083	0.083	0.082	0.081	0.081
Tellurium Te	mg/L	0.027	0.027	0.027	0.029	0.030	0.032	0.033	0.034	0.034	0.033	0.033	0.033
Thallium Tl	mg/L	0.000047	0.000047	0.000046	0.000043	0.000042	0.000044	0.000044	0.000045	0.000045	0.000045	0.000044	0.000044
Thorium Th	mg/L	0.000025	0.000025	0.000025	0.000025	0.000026	0.000028	0.000029	0.000030	0.000030	0.000030	0.000029	0.000029
Tin Sn	mg/L	0.00217	0.00222	0.00228	0.00215	0.00223	0.00243	0.00256	0.00269	0.00278	0.00285	0.00291	0.00297
Titanium Ti	mg/L	0.0042	0.0042	0.0042	0.0044	0.0046	0.0049	0.0050	0.0051	0.0051	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000051	0.000051	0.000051	0.000054	0.000056	0.000059	0.000060	0.000061	0.000062	0.000061	0.000061	0.000060
Vanadium V	mg/L	0.0036	0.0037	0.0037	0.0034	0.0034	0.0036	0.0037	0.0038	0.0039	0.0040	0.0040	0.0041
Zinc Zn	mg/L	0.0266	0.0265	0.0263	0.0217	0.0204	0.0210	0.0210	0.0213	0.0214	0.0212	0.0211	0.0211
Zirconium Zr	mg/L	0.0032	0.0032	0.0031	0.0034	0.0035	0.0038	0.0039	0.0039	0.0039	0.0039	0.0039	0.0038

Table I-4-a-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	728	724	721	769	903	1140	1337	1583	1546	1535	1527	1521
TSS	mg/L	2.8	2.8	2.8	2.9	3.0	3.2	3.2	3.3	3.2	3.2	3.2	3.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.081	0.081	0.080	0.063	0.057	0.059	0.057	0.058	0.057	0.056	0.056	0.056
Sulphate	mg/L	85.6	85.2	84.7	66.9	61.2	62.8	61.3	62.0	60.5	60.1	59.8	59.5
Chloride	mg/L	558	556	553	555	629	775	892	1043	1018	1011	1006	1002
Total Ammonia	mg/L	0.067	0.067	0.066	0.020	0.020	0.009	0.014	0.005	0.005	0.005	0.005	0.005
Nitrate	mg/L	5.83	5.70	5.58	4.79	4.53	4.74	4.72	4.81	4.59	4.45	4.31	4.19
Nitrite	mg/L	0.160	0.159	0.158		0.006	0.004	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	51	51	51	44	43	45	44	45	44	44	44	43
OrthoPhosphate-P	mg/L	0.2133	0.2123	0.2112	0.1659	0.1513	0.1553	0.1512	0.1528	0.1492	0.1482	0.1474	0.1468
Phosphate-P	mg/L	0.2166	0.2156	0.2144	0.1707	0.1564	0.1609	0.1569	0.1586	0.1549	0.1538	0.1530	0.1524
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.3	4.6	4.7	4.8	4.7	4.6	4.6	4.6
Hardness CaCO3	mg/L	97	97	96	81	77	81	80	81	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.06	0.07	0.07	0.07	0.08	0.07	0.07	0.07	0.07
Antimony Sb	mg/L	0.0192	0.0191	0.0190	0.0150	0.0137	0.0140	0.0137	0.0138	0.0135	0.0134	0.0133	0.0133
Arsenic As	mg/L	0.0026	0.0026	0.0026	0.0022	0.0020	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Barium Ba	mg/L	0.0096	0.0095	0.0095	0.0077	0.0072	0.0075	0.0074	0.0075	0.0073	0.0072	0.0072	0.0072
Beryllium Be	mg/L	0.00071	0.00071	0.00071	0.00060	0.00057	0.00059	0.00058	0.00058	0.00057	0.00057	0.00056	0.00056
Bismuth Bi	mg/L	0.01863	0.01854	0.01845	0.01448	0.01320	0.01355	0.01319	0.01332	0.01301	0.01292	0.01285	0.01280
Boron B	mg/L	0.031	0.031	0.031	0.029	0.029	0.030	0.031	0.031	0.031	0.030	0.030	0.030
Cadmium Cd	mg/L	0.0000529	0.0000527	0.0000524	0.0000448	0.0000431	0.0000452	0.0000453	0.0000462	0.0000451	0.0000448	0.0000446	0.0000444
Calcium Ca	mg/L	206	205	204	172	169	186	194	210	205	204	203	202
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.004	0.005	0.004	0.005	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0090	0.0089	0.0089	0.0070	0.0064	0.0066	0.0064	0.0065	0.0063	0.0063	0.0062	0.0062
Copper Cu	mg/L	0.0081	0.0081	0.0080	0.0065	0.0060	0.0062	0.0061	0.0062	0.0060	0.0060	0.0060	0.0059
Iron Fe	mg/L	0.06	0.06	0.06	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Lead Pb	mg/L	0.00045	0.00045	0.00045	0.00037	0.00035	0.00037	0.00036	0.00037	0.00036	0.00036	0.00036	0.00036
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0047	0.0046	0.0049	0.0049	0.0050	0.0049	0.0049	0.0048	0.0048
Magnesium Mg	mg/L	9.5	9.4	9.4	8.2	8.0	8.4	8.4	8.5	8.3	8.3	8.2	8.2
Manganese Mn	mg/L	0.025	0.025	0.025	0.020	0.018	0.019	0.019	0.019	0.018	0.018	0.018	0.018
Mercury Hg	mg/L	0.0000055	0.0000055	0.0000055	0.0000057	0.0000060	0.0000064	0.0000066	0.0000068	0.0000066	0.0000066	0.0000065	0.0000065
Molybdenum Mo	mg/L	0.00746	0.00743	0.00739	0.00583	0.00533	0.00547	0.00533	0.00539	0.00526	0.00523	0.00520	0.00518
Nickel Ni	mg/L	0.0078	0.0078	0.0078	0.0062	0.0057	0.0059	0.0057	0.0058	0.0057	0.0056	0.0056	0.0056
Phosphorus P	mg/L	0.303	0.302	0.300	0.239	0.219	0.225	0.220	0.223	0.217	0.216	0.215	0.214
Potassium K	mg/L	34.3	34.1	33.9	27.0	24.8	25.6	25.0	25.3	24.7	24.5	24.4	24.3
Selenium Se	mg/L	0.00049	0.00049	0.00048	0.00052	0.00054	0.00058	0.00059	0.00060	0.00059	0.00059	0.00058	0.00058
Silicon SiO2	mg/L	3.55	3.54	3.52	2.98	2.82	2.93	2.91	2.95	2.89	2.87	2.85	2.84
Silver Ag	mg/L	0.0001265	0.0001259	0.0001253	0.0001198	0.0001203	0.0001247	0.0001232	0.0001250	0.0001221	0.0001213	0.0001206	0.0001202
Sodium Na	mg/L	42	42	42	99	158	232	301	381	373	370	368	367
Strontium Sr	mg/L	0.080	0.080	0.080	0.067	0.064	0.066	0.066	0.067	0.066	0.065	0.065	0.064
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.037	0.038	0.039	0.038	0.038	0.038	0.038
Thallium Tl	mg/L	0.000043	0.000043	0.000043	0.000040	0.000040	0.000042	0.000043	0.000044	0.000043	0.000042	0.000042	0.000042
Thorium Th	mg/L	0.000029	0.000029	0.000029	0.000032	0.000035	0.000038	0.000040	0.000042	0.000041	0.000041	0.000040	0.000040
Tin Sn	mg/L	0.00294	0.00293	0.00291	0.00232	0.00214	0.00221	0.00217	0.00220	0.00214	0.00213	0.00212	0.00211
Titanium Ti	mg/L	0.0050	0.0050	0.0050	0.0057	0.0061	0.0066	0.0069	0.0070	0.0069	0.0068	0.0068	0.0068
Uranium U	mg/L	0.000060	0.000060	0.000059	0.000063	0.000067	0.000071	0.000072	0.000074	0.000072	0.000072	0.000071	0.000071
Vanadium V	mg/L	0.0040	0.0040	0.0040	0.0034	0.0032	0.0033	0.0032	0.0033	0.0032	0.0032	0.0032	0.0032
Zinc Zn	mg/L	0.0209	0.0208	0.0207	0.0165	0.0152	0.0157	0.0156	0.0159	0.0155	0.0154	0.0153	0.0152
Zirconium Zr	mg/L	0.0038	0.0038	0.0038	0.0039	0.0041	0.0044	0.0045	0.0046	0.0045	0.0045	0.0044	0.0044

Table I-4-a-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1515	1507	1499	1141	1028	900	880	817	822	816	812	809
TSS	mg/L	3.2	3.1	3.1	3.1	3.2	2.9	3.0	2.8	2.8	2.8	2.8	2.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.055	0.055	0.055	0.041	0.036	0.032	0.031	0.029	0.029	0.029	0.028	0.028
Sulphate	mg/L	59.3	59.0	58.7	44.3	39.7	34.8	34.0	31.5	31.7	31.5	31.3	31.2
Chloride	mg/L	998	993	987	748	672	588	575	534	537	533	530	528
Total Ammonia	mg/L	0.005	0.005	0.005	0.039	0.020	0.009	0.014	0.004	0.005	0.004	0.004	0.004
Nitrate	mg/L	4.07	3.94	3.81	3.16	3.02	2.72	2.76	2.59	2.50	2.38	2.26	2.15
Nitrite	mg/L	0.002	0.002	0.002	0.008	0.008	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	43	43	43	37	36	32	32	30	31	30	30	30
OrthoPhosphate-P	mg/L	0.1462	0.1455	0.1446	0.1083	0.0966	0.0844	0.0821	0.0762	0.0766	0.0761	0.0757	0.0754
Phosphate-P	mg/L	0.1518	0.1510	0.1501	0.1151	0.1036	0.0907	0.0886	0.0822	0.0827	0.0822	0.0817	0.0814
Org. Carbon	mg/L	4.6	4.6	4.5	4.6	4.8	4.4	4.5	4.2	4.2	4.2	4.2	4.2
Hardness CaCO3	mg/L	78	77	77	64	61	55	55	51	51	51	51	51
Total Metals													
Aluminum Al	mg/L	0.07	0.07	0.07	0.08	0.08	0.07	0.08	0.07	0.07	0.07	0.07	0.07
Antimony Sb	mg/L	0.0132	0.0132	0.0131	0.0098	0.0088	0.0077	0.0075	0.0070	0.0070	0.0070	0.0069	0.0069
Arsenic As	mg/L	0.0020	0.0020	0.0020	0.0016	0.0016	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Barium Ba	mg/L	0.0071	0.0071	0.0071	0.0056	0.0052	0.0046	0.0046	0.0043	0.0043	0.0043	0.0043	0.0042
Beryllium Be	mg/L	0.00056	0.00056	0.00055	0.00047	0.00045	0.00039	0.00039	0.00036	0.00036	0.00036	0.00036	0.00036
Bismuth Bi	mg/L	0.01275	0.01269	0.01262	0.00943	0.00841	0.00734	0.00714	0.00663	0.00667	0.00662	0.00659	0.00656
Boron B	mg/L	0.030	0.030	0.030	0.027	0.027	0.025	0.025	0.024	0.024	0.024	0.024	0.024
Cadmium Cd	mg/L	0.0000442	0.0000440	0.0000438	0.0000370	0.0000357	0.0000321	0.0000326	0.0000306	0.0000308	0.0000306	0.0000305	0.0000303
Calcium Ca	mg/L	201	200	199	150	134	117	114	106	107	106	106	105
Chromium Cr	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0062	0.0062	0.0061	0.0046	0.0041	0.0036	0.0035	0.0033	0.0033	0.0033	0.0032	0.0032
Copper Cu	mg/L	0.0059	0.0059	0.0058	0.0046	0.0043	0.0037	0.0037	0.0034	0.0034	0.0034	0.0034	0.0034
Iron Fe	mg/L	0.08	0.08	0.08	0.08	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Lead Pb	mg/L	0.00035	0.00035	0.00035	0.00029	0.00027	0.00024	0.00024	0.00023	0.00023	0.00023	0.00022	0.00022
Lithium Li	mg/L	0.0048	0.0048	0.0048	0.0044	0.0044	0.0039	0.0040	0.0037	0.0038	0.0037	0.0037	0.0037
Magnesium Mg	mg/L	8.2	8.1	8.1	7.1	6.9	6.2	6.3	5.9	5.9	5.9	5.9	5.8
Manganese Mn	mg/L	0.018	0.018	0.018	0.014	0.013	0.011	0.011	0.010	0.010	0.010	0.010	0.010
Mercury Hg	mg/L	0.0000065	0.0000064	0.0000064	0.0000065	0.0000067	0.0000061	0.0000063	0.0000060	0.0000060	0.0000060	0.0000059	0.0000059
Molybdenum Mo	mg/L	0.00516	0.00513	0.00510	0.00385	0.00345	0.00301	0.00294	0.00272	0.00274	0.00272	0.00271	0.00270
Nickel Ni	mg/L	0.0056	0.0055	0.0055	0.0042	0.0038	0.0034	0.0033	0.0031	0.0031	0.0031	0.0031	0.0030
Phosphorus P	mg/L	0.213	0.212	0.211	0.161	0.145	0.127	0.125	0.116	0.117	0.116	0.115	0.115
Potassium K	mg/L	24.2	24.1	23.9	18.4	16.6	14.6	14.3	13.3	13.3	13.2	13.2	13.1
Selenium Se	mg/L	0.00058	0.00058	0.00057	0.00059	0.00061	0.00055	0.00057	0.00054	0.00054	0.00054	0.00053	0.00053
Silicon SiO2	mg/L	2.83	2.81	2.80	2.35	2.22	1.98	1.98	1.85	1.86	1.85	1.84	1.83
Silver Ag	mg/L	0.0001197	0.0001191	0.0001184	0.0001141	0.0001151	0.0001016	0.0001007	0.0000939	0.0000945	0.0000939	0.0000933	0.0000930
Sodium Na	mg/L	365	363	361	276	249	218	214	198	200	198	197	196
Strontium Sr	mg/L	0.064	0.064	0.064	0.053	0.051	0.045	0.045	0.042	0.043	0.042	0.042	0.042
Tellurium Te	mg/L	0.038	0.037	0.037	0.038	0.039	0.036	0.037	0.034	0.035	0.034	0.034	0.034
Thallium Tl	mg/L	0.000042	0.000042	0.000041	0.000038	0.000038	0.000035	0.000035	0.000033	0.000033	0.000033	0.000033	0.000033
Thorium Th	mg/L	0.000040	0.000040	0.000040	0.000041	0.000043	0.000040	0.000042	0.000040	0.000041	0.000040	0.000040	0.000040
Tin Sn	mg/L	0.00210	0.00209	0.00208	0.00159	0.00145	0.00128	0.00126	0.00118	0.00118	0.00117	0.00117	0.00116
Titanium Ti	mg/L	0.0067	0.0067	0.0067	0.0072	0.0075	0.0068	0.0071	0.0067	0.0067	0.0067	0.0066	0.0066
Uranium U	mg/L	0.000071	0.000071	0.000070	0.000072	0.000076	0.000068	0.000070	0.000065	0.000066	0.000065	0.000065	0.000065
Vanadium V	mg/L	0.0031	0.0031	0.0031	0.0026	0.0024	0.0022	0.0021	0.0020	0.0020	0.0020	0.0020	0.0020
Zinc Zn	mg/L	0.0152	0.0151	0.0150	0.0115	0.0104	0.0092	0.0093	0.0087	0.0088	0.0087	0.0087	0.0086
Zirconium Zr	mg/L	0.0044	0.0044	0.0044	0.0044	0.0045	0.0041	0.0043	0.0040	0.0040	0.0040	0.0040	0.0040

Table I-4-a-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	806	802	797	624	570	589	534	494	483	480	477	475
TSS	mg/L	2.8	2.8	2.7	2.8	2.9	3.1	3.0	2.8	2.7	2.7	2.7	2.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.028	0.028	0.028	0.021	0.019	0.019	0.017	0.016	0.016	0.016	0.016	0.015
Sulphate	mg/L	31.1	30.9	30.8	23.7	21.5	22.2	20.1	18.6	18.2	18.1	18.0	17.9
Chloride	mg/L	526	524	521	404	368	380	344	318	311	309	307	306
Total Ammonia	mg/L	0.004	0.004	0.004	0.038	0.020	0.010	0.015	0.005	0.005	0.005	0.005	0.005
Nitrate	mg/L	2.03	1.92	1.80	1.67	1.69	1.83	1.76	1.67	1.52	1.41	1.29	1.18
Nitrite	mg/L	0.002	0.002	0.002	0.007	0.008	0.004	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	30	30	30	27	28	29	27	25	25	25	25	24
OrthoPhosphate-P	mg/L	0.0751	0.0748	0.0743	0.0565	0.0508	0.0522	0.0470	0.0434	0.0424	0.0421	0.0419	0.0418
Phosphate-P	mg/L	0.0811	0.0807	0.0803	0.0636	0.0580	0.0599	0.0542	0.0502	0.0490	0.0487	0.0484	0.0482
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.8	4.6	4.3	4.2	4.1	4.1	4.1
Hardness CaCO3	mg/L	50	50	50	44	44	46	43	40	39	39	39	39
Total Metals													
Aluminum Al	mg/L	0.07	0.07	0.07	0.08	0.08	0.09	0.08	0.08	0.08	0.08	0.07	0.07
Antimony Sb	mg/L	0.0069	0.0068	0.0068	0.0052	0.0047	0.0048	0.0044	0.0040	0.0039	0.0039	0.0039	0.0039
Arsenic As	mg/L	0.0013	0.0013	0.0013	0.0011	0.0010	0.0011	0.0010	0.0010	0.0009	0.0009	0.0009	0.0009
Barium Ba	mg/L	0.0042	0.0042	0.0042	0.0035	0.0033	0.0035	0.0033	0.0030	0.0030	0.0029	0.0029	0.0029
Beryllium Be	mg/L	0.00035	0.00035	0.00035	0.00032	0.00031	0.00032	0.00030	0.00028	0.00027	0.00027	0.00027	0.00026
Bismuth Bi	mg/L	0.00654	0.00650	0.00647	0.00490	0.00440	0.00452	0.00407	0.00376	0.00367	0.00365	0.00363	0.00361
Boron B	mg/L	0.023	0.023	0.023	0.023	0.023	0.025	0.024	0.022	0.022	0.021	0.021	0.021
Cadmium Cd	mg/L	0.0000302	0.0000301	0.0000299	0.0000268	0.0000266	0.0000284	0.0000270	0.0000254	0.0000248	0.0000246	0.0000245	0.0000244
Calcium Ca	mg/L	105	104	104	80	72	74	67	62	61	60	60	60
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0032	0.0032	0.0032	0.0024	0.0022	0.0023	0.0021	0.0019	0.0019	0.0018	0.0018	0.0018
Copper Cu	mg/L	0.0034	0.0034	0.0033	0.0028	0.0026	0.0027	0.0025	0.0023	0.0023	0.0022	0.0022	0.0022
Iron Fe	mg/L	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08
Lead Pb	mg/L	0.00022	0.00022	0.00022	0.00019	0.00019	0.00020	0.00018	0.00017	0.00017	0.00017	0.00017	0.00017
Lithium Li	mg/L	0.0037	0.0037	0.0036	0.0036	0.0036	0.0039	0.0036	0.0034	0.0033	0.0033	0.0033	0.0033
Magnesium Mg	mg/L	5.8	5.8	5.8	5.4	5.4	5.8	5.4	5.1	4.9	4.9	4.9	4.9
Manganese Mn	mg/L	0.010	0.010	0.010	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.006
Mercury Hg	mg/L	0.0000059	0.0000059	0.0000058	0.0000061	0.0000063	0.0000068	0.0000065	0.0000061	0.0000059	0.0000059	0.0000059	0.0000059
Molybdenum Mo	mg/L	0.00269	0.00267	0.00266	0.00205	0.00186	0.00191	0.00172	0.00159	0.00156	0.00155	0.00154	0.00153
Nickel Ni	mg/L	0.0030	0.0030	0.0030	0.0024	0.0022	0.0023	0.0021	0.0019	0.0019	0.0019	0.0019	0.0019
Phosphorus P	mg/L	0.114	0.114	0.113	0.089	0.081	0.084	0.077	0.071	0.069	0.069	0.069	0.068
Potassium K	mg/L	13.1	13.0	12.9	10.3	9.4	9.8	8.9	8.2	8.0	8.0	7.9	7.9
Selenium Se	mg/L	0.00053	0.00053	0.00052	0.00055	0.00057	0.00062	0.00059	0.00055	0.00054	0.00053	0.00053	0.00053
Silicon SiO2	mg/L	1.82	1.81	1.80	1.61	1.57	1.66	1.55	1.44	1.41	1.40	1.39	1.39
Silver Ag	mg/L	0.0000926	0.0000922	0.0000917	0.0000940	0.0000971	0.0001011	0.0000927	0.0000862	0.0000843	0.0000837	0.0000832	0.0000829
Sodium Na	mg/L	196	195	194	152	140	145	131	122	119	118	117	117
Strontium Sr	mg/L	0.042	0.042	0.041	0.037	0.036	0.038	0.036	0.033	0.033	0.032	0.032	0.032
Tellurium Te	mg/L	0.034	0.034	0.034	0.035	0.037	0.039	0.037	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000033	0.000033	0.000032	0.000032	0.000032	0.000035	0.000033	0.000031	0.000030	0.000030	0.000030	0.000030
Thorium Th	mg/L	0.000040	0.000040	0.000039	0.000041	0.000043	0.000047	0.000046	0.000043	0.000042	0.000042	0.000042	0.000041
Tin Sn	mg/L	0.00116	0.00115	0.00115	0.00090	0.00085	0.00088	0.00081	0.00075	0.00074	0.00073	0.00073	0.00072
Titanium Ti	mg/L	0.0066	0.0065	0.0065	0.0070	0.0073	0.0079	0.0075	0.0071	0.0069	0.0069	0.0068	0.0068
Uranium U	mg/L	0.000065	0.000064	0.000064	0.000068	0.000071	0.000076	0.000071	0.000067	0.000065	0.000065	0.000065	0.000064
Vanadium V	mg/L	0.0020	0.0020	0.0019	0.0017	0.0017	0.0018	0.0016	0.0015	0.0015	0.0015	0.0014	0.0014
Zinc Zn	mg/L	0.0086	0.0086	0.0085	0.0067	0.0062	0.0065	0.0062	0.0058	0.0057	0.0057	0.0056	0.0056
Zirconium Zr	mg/L	0.0040	0.0040	0.0039	0.0041	0.0042	0.0046	0.0044	0.0041	0.0040	0.0040	0.0039	0.0039

Table I-4-a-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	473	471	468	374	345	305	301	306	299	297	295	294
TSS	mg/L	2.7	2.7	2.7	2.8	2.9	2.6	2.7	2.8	2.7	2.7	2.7	2.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.015	0.015	0.015	0.011	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008
Sulphate	mg/L	17.8	17.7	17.6	13.6	12.4	10.9	10.7	10.9	10.6	10.5	10.5	10.4
Chloride	mg/L	305	303	301	237	218	192	190	192	188	186	185	185
Total Ammonia	mg/L	0.005	0.004	0.004		0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.07	0.96	0.85	0.64	0.57	0.50	0.48	0.49	0.37	0.26	0.15	0.04
Nitrite	mg/L	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	24	24	24	23	24	22	22	22	22	22	22	22
OrthoPhosphate-P	mg/L	0.0416	0.0414	0.0411	0.0313	0.0281	0.0246	0.0240	0.0243	0.0237	0.0236	0.0234	0.0233
Phosphate-P	mg/L	0.0480	0.0478	0.0475	0.0387	0.0356	0.0315	0.0310	0.0314	0.0307	0.0305	0.0303	0.0302
Org. Carbon	mg/L	4.1	4.1	4.0	4.2	4.5	4.1	4.2	4.3	4.2	4.2	4.1	4.1
Hardness CaCO3	mg/L	39	38	38	35	36	32	33	34	33	33	33	32
Total Metals													
Aluminum Al	mg/L	0.07	0.07	0.07	0.07	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Antimony Sb	mg/L	0.0039	0.0038	0.0038	0.0029	0.0026	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022	0.0022
Arsenic As	mg/L	0.0009	0.0009	0.0009	0.0008	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Barium Ba	mg/L	0.0029	0.0029	0.0029	0.0025	0.0024	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022
Beryllium Be	mg/L	0.00026	0.00026	0.00026	0.00024	0.00023	0.00020	0.00020	0.00020	0.00019	0.00019	0.00019	0.00019
Bismuth Bi	mg/L	0.00360	0.00358	0.00356	0.00268	0.00239	0.00209	0.00204	0.00206	0.00201	0.00200	0.00199	0.00198
Boron B	mg/L	0.021	0.021	0.021	0.020	0.020	0.019	0.019	0.020	0.019	0.019	0.019	0.019
Cadmium Cd	mg/L	0.0000243	0.0000242	0.0000240	0.0000191	0.0000176	0.0000155	0.0000153	0.0000155	0.0000151	0.0000150	0.0000150	0.0000149
Calcium Ca	mg/L	59	59	59	45	41	36	35	36	35	35	35	34
Chromium Cr	mg/L	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0018	0.0018	0.0018	0.0014	0.0012	0.0011	0.0011	0.0011	0.0011	0.0010	0.0010	0.0010
Copper Cu	mg/L	0.0022	0.0022	0.0022	0.0019	0.0018	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
Iron Fe	mg/L	0.08	0.08	0.08	0.08	0.09	0.08	0.08	0.09	0.08	0.08	0.08	0.08
Lead Pb	mg/L	0.00016	0.00016	0.00016	0.00014	0.00013	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011
Lithium Li	mg/L	0.0033	0.0033	0.0032	0.0033	0.0033	0.0030	0.0031	0.0032	0.0031	0.0031	0.0031	0.0031
Magnesium Mg	mg/L	4.8	4.8	4.8	4.6	4.7	4.3	4.4	4.5	4.4	4.4	4.4	4.3
Manganese Mn	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004
Mercury Hg	mg/L	0.0000058	0.0000058	0.0000058	0.0000058	0.0000059	0.0000053	0.0000055	0.0000056	0.0000055	0.0000054	0.0000054	0.0000054
Molybdenum Mo	mg/L	0.00153	0.00152	0.00151	0.00117	0.00107	0.00094	0.00092	0.00093	0.00091	0.00090	0.00090	0.00090
Nickel Ni	mg/L	0.0019	0.0018	0.0018	0.0015	0.0014	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Phosphorus P	mg/L	0.068	0.068	0.067	0.052	0.047	0.041	0.040	0.041	0.040	0.040	0.039	0.039
Potassium K	mg/L	7.9	7.8	7.8	6.3	5.9	5.2	5.2	5.3	5.2	5.1	5.1	5.1
Selenium Se	mg/L	0.00053	0.00052	0.00052	0.00054	0.00055	0.00050	0.00052	0.00053	0.00051	0.00051	0.00051	0.00051
Silicon SiO2	mg/L	1.38	1.38	1.37	1.25	1.23	1.10	1.12	1.14	1.11	1.11	1.10	1.09
Silver Ag	mg/L	0.0000826	0.0000822	0.0000817	0.0000822	0.0000838	0.0000734	0.0000717	0.0000725	0.0000708	0.0000703	0.0000699	0.0000697
Sodium Na	mg/L	116	116	115	93	86	76	75	76	75	74	74	74
Strontium Sr	mg/L	0.032	0.032	0.032	0.029	0.029	0.026	0.027	0.028	0.027	0.027	0.027	0.027
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000030	0.000029	0.000029	0.000028	0.000028	0.000026	0.000026	0.000027	0.000026	0.000026	0.000026	0.000026
Thorium Th	mg/L	0.000041	0.000041	0.000041	0.000035	0.000034	0.000030	0.000030	0.000031	0.000030	0.000030	0.000030	0.000030
Tin Sn	mg/L	0.00072	0.00072	0.00071	0.00056	0.00053	0.00047	0.00047	0.00048	0.00047	0.00047	0.00046	0.00046
Titanium Ti	mg/L	0.0068	0.0067	0.0067	0.0072	0.0075	0.0068	0.0071	0.0073	0.0071	0.0070	0.0070	0.0070
Uranium U	mg/L	0.000064	0.000064	0.000063	0.000061	0.000061	0.000054	0.000053	0.000054	0.000053	0.000052	0.000052	0.000052
Vanadium V	mg/L	0.0014	0.0014	0.0014	0.0013	0.0013	0.0011	0.0011	0.0012	0.0011	0.0011	0.0011	0.0011
Zinc Zn	mg/L	0.0056	0.0056	0.0055	0.0044	0.0040	0.0036	0.0039	0.0040	0.0039	0.0039	0.0038	0.0038
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0039	0.0040	0.0037	0.0038	0.0038	0.0038	0.0037	0.0037	0.0037

Table I-4-a-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	293	291	289	239	225	199	198	185	186	185	184	183
TSS	mg/L	2.7	2.7	2.6	2.8	2.9	2.6	2.7	2.6	2.6	2.6	2.5	2.5
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.008	0.008	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Sulphate	mg/L	10.4	10.4	10.3	8.1	7.5	6.6	6.5	6.0	6.1	6.0	6.0	6.0
Chloride	mg/L	184	183	182	147	137	122	121	112	113	112	112	111
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	21	21	21	21	22	20	20	19	19	19	19	19
OrthoPhosphate-P	mg/L	0.0233	0.0231	0.0230	0.0176	0.0158	0.0139	0.0136	0.0126	0.0127	0.0126	0.0125	0.0125
Phosphate-P	mg/L	0.0301	0.0299	0.0297	0.0253	0.0236	0.0209	0.0207	0.0193	0.0194	0.0193	0.0192	0.0191
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.1	4.2	3.9	4.0	3.9	3.9	3.9
Hardness CaCO3	mg/L	32	32	32	31	32	29	29	28	28	28	28	27
Total Metals													
Aluminum Al	mg/L	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Antimony Sb	mg/L	0.0022	0.0022	0.0022	0.0017	0.0015	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012
Arsenic As	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004
Barium Ba	mg/L	0.0022	0.0022	0.0021	0.0019	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017
Beryllium Be	mg/L	0.00019	0.00019	0.00019	0.00018	0.00018	0.00016	0.00015	0.00014	0.00014	0.00014	0.00014	0.00014
Bismuth Bi	mg/L	0.00197	0.00196	0.00195	0.00146	0.00130	0.00114	0.00111	0.00103	0.00103	0.00102	0.00102	0.00102
Boron B	mg/L	0.019	0.019	0.019	0.018	0.019	0.017	0.018	0.017	0.017	0.017	0.017	0.017
Cadmium Cd	mg/L	0.0000148	0.0000148	0.0000147	0.0000120	0.0000112	0.0000100	0.0000099	0.0000092	0.0000093	0.0000092	0.0000092	0.0000091
Calcium Ca	mg/L	34	34	34	27	24	21	21	20	20	20	20	19
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0010	0.0010	0.0010	0.0008	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Copper Cu	mg/L	0.0016	0.0015	0.0015	0.0014	0.0014	0.0012	0.0012	0.0011	0.0012	0.0011	0.0011	0.0011
Iron Fe	mg/L	0.08	0.08	0.08	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Lead Pb	mg/L	0.00011	0.00011	0.00011	0.00009	0.00009	0.00008	0.00008	0.00007	0.00007	0.00007	0.00007	0.00007
Lithium Li	mg/L	0.0030	0.0030	0.0030	0.0031	0.0032	0.0029	0.0030	0.0028	0.0028	0.0028	0.0028	0.0028
Magnesium Mg	mg/L	4.3	4.3	4.3	4.3	4.4	4.0	4.1	3.9	3.9	3.9	3.8	3.8
Manganese Mn	mg/L	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Mercury Hg	mg/L	0.0000054	0.0000053	0.0000053	0.0000054	0.0000055	0.0000051	0.0000052	0.0000049	0.0000049	0.0000049	0.0000049	0.0000048
Molybdenum Mo	mg/L	0.00089	0.00089	0.00088	0.00070	0.00064	0.00057	0.00056	0.00052	0.00052	0.00052	0.00052	0.00051
Nickel Ni	mg/L	0.0012	0.0012	0.0012	0.0010	0.0010	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Phosphorus P	mg/L	0.039	0.039	0.039	0.031	0.028	0.024	0.024	0.022	0.022	0.022	0.022	0.022
Potassium K	mg/L	5.1	5.0	5.0	4.2	4.0	3.6	3.6	3.4	3.4	3.4	3.3	3.3
Selenium Se	mg/L	0.00050	0.00050	0.00050	0.00052	0.00054	0.00049	0.00050	0.00047	0.00048	0.00047	0.00047	0.00047
Silicon SiO2	mg/L	1.09	1.08	1.08	1.03	1.03	0.93	0.95	0.89	0.90	0.89	0.89	0.88
Silver Ag	mg/L	0.0000694	0.0000690	0.0000686	0.0000726	0.0000752	0.0000657	0.0000642	0.0000596	0.0000599	0.0000595	0.0000592	0.0000590
Sodium Na	mg/L	73	73	72	60	57	51	51	47	48	47	47	47
Strontium Sr	mg/L	0.027	0.026	0.026	0.025	0.026	0.023	0.024	0.023	0.023	0.023	0.023	0.022
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.032	0.033	0.032	0.032	0.032
Thallium Tl	mg/L	0.000026	0.000025	0.000025	0.000025	0.000026	0.000023	0.000024	0.000022	0.000022	0.000022	0.000022	0.000022
Thorium Th	mg/L	0.000030	0.000029	0.000029	0.000027	0.000026	0.000024	0.000024	0.000022	0.000022	0.000022	0.000022	0.000022
Tin Sn	mg/L	0.00046	0.00046	0.00045	0.00036	0.00035	0.00032	0.00032	0.00030	0.00030	0.00030	0.00030	0.00030
Titanium Ti	mg/L	0.0069	0.0069	0.0069	0.0073	0.0076	0.0069	0.0072	0.0068	0.0068	0.0067	0.0067	0.0067
Uranium U	mg/L	0.000052	0.000051	0.000051	0.000052	0.000053	0.000046	0.000046	0.000043	0.000043	0.000043	0.000043	0.000042
Vanadium V	mg/L	0.0011	0.0011	0.0011	0.0011	0.0011	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
Zinc Zn	mg/L	0.0038	0.0038	0.0038	0.0031	0.0029	0.0026	0.0028	0.0027	0.0027	0.0027	0.0027	0.0027
Zirconium Zr	mg/L	0.0037	0.0037	0.0036	0.0038	0.0039	0.0035	0.0036	0.0034	0.0034	0.0034	0.0034	0.0034

Table I-4-a-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	182	181	180	158	153	161	149	139	136	135	134	134
TSS	mg/L	2.5	2.5	2.5	2.7	2.8	3.0	2.8	2.7	2.6	2.6	2.6	2.6
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Sulphate	mg/L	6.0	5.9	5.9	4.8	4.6	4.8	4.4	4.1	4.0	4.0	4.0	3.9
Chloride	mg/L	111	110	110	94	90	95	88	82	80	79	79	78
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	19	19	19	19	20	22	20	19	19	19	18	18
OrthoPhosphate-P	mg/L	0.0124	0.0124	0.0123	0.0097	0.0088	0.0091	0.0083	0.0077	0.0075	0.0075	0.0074	0.0074
Phosphate-P	mg/L	0.0190	0.0189	0.0188	0.0172	0.0165	0.0173	0.0159	0.0148	0.0144	0.0143	0.0143	0.0142
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.4	4.7	4.4	4.1	4.0	4.0	4.0	4.0
Hardness CaCO3	mg/L	27	27	27	27	28	30	29	27	26	26	26	26
Total Metals													
Aluminum Al	mg/L	0.07	0.07	0.06	0.07	0.07	0.08	0.07	0.07	0.07	0.07	0.07	0.07
Antimony Sb	mg/L	0.0012	0.0012	0.0012	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Arsenic As	mg/L	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003
Barium Ba	mg/L	0.0017	0.0017	0.0017	0.0016	0.0016	0.0017	0.0017	0.0016	0.0015	0.0015	0.0015	0.0015
Beryllium Be	mg/L	0.00014	0.00014	0.00014	0.00015	0.00015	0.00015	0.00014	0.00013	0.00012	0.00012	0.00012	0.00012
Bismuth Bi	mg/L	0.00101	0.00101	0.00100	0.00076	0.00068	0.00070	0.00063	0.00059	0.00057	0.00057	0.00056	0.00056
Boron B	mg/L	0.016	0.016	0.016	0.017	0.017	0.019	0.018	0.017	0.016	0.016	0.016	0.016
Cadmium Cd	mg/L	0.0000091	0.0000090	0.0000090	0.0000078	0.0000075	0.0000079	0.0000073	0.0000068	0.0000067	0.0000066	0.0000066	0.0000065
Calcium Ca	mg/L	19	19	19	16	15	15	14	13	13	13	13	13
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0006	0.0006	0.0006	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Copper Cu	mg/L	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010
Iron Fe	mg/L	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08
Lead Pb	mg/L	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00006
Lithium Li	mg/L	0.0028	0.0027	0.0027	0.0029	0.0030	0.0032	0.0031	0.0029	0.0028	0.0028	0.0028	0.0027
Magnesium Mg	mg/L	3.8	3.8	3.8	3.9	4.0	4.4	4.1	3.9	3.8	3.8	3.8	3.7
Manganese Mn	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Mercury Hg	mg/L	0.0000048	0.0000048	0.0000048	0.0000050	0.0000052	0.0000056	0.0000053	0.0000050	0.0000048	0.0000048	0.0000048	0.0000048
Molybdenum Mo	mg/L	0.00051	0.00051	0.00051	0.00042	0.00040	0.00042	0.00038	0.00035	0.00035	0.00034	0.00034	0.00034
Nickel Ni	mg/L	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006
Phosphorus P	mg/L	0.022	0.022	0.022	0.018	0.017	0.017	0.016	0.014	0.014	0.014	0.014	0.014
Potassium K	mg/L	3.3	3.3	3.3	3.0	2.9	3.1	2.9	2.7	2.6	2.6	2.6	2.6
Selenium Se	mg/L	0.00047	0.00046	0.00046	0.00049	0.00051	0.00055	0.00052	0.00049	0.00048	0.00047	0.00047	0.00047
Silicon SiO2	mg/L	0.88	0.87	0.87	0.87	0.89	0.95	0.90	0.84	0.82	0.82	0.81	0.81
Silver Ag	mg/L	0.0000587	0.0000584	0.0000581	0.0000644	0.0000678	0.0000698	0.0000630	0.0000582	0.0000569	0.0000565	0.0000562	0.0000559
Sodium Na	mg/L	47	46	46	41	40	42	39	37	36	36	35	35
Strontium Sr	mg/L	0.022	0.022	0.022	0.022	0.023	0.025	0.024	0.022	0.022	0.021	0.021	0.021
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.038	0.036	0.034	0.033	0.033	0.033	0.032
Thallium Tl	mg/L	0.000022	0.000022	0.000022	0.000023	0.000023	0.000025	0.000024	0.000022	0.000022	0.000021	0.000021	0.000021
Thorium Th	mg/L	0.000022	0.000022	0.000022	0.000021	0.000021	0.000023	0.000021	0.000020	0.000019	0.000019	0.000019	0.000019
Tin Sn	mg/L	0.00030	0.00030	0.00029	0.00024	0.00025	0.00027	0.00025	0.00024	0.00023	0.00023	0.00023	0.00023
Titanium Ti	mg/L	0.0067	0.0066	0.0066	0.0071	0.0074	0.0079	0.0076	0.0071	0.0069	0.0069	0.0069	0.0068
Uranium U	mg/L	0.000042	0.000042	0.000042	0.000045	0.000046	0.000048	0.000044	0.000041	0.000040	0.000040	0.000040	0.000039
Vanadium V	mg/L	0.0009	0.0009	0.0009	0.0009	0.0009	0.0010	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008
Zinc Zn	mg/L	0.0027	0.0027	0.0027	0.0023	0.0021	0.0023	0.0024	0.0023	0.0023	0.0023	0.0022	0.0022
Zirconium Zr	mg/L	0.0034	0.0033	0.0033	0.0035	0.0036	0.0039	0.0037	0.0035	0.0034	0.0034	0.0034	0.0033

Table I-4-a-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	133	133	132	121	120	108	110	103	104	103	102
TSS	mg/L	2.6	2.5	2.5	2.7	2.8	2.6	2.6	2.5	2.5	2.5	2.5
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Sulphate	mg/L	3.9	3.9	3.9	3.3	3.2	2.9	2.9	2.7	2.7	2.7	2.7
Chloride	mg/L	78	78	77	69	68	61	62	58	59	58	58
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	18	18	18	19	20	18	19	17	18	17	17
OrthoPhosphate-P	mg/L	0.0074	0.0073	0.0073	0.0059	0.0054	0.0048	0.0048	0.0044	0.0045	0.0044	0.0044
Phosphate-P	mg/L	0.0142	0.0141	0.0140	0.0136	0.0132	0.0119	0.0119	0.0111	0.0112	0.0111	0.0111
Org. Carbon	mg/L	4.0	3.9	3.9	4.2	4.4	4.0	4.1	3.9	3.9	3.9	3.8
Hardness CaCO3	mg/L	26	26	26	26	27	25	26	24	25	24	24
Total Metals												
Aluminum Al	mg/L	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06
Antimony Sb	mg/L	0.0008	0.0007	0.0007	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic As	mg/L	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Barium Ba	mg/L	0.0015	0.0015	0.0015	0.0014	0.0015	0.0014	0.0014	0.0013	0.0014	0.0013	0.0013
Beryllium Be	mg/L	0.00012	0.00012	0.00012	0.00013	0.00014	0.00012	0.00012	0.00011	0.00011	0.00011	0.00011
Bismuth Bi	mg/L	0.00056	0.00056	0.00055	0.00042	0.00038	0.00033	0.00033	0.00030	0.00030	0.00030	0.00030
Boron B	mg/L	0.016	0.016	0.016	0.016	0.017	0.016	0.016	0.015	0.015	0.015	0.015
Cadmium Cd	mg/L	0.0000065	0.0000065	0.0000065	0.0000059	0.0000058	0.0000052	0.0000053	0.0000050	0.0000050	0.0000049	0.0000049
Calcium Ca	mg/L	13	12	12	10	10	9	9	8	9	8	8
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Cobalt Co	mg/L	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Copper Cu	mg/L	0.0010	0.0010	0.0009	0.0009	0.0010	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008
Iron Fe	mg/L	0.08	0.08	0.08	0.08	0.09	0.08	0.08	0.08	0.08	0.08	0.08
Lead Pb	mg/L	0.00006	0.00006	0.00006	0.00006	0.00006	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Lithium Li	mg/L	0.0027	0.0027	0.0027	0.0029	0.0030	0.0027	0.0028	0.0026	0.0027	0.0026	0.0026
Magnesium Mg	mg/L	3.7	3.7	3.7	3.8	4.0	3.7	3.8	3.6	3.6	3.6	3.5
Manganese Mn	mg/L	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Mercury Hg	mg/L	0.0000047	0.0000047	0.0000047	0.0000050	0.0000051	0.0000047	0.0000049	0.0000046	0.0000046	0.0000046	0.0000045
Molybdenum Mo	mg/L	0.00034	0.00034	0.00034	0.00029	0.00028	0.00025	0.00025	0.00024	0.00024	0.00024	0.00023
Nickel Ni	mg/L	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Phosphorus P	mg/L	0.014	0.014	0.014	0.012	0.011	0.010	0.010	0.009	0.009	0.009	0.009
Potassium K	mg/L	2.6	2.5	2.5	2.4	2.4	2.2	2.2	2.1	2.1	2.1	2.1
Selenium Se	mg/L	0.00047	0.00046	0.00046	0.00049	0.00051	0.00047	0.00048	0.00045	0.00046	0.00045	0.00045
Silicon SiO2	mg/L	0.81	0.80	0.80	0.82	0.84	0.77	0.79	0.75	0.75	0.75	0.74
Silver Ag	mg/L	0.0000557	0.0000554	0.0000551	0.0000623	0.0000661	0.0000579	0.0000566	0.0000526	0.0000529	0.0000525	0.0000523
Sodium Na	mg/L	35	35	35	32	32	29	30	28	28	28	28
Strontium Sr	mg/L	0.021	0.021	0.021	0.021	0.022	0.020	0.021	0.020	0.020	0.020	0.020
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.036	0.033	0.034	0.032	0.032	0.032	0.031
Thallium Tl	mg/L	0.000021	0.000021	0.000021	0.000022	0.000023	0.000021	0.000021	0.000020	0.000020	0.000020	0.000020
Thorium Th	mg/L	0.000019	0.000019	0.000019	0.000019	0.000019	0.000017	0.000018	0.000017	0.000017	0.000017	0.000017
Tin Sn	mg/L	0.00023	0.00023	0.00022	0.00019	0.00020	0.00019	0.00019	0.00018	0.00018	0.00018	0.00018
Titanium Ti	mg/L	0.0068	0.0068	0.0067	0.0072	0.0075	0.0069	0.0071	0.0067	0.0067	0.0067	0.0066
Uranium U	mg/L	0.000039	0.000039	0.000039	0.000042	0.000044	0.000039	0.000039	0.000037	0.000037	0.000037	0.000036
Vanadium V	mg/L	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007
Zinc Zn	mg/L	0.0022	0.0022	0.0022	0.0019	0.0018	0.0017	0.0020	0.0019	0.0019	0.0019	0.0019
Zirconium Zr	mg/L	0.0033	0.0033	0.0033	0.0035	0.0036	0.0033	0.0034	0.0032	0.0032	0.0032	0.0032

Appendix I

Table I-4-a-A.3
Scenario 3 - Sediment Control Option 1

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	117442	101234	86389	86424	83234	78530	81148	81148	73295
TSS	183	177	183	1239	685	341	375	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18346	17089	15404	15306	14797	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	71048	57314	58180	52622	47526	49110	49110	44357
Total Ammonia	149	145	149	297	244	189	197	167	145	149	149	135
Nitrate	758	733	758	1930	1500	1070	1133	897	733	758	758	684
Nitrite	116	112	116	141	134	123	122	119	112	116	116	105
Alkalinity	6928	6704	6928	15548	12117	8343	8349	7362	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1171.73	314.49	328.91	86.92				
Hardness CaCO3	14992	14508	14992	26182	22190	16931	17008	15652	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	20.00	12.51	9.44	9.07	6.00	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.68	3.44	2.23	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.71	0.60	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.00	1.76	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.24	0.16	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.47	7.49	4.55	4.79	3.45	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42197	42194	41170	40009	40737	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.32	1.27	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.86	1.82	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.70	1.53	1.50	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.69	11.78	9.37	9.49	6.02	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.84	1.15	0.69	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2870	2091	1462	1469	1204	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.18	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	46	41	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7120	7036	6794	6631	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.13	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	971	778	633	635	585	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11747	9528	7314	7361	6675	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.74	8.41	2.65	3.32	0.89	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.42	1.23	0.46	0.56	0.23	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.80	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.13	1.06	0.36	0.45	0.13				

Appendix I

Table I-4-a-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	117011	101009	86327	86328	83208	78530	81148	81148	73295
TSS	183	177	183	1227	680	339	372	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18338	17084	15403	15303	14796	13840	14302	14302	12918
Chloride	49110	47526	49110	82247	70972	57293	58150	52614	47526	49110	49110	44357
Total Ammonia	149	145	149	297	244	189	197	167	145	149	149	135
Nitrate	758	733	758	1930	1500	1070	1133	897	733	758	758	684
Nitrite	116	112	116	141	134	123	122	119	112	116	116	105
Alkalinity	6928	6704	6928	15450	12059	8326	8329	7357	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2098.99	1158.56	310.77	324.90	85.83				
Hardness CaCO3	14992	14508	14992	26053	22109	16908	16978	15644	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.93	12.49	9.41	9.05	6.00	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.23	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.71	0.60	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.28	2.00	1.75	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.24	0.16	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.42	7.46	4.54	4.78	3.45	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42177	42183	41166	40003	40736	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.32	1.27	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.86	1.82	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.53	1.50	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.52	11.72	9.32	9.43	6.01	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.83	1.15	0.69	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2854	2082	1459	1466	1203	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	46	41	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7114	7033	6793	6629	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.13	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	967	776	632	635	585	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11685	9493	7303	7346	6671	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.55	8.32	2.62	3.28	0.88	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.40	1.22	0.46	0.55	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.80	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.11	1.05	0.35	0.45	0.13				

Appendix I

Table I-4-a-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	87387	70473	55832	56817	52721	49028	50662	50662	45759
TSS				1046	495	155	195	51				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5642	4008	2364	2677	1772	1247	1289	1289	1164
Chloride	49110	47526	49110	82214	70956	57290	58148	52614	47526	49110	49110	44357
Total Ammonia	25	24	25	162	110	61	71	41	24	25	25	22
Nitrate	29	28	29	1111	700	312	390	155	28	29	29	26
Nitrite	64	62	64	88	80	71	71	67	62	64	64	58
Alkalinity				8718	5118	1396	1623	429				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2092.35	1155.64	310.19	324.55	85.81				
Hardness CaCO3				11508	7099	1913	2467	652				
Total Metals												
Aluminum Al	0.81	0.78	0.81	13.42	6.99	4.97	4.52	1.99	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.55	3.32	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.29	0.19	0.09	0.10	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.82	0.49	0.25	0.27	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.20	0.13	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.52	3.29	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.59	4.83	2.16	2.42	1.17	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	3074	1852	898	1021	494	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.38	0.30	0.16	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.28	0.19	0.11	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.44	0.25	0.09	0.11	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	16.53	6.88	4.73	4.94	1.53	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.09	0.06	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.42	0.73	0.28	0.34	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1903	1109	494	530	241	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.90	0.56	0.40	0.49	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.66	0.43	0.24	0.26	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	34	29	26	25	24	22	23	23	21
Potassium K	25	24	25	652	358	121	171	66	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.16	0.08	0.02	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	405	209	78	95	35	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5527	3141	958	1207	329	12	12	12	11
Strontium Sr	0	0	0	9	5	2	3	1	0	0	0	0
Tellurium Te				17.46	8.27	2.59	3.25	0.86				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.55	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.34	1.17	0.42	0.51	0.19	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.89	0.60	0.33	0.36	0.25	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.2	0.8	0.5	1.0	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.97	0.97	0.32	0.40	0.11				

Appendix I

Table I-4-a-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				417065	398294	383460	386128	380307				
TSS				1389	658	206	259	69				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				866	531	152	249	71				
Chloride				249554	241312	233502	234499	231479				
Total Ammonia				70	43	18	25	8				
Nitrate				545	338	142	182	63				
Nitrite				13	8	3	4	1				
Alkalinity				8830	5188	1417	1649	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				5	2	1	1	0				
Org. Carbon				2119.25	1171.42	314.86	329.81	87.29				
Hardness CaCO3				11656	7196	1942	2507	663				
Total Metals												
Aluminum Al				39.33	18.54	7.94	8.45	2.38				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.23	0.14	0.05	0.06	0.02				
Barium Ba				0.60	0.33	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				8.96	4.92	1.66	1.96	0.55				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				24667	23558	22768	22858	22437				
Chromium Cr				0.21	0.16	0.06	0.03	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.00				
Copper Cu				0.44	0.23	0.06	0.07	0.02				
Iron Fe				43.73	19.55	8.55	9.80	2.63				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.48	0.70	0.22	0.28	0.07				
Magnesium Mg				1849	971	346	377	101				
Manganese Mn				0.97	0.45	0.23	0.31	0.08				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.07	0.04	0.01	0.01	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				7	3	1	1	0				
Potassium K				863	435	123	181	48				
Selenium Se				0.28	0.14	0.04	0.05	0.01				
Silicon SiO2				443	218	72	91	26				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				136392	131204	127283	127737	126125				
Strontium Sr				10	5	2	2	1				
Tellurium Te				17.68	8.38	2.63	3.31	0.88				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				3.76	1.79	0.56	0.71	0.19				
Uranium U				0.03	0.02	0.00	0.01	0.00				
Vanadium V				0.45	0.22	0.06	0.06	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				2.00	0.98	0.32	0.41	0.11				

Appendix I

Table I-4-a-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				39489	20419	5256	7929	2081				
TSS				1411	669	207	260	68				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				878	538	152	249	70				
Chloride				19475	11103	3114	4113	1080				
Total Ammonia				70	43	18	25	8				
Nitrate				545	338	142	182	63				
Nitrite				13	8	3	4	1				
Alkalinity				8975	5275	1419	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				5	2	1	1	0				
Org. Carbon				2153.97	1191.12	315.39	330.38	86.71				
Hardness CaCO3				11847	7317	1945	2511	659				
Total Metals												
Aluminum Al				39.89	18.80	7.95	8.46	2.36				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.23	0.14	0.05	0.06	0.02				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				9.09	4.99	1.66	1.96	0.55				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2426	1302	493	584	162				
Chromium Cr				0.21	0.17	0.06	0.03	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.00				
Copper Cu				0.45	0.23	0.06	0.07	0.02				
Iron Fe				44.42	19.87	8.56	9.81	2.61				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.50	0.71	0.22	0.28	0.07				
Magnesium Mg				1879	987	346	377	100				
Manganese Mn				0.99	0.45	0.23	0.32	0.08				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.07	0.04	0.01	0.01	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				7	3	1	1	0				
Potassium K				877	442	123	182	48				
Selenium Se				0.28	0.14	0.04	0.05	0.01				
Silicon SiO2				449	221	72	91	25				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				11024	5754	1741	2195	576				
Strontium Sr				10	6	2	2	1				
Tellurium Te				17.97	8.52	2.63	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				3.82	1.81	0.56	0.71	0.19				
Uranium U				0.03	0.02	0.00	0.01	0.00				
Vanadium V				0.46	0.22	0.06	0.06	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				2.03	1.00	0.32	0.41	0.11				

Appendix I

Table I-4-a-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				39345	20343	5320	7972	2092				
TSS				1406	667	209	261	69				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				875	536	154	250	71				
Chloride				19404	11061	3152	4135	1085				
Total Ammonia				70	43	18	25	8				
Nitrate				545	338	142	182	63				
Nitrite				13	8	3	4	1				
Alkalinity				8942	5255	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				5	2	1	1	0				
Org. Carbon				2146.11	1186.67	319.23	332.17	87.16				
Hardness CaCO3				11804	7290	1969	2525	662				
Total Metals												
Aluminum Al				39.76	18.74	8.03	8.50	2.37				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.23	0.14	0.05	0.06	0.02				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				9.06	4.97	1.68	1.97	0.55				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2419	1298	499	586	162				
Chromium Cr				0.21	0.17	0.06	0.03	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.00				
Copper Cu				0.44	0.23	0.06	0.07	0.02				
Iron Fe				44.27	19.79	8.66	9.86	2.62				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.49	0.71	0.22	0.28	0.07				
Magnesium Mg				1872	983	350	379	100				
Manganese Mn				0.98	0.45	0.23	0.32	0.08				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.07	0.04	0.01	0.01	0.00				
Nickel Ni				0.24	0.12	0.04	0.04	0.01				
Phosphorus P				7	3	1	1	0				
Potassium K				873	440	124	183	48				
Selenium Se				0.28	0.14	0.04	0.05	0.01				
Silicon SiO2				447	220	73	91	26				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				10984	5733	1762	2207	579				
Strontium Sr				10	6	2	2	1				
Tellurium Te				17.91	8.49	2.67	3.33	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				3.81	1.81	0.57	0.71	0.19				
Uranium U				0.03	0.02	0.00	0.01	0.00				
Vanadium V				0.46	0.22	0.06	0.06	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				2.03	0.99	0.33	0.41	0.11				

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Table I-4-a-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				39433	20389	5249	7918	2096				
TSS				1409	668	206	259	69				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	51				
Chloride				19447	11087	3110	4107	1087				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8962	5267	1417	1650	437				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				5	2	1	1	0				
Org. Carbon				2150.88	1189.37	314.97	329.92	87.32				
Hardness CaCO3				11830	7306	1942	2507	664				
Total Metals												
Aluminum Al				34.87	15.69	6.64	6.79	1.80				
Antimony Sb				0.05	0.05	0.03	0.05	0.01				
Arsenic As				0.12	0.07	0.02	0.02	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				7.91	4.26	1.36	1.57	0.42				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2132	1119	417	485	128				
Chromium Cr				0.19	0.15	0.05	0.02	0.00				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.41	0.21	0.05	0.06	0.02				
Iron Fe				43.20	19.12	8.25	9.41	2.49				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.47	0.70	0.22	0.27	0.07				
Magnesium Mg				1847	967	338	367	97				
Manganese Mn				0.96	0.44	0.22	0.31	0.08				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.07	0.04	0.01	0.01	0.00				
Nickel Ni				0.22	0.11	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				868	437	121	179	47				
Selenium Se				0.26	0.12	0.03	0.04	0.01				
Silicon SiO2				393	186	58	72	19				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				11002	5741	1737	2190	580				
Strontium Sr				10	5	2	2	1				
Tellurium Te				17.93	8.50	2.62	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				3.79	1.80	0.56	0.70	0.18				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.41	0.19	0.04	0.05	0.01				
Zinc Zn				0.4	0.2	0.1	0.6	0.2				
Zirconium Zr				1.80	0.85	0.26	0.33	0.09				

Appendix I

Table I-4-a-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				39503	20426	5258	7932	2082				
TSS				1412	669	207	260	68				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				707	432	108	192	50				
Chloride				19482	11107	3115	4115	1080				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8978	5277	1420	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				5	2	1	1	0				
Org. Carbon				2154.72	1191.54	315.49	330.49	86.74				
Hardness CaCO3				11851	7319	1946	2512	659				
Total Metals												
Aluminum Al				34.93	15.72	6.65	6.80	1.78				
Antimony Sb				0.05	0.05	0.03	0.05	0.01				
Arsenic As				0.12	0.07	0.02	0.02	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				7.93	4.27	1.36	1.57	0.41				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2135	1121	417	486	128				
Chromium Cr				0.19	0.15	0.05	0.02	0.00				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.41	0.21	0.05	0.06	0.02				
Iron Fe				43.28	19.15	8.26	9.43	2.47				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.48	0.70	0.22	0.27	0.07				
Magnesium Mg				1850	969	339	368	96				
Manganese Mn				0.96	0.44	0.22	0.31	0.08				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.07	0.04	0.01	0.01	0.00				
Nickel Ni				0.22	0.11	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				869	438	121	179	47				
Selenium Se				0.26	0.12	0.03	0.04	0.01				
Silicon SiO2				394	187	58	73	19				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				11021	5752	1740	2194	576				
Strontium Sr				10	5	2	2	1				
Tellurium Te				17.96	8.51	2.63	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				3.80	1.80	0.56	0.70	0.18				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.41	0.19	0.04	0.05	0.01				
Zinc Zn				0.4	0.2	0.1	0.6	0.2				
Zirconium Zr				1.80	0.86	0.26	0.33	0.09				

Appendix I

Table I-4-a-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				39358	20350	5322	7975	2093				
TSS				1407	667	209	261	69				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				705	431	109	193	51				
Chloride				19410	11065	3153	4137	1085				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8945	5257	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				5	2	1	1	0				
Org. Carbon				2146.79	1187.06	319.34	332.29	87.19				
Hardness CaCO3				11807	7292	1969	2525	663				
Total Metals												
Aluminum Al				34.80	15.66	6.73	6.84	1.79				
Antimony Sb				0.05	0.05	0.03	0.05	0.01				
Arsenic As				0.12	0.07	0.02	0.02	0.01				
Barium Ba				0.59	0.33	0.15	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				7.90	4.25	1.38	1.58	0.41				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2128	1117	422	489	128				
Chromium Cr				0.19	0.15	0.05	0.02	0.00				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.41	0.21	0.05	0.06	0.02				
Iron Fe				43.12	19.08	8.36	9.48	2.49				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.47	0.70	0.22	0.27	0.07				
Magnesium Mg				1843	965	343	370	97				
Manganese Mn				0.96	0.44	0.22	0.31	0.08				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.07	0.04	0.01	0.01	0.00				
Nickel Ni				0.22	0.11	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				866	436	122	180	47				
Selenium Se				0.26	0.12	0.04	0.04	0.01				
Silicon SiO2				392	186	58	73	19				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				10981	5730	1761	2206	579				
Strontium Sr				10	5	2	2	1				
Tellurium Te				17.89	8.48	2.66	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				3.79	1.79	0.56	0.70	0.18				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.41	0.19	0.05	0.05	0.01				
Zinc Zn				0.4	0.2	0.1	0.6	0.2				
Zirconium Zr				1.80	0.85	0.27	0.33	0.09				

Appendix I

Table I-4-a-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				39445	20396	5251	7920	2079				
TSS				1410	668	206	260	68				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	50				
Chloride				19453	11090	3111	4109	1078				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8965	5269	1418	1650	433				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				5	2	1	1	0				
Org. Carbon				2151.56	1189.76	315.06	330.02	86.62				
Hardness CaCO3				11834	7309	1943	2508	658				
Total Metals												
Aluminum Al				34.88	15.70	6.64	6.79	1.78				
Antimony Sb				0.05	0.05	0.03	0.05	0.01				
Arsenic As				0.12	0.07	0.02	0.02	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				7.92	4.26	1.36	1.57	0.41				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2132	1119	417	486	127				
Chromium Cr				0.19	0.15	0.05	0.02	0.00				
Cobalt Co				0.05	0.02	0.01	0.01	0.00				
Copper Cu				0.41	0.21	0.05	0.06	0.02				
Iron Fe				43.22	19.12	8.25	9.41	2.47				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.48	0.70	0.22	0.27	0.07				
Magnesium Mg				1847	967	338	367	96				
Manganese Mn				0.96	0.44	0.22	0.31	0.08				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.07	0.04	0.01	0.01	0.00				
Nickel Ni				0.22	0.11	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				868	437	121	179	47				
Selenium Se				0.26	0.12	0.03	0.04	0.01				
Silicon SiO2				393	186	58	72	19				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				11005	5743	1738	2191	575				
Strontium Sr				10	5	2	2	1				
Tellurium Te				17.93	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				3.79	1.80	0.56	0.70	0.18				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.41	0.19	0.04	0.05	0.01				
Zinc Zn				0.4	0.2	0.1	0.6	0.2				
Zirconium Zr				1.80	0.85	0.26	0.33	0.09				

Appendix I

Table I-4-a-B.1
Scenario 3 - Sediment Control Option 1

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.3	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1043	113	91	
Total Ammonia	mg/L		0.97	1.31	0.085	0.045	9%
Nitrate	mg/L		2.9	6.9	0.39	0.21	13%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.09	0.08	0.25	81%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00072	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.032	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000067	0.0000068	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.09	0.12	0.28	41%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000069	0.0000010	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.306	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00062	0.00088	0.00084	88%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000089	0.0000074	9%
Sodium Na	mg/L			381	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.002001	4%
Thorium Th	mg/L			0.000047	0.0000040	0.0000021	
Tin Sn	mg/L			0.00297	0.00054	0.00009	
Titanium Ti	mg/L			0.0080	0.0061	0.0062	
Uranium U	mg/L			0.000076	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0046	0.0050	0.0051	

Appendix I

Table I-4-a-B.2
Scenario 3 - Sediment Control Option 1

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	151	153				
TSS	mg/L				3.9	5.6	5.8	6.7	6.7				
Free CN	mg/L				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.09	0.01	0.03	0.03	0.03				
SCN	mg/L				0.001	0.001	0.002	0.002	0.002				
Sulphate	mg/L				3.8	3.9	4.3	4.9	5.2				
Chloride	mg/L				61	62	62	67	69				
Total Ammonia	mg/L				0.019	0.045	0.022	0.030	0.030				
Nitrate	mg/L				0.08	0.11	0.14	0.19	0.21				
Nitrite	mg/L				0.011	0.013	0.014	0.006	0.016				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P	mg/L				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon	mg/L				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi	mg/L				0.00012	0.00021	0.00028	0.00034	0.00039				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000040	0.0000038	0.0000041	0.0000043				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.021	0.027	0.024	0.025				
Potassium K	mg/L				3.2	2.9	3.0	3.1	3.3				
Selenium Se	mg/L				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.55	0.57	0.58	0.60				
Silver Ag	mg/L				0.0000049	0.0000058	0.0000060	0.0000064	0.0000066				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000003				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000032	0.000040	0.000033	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-a-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				160	139	143	165	166				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00020		0.00003	0.00003	0.00003				
Total CN	mg/L				0.004	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0003		0.0000	0.0000	0.0000				
CNO	mg/L				0.22		0.03	0.03	0.03				
SCN	mg/L				0.005	0.004	0.004	0.005	0.005				
Sulphate	mg/L				7.3	6.7	6.9	7.5	7.7				
Chloride	mg/L				74	73	71	77	78				
Total Ammonia	mg/L				0.044	0.085	0.016	0.031	0.030				
Nitrate	mg/L				0.29	0.30	0.31	0.36	0.38				
Nitrite	mg/L				0.032	0.013	0.014	0.005	0.016				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P	mg/L				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi	mg/L				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000059	0.0000057	0.0000054	0.0000057	0.0000059				
Calcium Ca	mg/L				21	18	18	19	20				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo	mg/L				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P	mg/L				0.027	0.027	0.033	0.030	0.031				
Potassium K	mg/L				4.8	4.1	4.1	4.3	4.4				
Selenium Se	mg/L				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2	mg/L				0.68	0.66	0.66	0.68	0.70				
Silver Ag	mg/L				0.0000070	0.0000075	0.0000076	0.0000079	0.0000081				
Sodium Na	mg/L				39	33	35	33	33				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.043				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0050				

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Table I-4-a-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				171	148	150	171	172				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00013								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0002								
CNO	mg/L				0.14								
SCN	mg/L				0.006	0.005	0.005	0.005	0.005				
Sulphate	mg/L				8.7	7.5	7.4	7.7	7.6				
Chloride	mg/L				82	80	78	83	84				
Total Ammonia	mg/L				0.036	0.057	0.016	0.017	0.017				
Nitrate	mg/L				0.39	0.37	0.36	0.38	0.39				
Nitrite	mg/L				0.030	0.009	0.014	0.004	0.005				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P	mg/L				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				50	46	46	47	47				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000068	0.0000062	0.0000056	0.0000057	0.0000057				
Calcium Ca	mg/L				24	20	19	19	19				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0007	0.0007	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.5	6.7	6.8	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni	mg/L				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P	mg/L				0.032	0.031	0.036	0.033	0.033				
Potassium K	mg/L				5.3	4.4	4.3	4.2	4.2				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.73	0.69	0.68	0.69	0.68				
Silver Ag	mg/L				0.0000083	0.0000084	0.0000083	0.0000086	0.0000086				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.044	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00051	0.00050	0.00051	0.00052	0.00052				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Appendix I

Table I-4-a-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				173	158	169	201	212				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.005	0.004	0.003	0.003	0.003				
Sulphate	mg/L				7.4	6.3	6.1	6.4	6.3				
Chloride	mg/L				88	88	91	103	109				
Total Ammonia	mg/L				0.012	0.012	0.017	0.016	0.016				
Nitrate	mg/L				0.34	0.30	0.29	0.30	0.30				
Nitrite	mg/L				0.011	0.002	0.003	0.003	0.003				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P	mg/L				0.0276	0.0265	0.0314	0.0275	0.0272				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000061	0.0000057	0.0000051	0.0000052	0.0000052				
Calcium Ca	mg/L				20	17	17	17	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.031	0.035	0.032	0.031				
Potassium K	mg/L				4.6	3.8	3.7	3.6	3.6				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.68	0.65	0.64	0.64	0.64				
Silver Ag	mg/L				0.0000089	0.0000087	0.0000084	0.0000087	0.0000086				
Sodium Na	mg/L				39	37	41	43	47				
Strontium Sr	mg/L				0.043	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00054	0.00051	0.00050	0.00051	0.00050				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0060	0.0061				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0008	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-a-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				216	179	176	187	186				
TSS	mg/L				4.0	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.1	4.9	4.8	4.7				
Chloride	mg/L				113	99	93	92	91				
Total Ammonia	mg/L				0.008	0.013	0.017	0.016	0.016				
Nitrate	mg/L				0.24	0.21	0.20	0.18	0.19				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P	mg/L				0.0240	0.0233	0.0285	0.0235	0.0234				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00074	0.00056	0.00050	0.00044	0.00043				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000056	0.0000052	0.0000047	0.0000045	0.0000045				
Calcium Ca	mg/L				19	16	15	14	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00044	0.00036	0.00037	0.00032	0.00032				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.028	0.026	0.031	0.026	0.026				
Potassium K	mg/L				4.0	3.3	3.2	3.0	3.0				
Selenium Se	mg/L				0.00088	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.64	0.61	0.60	0.59	0.59				
Silver Ag	mg/L				0.0000085	0.0000084	0.0000081	0.0000074	0.0000073				
Sodium Na	mg/L				57	47	46	43	42				
Strontium Sr	mg/L				0.042	0.043	0.037	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000029	0.000034	0.000042	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0036	0.0033	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-4-a-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				177	150	150	170	167				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.4	3.9	3.9	4.1	3.9				
Chloride	mg/L				86	80	76	80	78				
Total Ammonia	mg/L				0.005	0.010	0.014	0.013	0.013				
Nitrate	mg/L				0.11	0.10	0.10	0.11	0.10				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P	mg/L				0.0201	0.0204	0.0259	0.0218	0.0215				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000040	0.0000039	0.0000034	0.0000035	0.0000034				
Calcium Ca	mg/L				14	12	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0029	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00030	0.00026	0.00028	0.00026	0.00025				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.022	0.022	0.027	0.023	0.023				
Potassium K	mg/L				3.4	2.9	2.8	2.8	2.7				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.57	0.56	0.56	0.57	0.56				
Silver Ag	mg/L				0.0000059	0.0000062	0.0000061	0.0000063	0.0000058				
Sodium Na	mg/L				48	40	40	38	38				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000003	0.000003				
Tin Sn	mg/L				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0034	0.0030	0.0020	0.0019				
Zirconium Zr	mg/L				0.0049	0.0049	0.0050	0.0050	0.0050				

Appendix I

Table I-4-a-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				158	135	137	154	154				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.000				
Sulphate	mg/L				3.6	3.3	3.4	3.4	3.4				
Chloride	mg/L				74	70	67	70	70				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.05	0.04	0.04	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P	mg/L				0.0182	0.0190	0.0247	0.0202	0.0201				
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi	mg/L				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000034	0.0000029	0.0000028	0.0000027				
Calcium Ca	mg/L				11	10	9	9	9				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00023	0.00021	0.00023	0.00020	0.00020				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.020	0.025	0.021	0.021				
Potassium K	mg/L				3.1	2.6	2.6	2.5	2.5				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.55	0.54	0.54	0.53	0.53				
Silver Ag	mg/L				0.0000054	0.0000056	0.0000053	0.0000047	0.0000047				
Sodium Na	mg/L				44	36	37	35	35				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0060	0.0061				
Uranium U	mg/L				0.000027	0.000031	0.000039	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-a-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				148	128	131	148	148				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.2	3.0	3.1	3.2	3.2				
Chloride	mg/L				67	65	63	66	66				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P	mg/L				0.0172	0.0183	0.0240	0.0196	0.0196				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000032	0.0000030	0.0000025	0.0000024	0.0000024				
Calcium Ca	mg/L				10	9	9	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.3	6.3				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00021	0.00018	0.00018				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.018	0.019	0.024	0.020	0.020				
Potassium K	mg/L				2.9	2.5	2.5	2.4	2.4				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.52	0.53				
Silver Ag	mg/L				0.0000046	0.0000050	0.0000048	0.0000043	0.0000042				
Sodium Na	mg/L				41	35	36	33	33				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0032	0.0028	0.0017	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-a-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				142	123	127	146	145				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.0	2.8	2.9	3.1	3.1				
Chloride	mg/L				63	62	60	64	64				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P	mg/L				0.0166	0.0178	0.0236	0.0194	0.0193				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				44	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000029	0.0000028	0.0000023	0.0000023	0.0000023				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.3				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00018	0.00017	0.00019	0.00017	0.00017				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P	mg/L				0.017	0.018	0.024	0.019	0.019				
Potassium K	mg/L				2.8	2.4	2.4	2.4	2.4				
Selenium Se	mg/L				0.00087	0.00057	0.00061	0.00056	0.00055				
Silicon SiO2	mg/L				0.52	0.52	0.52	0.53	0.52				
Silver Ag	mg/L				0.0000041	0.0000046	0.0000044	0.0000045	0.0000042				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.0000001	0.0000001	0.0000001	0.0000001	0.0000001				
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

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Table I-4-a-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				140	121	125	143	143			
TSS	mg/L				3.9	5.7	5.8	6.8	6.8			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				2.9	2.7	2.9	3.0	3.0			
Chloride	mg/L				61	61	59	62	62			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				27	25	27	26	26			
OrthoPhosphate-P	mg/L				0.0011	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0164	0.0176	0.0234	0.0191	0.0191			
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0			
Hardness CaCO3	mg/L				44	42	42	43	43			
Total Metals												
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005			
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000027	0.0000027	0.0000022	0.0000022	0.0000022			
Calcium Ca	mg/L				9	8	8	7	7			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0012	0.0015	0.0015			
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.1	6.4	6.5	6.3	6.3			
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000009	0.0000008	0.0000008			
Molybdenum Mo	mg/L				0.00017	0.00016	0.00019	0.00017	0.00017			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.016	0.018	0.023	0.019	0.019			
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3			
Selenium Se	mg/L				0.00087	0.00057	0.00061	0.00055	0.00055			
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52			
Silver Ag	mg/L				0.0000039	0.0000044	0.0000043	0.0000039	0.0000038			
Sodium Na	mg/L				39	33	34	32	32			
Strontium Sr	mg/L				0.039	0.041	0.035	0.039	0.039			
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049			
Thallium Tl	mg/L				0.000029	0.000030	0.000030	0.000029	0.000030			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039			
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0060	0.0061			
Uranium U	mg/L				0.000026	0.000030	0.000038	0.000032	0.000032			
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002			
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017			
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049			

Appendix I

Table I-4-a-B.3
Scenario 3 - Sediment Control Option 1

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1073956	586904	257660	384118	135770				
TSS				29483	26699	11501	17154	5992				
Free CN				0.60	0.05	0.05	0.07	0.02				
Total CN				21	9	4	5	2				
WAD CN				0.81	0.07	0.07	0.09	0.03				
CNO				665	55	57	77	27				
SCN				9	6	3	5	2				
Sulphate				28611	18317	8586	12416	4650				
Chloride				468083	295283	123233	171437	61017				
Total Ammonia				143	210	45	77	27				
Nitrate				576	529	287	472	188				
Nitrite				83	64	28	15	14				
Alkalinity				206688	119301	53699	68141	23935				
OrthoPhosphate-P				17	12	6	9	3				
Phosphate-P				132	89	50	54	19				
Org. Carbon				40778	23698	14478	12543	4379				
Hardness CaCO3				342229	200983	84935	113548	39956				
Total Metals												
Aluminum Al				250	275	156	179	63				
Antimony Sb				3.4	4.6	5.9	1.9	0.7				
Arsenic As				3.8	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.09	0.04	0.06	0.02				
Bismuth Bi				0.92	0.99	0.55	0.85	0.35				
Boron B				253	104	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				84525	51182	22661	31221	11725				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.30	1.29	2.02	0.75	0.30				
Copper Cu				10	8	3	4	1				
Iron Fe				379	566	163	223	78				
Lead Pb				0.19	0.32	0.09	0.12	0.04				
Lithium Li				21	13	6	7	3				
Magnesium Mg				53966	30306	12948	16335	5728				
Manganese Mn				50	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.96	1.26	0.64	0.87	0.33				
Nickel Ni				3.73	3.14	1.18	1.54	0.56				
Phosphorus P				142	97	54	61	22				
Potassium K				24293	13561	5932	7916	2900				
Selenium Se				6.59	2.64	1.20	1.39	0.49				
Silicon SiO2				4141	2614	1127	1488	532				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				289400	152276	66908	80717	28310				
Strontium Sr				303	195	71	102	36				
Tellurium Te				370	230	97	125	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.02	1.94	0.84	1.10	0.39				
Titanium Ti				44	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.09	0.03				
Vanadium V				4.30	0.50	0.59	0.57	0.21				
Zinc Zn				8.69	15.70	6.16	5.40	1.97				
Zirconium Zr				37	23	10	13	4				

Appendix I

Table I-4-a-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1220165	658674	285400	420123	147948				
TSS				29841	26873	11568	17241	6021				
Free CN				1.54		0.05	0.07	0.02				
Total CN				29	9	4	5	2				
WAD CN				2.06		0.07	0.09	0.03				
CNO				1699		58	76	26				
SCN				38	21	9	13	5				
Sulphate				55488	31516	13687	19035	6889				
Chloride				564931	342809	141595	195266	69076				
Total Ammonia				336	400	33	79	27				
Nitrate				2228	1417	627	916	338				
Nitrite				244	59	28	13	14				
Alkalinity				219476	125568	56119	71284	24998				
OrthoPhosphate-P				55	30	13	18	7				
Phosphate-P				170	108	57	64	23				
Org. Carbon				40852	23731	14490	12559	4385				
Hardness CaCO3				369674	214447	90137	120301	42240				
Total Metals												
Aluminum Al				262	280	158	182	64				
Antimony Sb				6.9	6.3	6.5	2.8	1.0				
Arsenic As				4.6	2.4	1.0	1.3	0.5				
Barium Ba				25	16	7	9	3				
Beryllium Be				0.26	0.15	0.07	0.09	0.03				
Bismuth Bi				4.27	2.63	1.18	1.68	0.62				
Boron B				259	107	47	58	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.01				
Calcium Ca				157251	86914	36474	49146	17788				
Chromium Cr				7	3	1	1	1				
Cobalt Co				4.35	2.79	2.60	1.51	0.55				
Copper Cu				12	9	3	5	2				
Iron Fe				389	571	165	226	79				
Lead Pb				0.30	0.37	0.11	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56100	31351	13352	16859	5905				
Manganese Mn				59	99	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.61	2.56	1.14	1.52	0.55				
Nickel Ni				6.10	4.31	1.63	2.12	0.76				
Phosphorus P				205	128	66	76	27				
Potassium K				36289	19454	8210	10873	3900				
Selenium Se				6.67	2.68	1.22	1.41	0.49				
Silicon SiO2				5182	3124	1324	1744	619				
Silver Ag				0.05	0.04	0.02	0.02	0.01				
Sodium Na				301047	157988	69116	83582	29279				
Strontium Sr				326	207	76	108	38				
Tellurium Te				370	230	97	125	44				
Thallium Tl				0.23	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.54	2.20	0.94	1.23	0.43				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.15	0.91	0.75	0.78	0.28				
Zinc Zn				15.34	18.96	7.42	7.04	2.53				
Zirconium Zr				37	23	10	13	4				

Appendix I

Table I-4-a-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1300322	697522	299220	436673	153011				
TSS				30001	26945	11589	17259	6024				
Free CN				0.98								
Total CN				24	9	4	5	2				
WAD CN				1.31								
CNO				1077								
SCN				49	24	9	12	4				
Sulphate				65978	35665	14691	19551	6779				
Chloride				628689	376026	154662	212713	75121				
Total Ammonia				275	268	33	43	15				
Nitrate				2996	1732	712	981	345				
Nitrite				225	45	27	10	4				
Alkalinity				224269	127428	56526	71400	24887				
OrthoPhosphate-P				80	43	18	25	9				
Phosphate-P				195	121	62	71	25				
Org. Carbon				40952	23797	14519	12600	4400				
Hardness CaCO3				379716	218247	90921	120414	41950				
Total Metals												
Aluminum Al				267	283	159	183	64				
Antimony Sb				9.1	7.5	7.0	3.4	1.2				
Arsenic As				4.9	2.6	1.0	1.3	0.5				
Barium Ba				26	17	7	9	3				
Beryllium Be				0.33	0.18	0.08	0.11	0.04				
Bismuth Bi				6.45	3.77	1.63	2.27	0.83				
Boron B				262	109	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.01				
Calcium Ca				182905	96217	38189	48889	16805				
Chromium Cr				8	3	2	1	1				
Cobalt Co				5.47	3.21	2.69	1.52	0.52				
Copper Cu				13	9	3	5	2				
Iron Fe				394	573	166	226	79				
Lead Pb				0.35	0.40	0.12	0.16	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				57006	31734	13457	16941	5913				
Manganese Mn				62	100	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				5.54	2.90	1.20	1.51	0.52				
Nickel Ni				7.04	4.68	1.72	2.17	0.76				
Phosphorus P				241	145	72	84	30				
Potassium K				40506	20982	8489	10824	3735				
Selenium Se				6.70	2.69	1.22	1.42	0.49				
Silicon SiO2				5572	3271	1355	1751	608				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				305335	159621	69457	83644	29161				
Strontium Sr				335	210	76	108	38				
Tellurium Te				371	231	97	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.88	2.37	1.01	1.32	0.47				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.60	1.13	0.83	0.87	0.31				
Zinc Zn				17.89	19.96	7.65	7.13	2.49				
Zirconium Zr				38	23	10	13	4				

Appendix I

Table I-4-a-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1316091	745342	336198	512442	188653				
TSS				29982	26980	11612	17297	6039				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				34	17	6	8	3				
Sulphate				56676	29987	12246	16254	5595				
Chloride				672180	417546	180425	261557	97133				
Total Ammonia				88	56	35	41	14				
Nitrate				2622	1416	568	756	263				
Nitrite				86	12	6	7	2				
Alkalinity				219552	124925	55549	70173	24476				
OrthoPhosphate-P				96	47	18	24	8				
Phosphate-P				211	125	63	70	24				
Org. Carbon				41238	23954	14584	12693	4433				
Hardness CaCO3				368526	212290	88579	117438	40947				
Total Metals												
Aluminum Al				267	286	160	186	65				
Antimony Sb				10.8	7.7	6.9	3.1	1.1				
Arsenic As				4.6	2.4	0.9	1.2	0.4				
Barium Ba				25	16	6	9	3				
Beryllium Be				0.37	0.19	0.08	0.10	0.03				
Bismuth Bi				8.15	4.00	1.54	2.02	0.69				
Boron B				262	109	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.00				
Calcium Ca				148792	80813	33281	44362	15904				
Chromium Cr				7	2	1	1	0				
Cobalt Co				4.17	2.48	2.39	1.13	0.39				
Copper Cu				12	9	3	5	2				
Iron Fe				392	576	167	229	80				
Lead Pb				0.34	0.39	0.11	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56561	31480	13350	16801	5863				
Manganese Mn				58	98	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.30	2.23	0.94	1.17	0.40				
Nickel Ni				6.26	4.20	1.51	1.89	0.65				
Phosphorus P				251	145	71	80	28				
Potassium K				34848	17991	7307	9300	3216				
Selenium Se				6.69	2.70	1.23	1.43	0.50				
Silicon SiO2				5163	3057	1271	1643	572				
Silver Ag				0.07	0.04	0.02	0.02	0.01				
Sodium Na				300688	174120	82322	110659	42062				
Strontium Sr				326	205	75	106	37				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.02	0.01	0.01	0.00				
Tin Sn				4.15	2.42	1.00	1.29	0.45				
Titanium Ti				45	28	12	15	5				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.72	1.12	0.81	0.82	0.28				
Zinc Zn				15.47	18.56	7.07	6.37	2.22				
Zirconium Zr				38	24	10	13	4				

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Table I-4-a-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1649633	844341	350162	477954	165786				
TSS				30114	27049	11639	17262	6028				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				23	11	4	5	2				
Sulphate				45507	23985	9847	12226	4226				
Chloride				858521	468797	185319	234782	81243				
Total Ammonia				62	61	35	41	14				
Nitrate				1864	983	398	467	165				
Nitrite				20	14	6	7	2				
Alkalinity				216162	123072	54813	68410	23877				
OrthoPhosphate-P				67	32	12	14	5				
Phosphate-P				183	110	57	60	21				
Org. Carbon				41509	24095	14641	12662	4422				
Hardness CaCO3				360257	207793	86790	113734	39688				
Total Metals												
Aluminum Al				275	290	162	186	65				
Antimony Sb				8.2	6.3	6.3	2.2	0.8				
Arsenic As				4.4	2.3	0.9	1.1	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.30	0.15	0.06	0.07	0.02				
Bismuth Bi				5.65	2.66	1.00	1.13	0.39				
Boron B				261	108	47	58	20				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				146499	74862	29394	34520	11902				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.98	1.84	2.14	0.71	0.24				
Copper Cu				11	8	3	4	1				
Iron Fe				402	581	169	229	80				
Lead Pb				0.30	0.36	0.11	0.13	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56017	31182	13230	16491	5757				
Manganese Mn				55	97	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.32	1.71	0.73	0.82	0.28				
Nickel Ni				5.29	3.68	1.30	1.53	0.53				
Phosphorus P				213	125	62	66	23				
Potassium K				30551	15683	6384	7721	2680				
Selenium Se				6.73	2.72	1.24	1.42	0.50				
Silicon SiO2				4853	2890	1204	1506	526				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				437584	221035	92574	108624	37671				
Strontium Sr				319	202	73	103	36				
Tellurium Te				376	233	98	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.79	2.22	0.92	1.15	0.40				
Titanium Ti				46	29	12	15	5				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.34	0.91	0.72	0.66	0.23				
Zinc Zn				13.03	17.24	6.54	5.44	1.90				
Zirconium Zr				38	24	10	13	4				

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Table I-4-a-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1348988	706899	298900	433395	148496				
TSS				29951	26971	11609	17297	6028				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				12	6	2	3	1				
Sulphate				33368	18409	7762	10369	3513				
Chloride				658468	377358	151216	204882	69696				
Total Ammonia				38	46	29	33	12				
Nitrate				816	470	201	277	93				
Nitrite				15	11	5	5	2				
Alkalinity				210537	120486	53843	67953	23617				
OrthoPhosphate-P				37	18	7	9	3				
Phosphate-P				153	97	52	56	19				
Org. Carbon				41323	24005	14607	12727	4427				
Hardness CaCO3				348734	202509	84813	112518	39109				
Total Metals												
Aluminum Al				269	287	161	186	65				
Antimony Sb				5.5	5.1	5.9	1.8	0.6				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.19	0.10	0.04	0.05	0.02				
Bismuth Bi				2.99	1.44	0.55	0.72	0.23				
Boron B				257	106	46	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				105362	56013	22356	28247	9498				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.70	1.25	1.92	0.51	0.17				
Copper Cu				10	8	3	4	1				
Iron Fe				400	580	169	231	80				
Lead Pb				0.22	0.32	0.09	0.11	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54986	30702	13050	16412	5710				
Manganese Mn				52	95	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.27	1.23	0.55	0.66	0.22				
Nickel Ni				4.19	3.17	1.12	1.37	0.47				
Phosphorus P				167	103	54	59	20				
Potassium K				25833	13524	5578	7032	2410				
Selenium Se				6.68	2.69	1.23	1.43	0.50				
Silicon SiO2				4371	2659	1116	1441	497				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				365719	188178	80318	98049	33551				
Strontium Sr				310	197	71	102	35				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.37	2.02	0.85	1.09	0.38				
Titanium Ti				46	29	12	16	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				4.79	0.65	0.63	0.58	0.20				
Zinc Zn				10.13	15.89	6.03	5.01	1.73				
Zirconium Zr				38	23	10	13	4				

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Table I-4-a-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1208037	640342	273705	392674	136850				
TSS				29917	26956	11604	17224	6015				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				7	3	1	1	0				
Sulphate				27741	15726	6739	8748	3044				
Chloride				564496	332976	134415	178000	61977				
Total Ammonia				38	36	26	31	11				
Nitrate				406	196	75	86	29				
Nitrite				15	9	4	5	2				
Alkalinity				208170	119375	53425	66867	23353				
OrthoPhosphate-P				23	12	5	5	2				
Phosphate-P				139	90	49	51	18				
Org. Carbon				41302	23998	14604	12622	4409				
Hardness CaCO3				343689	200134	83917	110534	38602				
Total Metals												
Aluminum Al				270	286	160	184	64				
Antimony Sb				4.2	4.5	5.6	1.4	0.5				
Arsenic As				3.8	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.15	0.08	0.03	0.04	0.01				
Bismuth Bi				1.74	0.85	0.32	0.37	0.13				
Boron B				256	106	46	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				86132	46885	18888	22781	7915				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.11	0.97	1.81	0.34	0.12				
Copper Cu				10	7	3	4	1				
Iron Fe				401	580	169	229	80				
Lead Pb				0.20	0.31	0.08	0.10	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54573	30504	12974	16204	5660				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.78	0.99	0.46	0.52	0.18				
Nickel Ni				3.69	2.93	1.02	1.22	0.42				
Phosphorus P				148	94	50	53	18				
Potassium K				23633	12484	5185	6383	2226				
Selenium Se				6.68	2.69	1.22	1.41	0.49				
Silicon SiO2				4184	2563	1077	1361	476				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				332086	172296	74306	88248	30757				
Strontium Sr				306	195	71	100	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				3.18	1.93	0.81	1.03	0.36				
Titanium Ti				46	29	12	15	5				
Uranium U				0.21	0.15	0.08	0.08	0.03				
Vanadium V				4.57	0.54	0.58	0.50	0.17				
Zinc Zn				8.84	15.27	5.79	4.60	1.62				
Zirconium Zr				38	23	10	13	4				

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Table I-4-a-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1131301	604436	260169	377448	131677				
TSS				29911	26955	11603	17223	6014				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				4	2	1	1	0				
Sulphate				24592	14251	6183	8124	2831				
Chloride				513282	309004	125378	167839	58524				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				206962	118815	53216	66627	23272				
OrthoPhosphate-P				15	8	3	4	1				
Phosphate-P				131	86	48	50	17				
Org. Carbon				41310	24003	14607	12623	4409				
Hardness CaCO3				341047	198903	83456	110009	38424				
Total Metals												
Aluminum Al				269	286	160	183	64				
Antimony Sb				3.5	4.1	5.5	1.3	0.5				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.12	0.06	0.03	0.03	0.01				
Bismuth Bi				1.05	0.52	0.20	0.24	0.08				
Boron B				255	105	46	56	20				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				75499	41907	17011	20671	7198				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.77	0.81	1.75	0.27	0.09				
Copper Cu				9	7	3	4	1				
Iron Fe				402	581	169	229	80				
Lead Pb				0.17	0.30	0.08	0.10	0.03				
Lithium Li				21	13	6	7	3				
Magnesium Mg				54352	30402	12936	16160	5645				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.51	0.87	0.41	0.47	0.16				
Nickel Ni				3.41	2.80	0.97	1.16	0.41				
Phosphorus P				135	88	48	50	18				
Potassium K				22434	11924	4973	6145	2145				
Selenium Se				6.67	2.69	1.22	1.41	0.49				
Silicon SiO2				4060	2505	1055	1337	467				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				313788	163735	71079	84618	29524				
Strontium Sr				303	194	70	100	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				3.07	1.88	0.79	1.01	0.35				
Titanium Ti				46	29	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.43	0.48	0.56	0.47	0.16				
Zinc Zn				8.09	14.92	5.66	4.45	1.57				
Zirconium Zr				38	23	10	13	4				

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Table I-4-a-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1084533	583016	252171	371986	129241				
TSS				29847	26923	11591	17273	6021				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				2	1	0	0	0				
Sulphate				22710	13391	5862	7868	2728				
Chloride				482327	294844	120092	163979	56870				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205842	118288	53015	66865	23276				
OrthoPhosphate-P				11	6	2	3	1				
Phosphate-P				127	84	47	49	17				
Org. Carbon				41221	23958	14589	12704	4420				
Hardness CaCO3				338932	197919	83082	110244	38396				
Total Metals												
Aluminum Al				267	285	160	185	64				
Antimony Sb				3.1	3.9	5.4	1.2	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				0.64	0.34	0.13	0.17	0.06				
Boron B				254	105	45	56	20				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				69159	39010	15931	19796	6845				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.57	0.72	1.72	0.24	0.08				
Copper Cu				9	7	2	4	1				
Iron Fe				400	580	169	231	80				
Lead Pb				0.16	0.29	0.08	0.10	0.03				
Lithium Li				21	13	6	7	3				
Magnesium Mg				54138	30301	12897	16211	5646				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.35	0.80	0.39	0.45	0.15				
Nickel Ni				3.24	2.72	0.94	1.15	0.40				
Phosphorus P				128	85	47	49	17				
Potassium K				21693	11583	4846	6069	2108				
Selenium Se				6.66	2.68	1.22	1.42	0.49				
Silicon SiO2				3970	2463	1040	1340	465				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				302558	158589	69157	83381	28951				
Strontium Sr				302	193	70	100	35				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				3.00	1.85	0.78	1.00	0.35				
Titanium Ti				46	29	12	16	5				
Uranium U				0.20	0.14	0.08	0.08	0.03				
Vanadium V				4.33	0.43	0.54	0.47	0.16				
Zinc Zn				7.62	14.70	5.58	4.41	1.54				
Zirconium Zr				37	23	10	13	4				

Appendix I

Table I-4-a-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1063722	573231	248476	364428	127259				
TSS				29860	26930	11594	17213	6011				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				1	0	0	0	0				
Sulphate				21847	12984	5709	7595	2652				
Chloride				468374	288274	117610	159187	55588				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205608	118185	52978	66365	23183				
OrthoPhosphate-P				9	5	2	2	1				
Phosphate-P				125	83	47	49	17				
Org. Carbon				41246	23972	14595	12611	4405				
Hardness CaCO3				338340	197648	82983	109487	38247				
Total Metals												
Aluminum Al				267	285	160	183	64				
Antimony Sb				2.9	3.8	5.4	1.2	0.4				
Arsenic As				3.5	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.09	0.05	0.02	0.02	0.01				
Bismuth Bi				0.45	0.25	0.10	0.12	0.04				
Boron B				254	105	45	56	20				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				66241	37635	15410	18888	6593				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.48	0.68	1.70	0.21	0.07				
Copper Cu				9	7	2	4	1				
Iron Fe				401	580	169	229	80				
Lead Pb				0.15	0.29	0.08	0.09	0.03				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54097	30283	12891	16111	5628				
Manganese Mn				49	93	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.27	0.76	0.37	0.42	0.15				
Nickel Ni				3.16	2.68	0.93	1.12	0.39				
Phosphorus P				125	83	46	48	17				
Potassium K				21370	11432	4789	5940	2075				
Selenium Se				6.66	2.68	1.22	1.40	0.49				
Silicon SiO2				3940	2450	1035	1314	460				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				297615	156266	68280	81502	28466				
Strontium Sr				301	193	70	99	35				
Tellurium Te				373	232	98	125	44				
Thallium Tl				0.22	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				2.97	1.84	0.77	0.99	0.35				
Titanium Ti				46	29	12	15	5				
Uranium U				0.20	0.14	0.08	0.08	0.03				
Vanadium V				4.29	0.42	0.53	0.44	0.15				
Zinc Zn				7.42	14.61	5.54	4.32	1.52				
Zirconium Zr				37	23	10	13	4				

Table I-4-a-C.1
Scenario 3 - Sediment Control Option 1

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year			8		
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	Creek (%)
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.3	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1043	113	91	
Total Ammonia	mg/L		0.97	1.31	0.085	0.045	9%
Nitrate	mg/L		2.9	6.9	0.39	0.21	13%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.09	0.08	0.25	81%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00072	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.032	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000067	0.0000068	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.09	0.12	0.28	41%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000069	0.0000010	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.306	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00062	0.00088	0.00084	88%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000089	0.0000074	9%
Sodium Na	mg/L			381	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.002001	4%
Thorium Th	mg/L			0.000047	0.0000040	0.0000021	
Tin Sn	mg/L			0.00297	0.00054	0.00009	
Titanium Ti	mg/L			0.0080	0.0061	0.0062	
Uranium U	mg/L			0.000076	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0046	0.0050	0.0051	

Appendix I

Table I-4-a-C.2
Scenario 3 - Sediment Control Option 1

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				155	155	146	167	168				
TSS	mg/L				7.0	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.05	0.01	0.01	0.02	0.02				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.4	5.5	5.5	5.7				
Chloride	mg/L				63	61	60	69	70				
Total Ammonia	mg/L				0.012	0.024	0.005	0.016	0.016				
Nitrate	mg/L				0.04	0.06	0.07	0.10	0.11				
Nitrite	mg/L				0.007	0.008	0.006	0.004	0.009				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0018	0.0019	0.0021	0.0024	0.0027				
Phosphate-P	mg/L				0.0249	0.0170	0.0082	0.0205	0.0208				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00002				
Bismuth Bi	mg/L				0.00015	0.00019	0.00023	0.00026	0.00029				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000048	0.0000155	0.0000031	0.0000033				
Calcium Ca	mg/L				9	8	9	10	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00024	0.00023	0.00031	0.00029	0.00031				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.018	0.009	0.022	0.022				
Potassium K	mg/L				3.0	2.5	2.5	2.9	3.0				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.55	0.56	0.57				
Silver Ag	mg/L				0.0000053	0.0000030	0.0000057	0.0000042	0.0000043				
Sodium Na	mg/L				38	32	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-a-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				164	163	153	174	175				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00010		0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001		0.0000	0.0000	0.0000				
CNO	mg/L				0.12		0.02	0.02	0.02				
SCN	mg/L				0.003	0.002	0.002	0.003	0.003				
Sulphate	mg/L				6.2	5.8	6.8	6.8	7.0				
Chloride	mg/L				70	66	65	74	75				
Total Ammonia	mg/L				0.025	0.045	0.002	0.017	0.016				
Nitrate	mg/L				0.15	0.16	0.16	0.19	0.20				
Nitrite	mg/L				0.018	0.007	0.006	0.004	0.009				
Alkalinity	mg/L				24	24	25	27	27				
OrthoPhosphate-P	mg/L				0.0044	0.0039	0.0040	0.0043	0.0045				
Phosphate-P	mg/L				0.0275	0.0190	0.0101	0.0224	0.0226				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0020	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00038	0.00037	0.00039	0.00043	0.00045				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000043	0.0000057	0.0000163	0.0000040	0.0000041				
Calcium Ca	mg/L				14	12	12	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.009				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00042	0.00037	0.00044	0.00043	0.00044				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.030	0.021	0.012	0.025	0.025				
Potassium K	mg/L				3.8	3.1	3.1	3.5	3.6				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.60	0.60	0.61	0.62				
Silver Ag	mg/L				0.0000064	0.0000039	0.0000065	0.0000050	0.0000051				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000002	0.000002				
Tin Sn	mg/L				0.00004	0.00004	0.00005	0.00005	0.00006				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-a-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow											
Date		Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3
		Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10
Parameter													
TDS	mg/L				170	167	157	178	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00007								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.07								
SCN	mg/L				0.003	0.003	0.002	0.003	0.002				
Sulphate	mg/L				6.9	6.3	7.1	6.9	6.9				
Chloride	mg/L				74	70	69	78	78				
Total Ammonia	mg/L				0.021	0.030	0.002	0.009	0.010				
Nitrate	mg/L				0.21	0.19	0.18	0.20	0.20				
Nitrite	mg/L				0.016	0.006	0.006	0.003	0.003				
Alkalinity	mg/L				25	25	25	27	27				
OrthoPhosphate-P	mg/L				0.0061	0.0054	0.0053	0.0057	0.0059				
Phosphate-P	mg/L				0.0292	0.0205	0.0114	0.0238	0.0240				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				47	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00052	0.00050	0.00051	0.00055	0.00057				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000047	0.0000060	0.0000164	0.0000040	0.0000040				
Calcium Ca	mg/L				16	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0016	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	5.3	5.4	7.4	7.4				
Manganese Mn	mg/L				0.025	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00048	0.00041	0.00046	0.00042	0.00042				
Nickel Ni	mg/L				0.0009	0.0007	0.0009	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.023	0.014	0.026	0.027				
Potassium K	mg/L				4.1	3.3	3.2	3.5	3.5				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.63	0.61	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000071	0.0000044	0.0000069	0.0000054	0.0000054				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000102	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00007	0.00006	0.00007	0.00007	0.00008				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0042	0.0023	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-a-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				171	172	166	193	199				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.2	5.6	6.5	6.3	6.2				
Chloride	mg/L				77	74	75	88	91				
Total Ammonia	mg/L				0.009	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.18	0.16	0.14	0.16	0.16				
Nitrite	mg/L				0.007	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0071	0.0058	0.0054	0.0055	0.0054				
Phosphate-P	mg/L				0.0302	0.0210	0.0116	0.0237	0.0236				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0010	0.0021	0.0016	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00064	0.00052	0.00049	0.00050	0.00049				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000044	0.0000057	0.0000162	0.0000037	0.0000037				
Calcium Ca	mg/L				14	12	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00039	0.00033	0.00039	0.00036	0.00035				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.023	0.014	0.026	0.026				
Potassium K	mg/L				3.7	3.0	2.9	3.2	3.2				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.59	0.59	0.59	0.59				
Silver Ag	mg/L				0.0000074	0.0000045	0.0000069	0.0000054	0.0000054				
Sodium Na	mg/L				39	34	38	43	45				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00009	0.00007	0.00006	0.00007	0.00006				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0021	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-a-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				194	183	170	186	186				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.5	5.0	5.8	5.5	5.4				
Chloride	mg/L				90	80	77	82	82				
Total Ammonia	mg/L				0.007	0.008	0.002	0.009	0.009				
Nitrate	mg/L				0.13	0.11	0.10	0.10	0.10				
Nitrite	mg/L				0.002	0.003	0.001	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0052	0.0042	0.0038	0.0035	0.0034				
Phosphate-P	mg/L				0.0284	0.0193	0.0100	0.0216	0.0216				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0020	0.0014	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00047	0.00038	0.00035	0.00032	0.00031				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000041	0.0000054	0.0000159	0.0000033	0.0000034				
Calcium Ca	mg/L				14	11	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00033	0.00028	0.00034	0.00028	0.00028				
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.030	0.021	0.011	0.023	0.023				
Potassium K	mg/L				3.4	2.7	2.6	2.9	2.9				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.59	0.57	0.57	0.56	0.56				
Silver Ag	mg/L				0.0000072	0.0000044	0.0000068	0.0000047	0.0000047				
Sodium Na	mg/L				48	39	41	42	42				
Strontium Sr	mg/L				0.046	0.038	0.040	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00005	0.00004	0.00004	0.00004				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0039	0.0020	0.0018	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-a-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				173	168	157	177	176				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.7	4.4	5.3	5.1	5.0				
Chloride	mg/L				76	70	68	76	75				
Total Ammonia	mg/L				0.005	0.006	0.001	0.007	0.007				
Nitrate	mg/L				0.06	0.05	0.05	0.06	0.06				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0032	0.0026	0.0025	0.0025	0.0024				
Phosphate-P	mg/L				0.0263	0.0179	0.0087	0.0207	0.0206				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0007				
Arsenic As	mg/L				0.0005	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0042				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00029	0.00024	0.00023	0.00023	0.00022				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000033	0.0000047	0.0000153	0.0000028	0.0000028				
Calcium Ca	mg/L				11	9	9	10	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.2	5.3	7.3	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00026	0.00022	0.00029	0.00025	0.00025				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.019	0.009	0.021	0.021				
Potassium K	mg/L				3.1	2.5	2.4	2.7	2.7				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000059	0.0000032	0.0000057	0.0000042	0.0000039				
Sodium Na	mg/L				43	35	38	40	40				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00003	0.00003	0.00002	0.00003	0.00002				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-a-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				164	161	150	169	169				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.3	4.1	5.0	4.8	4.8				
Chloride	mg/L				70	65	63	71	71				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.03	0.02	0.02	0.02	0.02				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0022	0.0019	0.0018	0.0017	0.0017				
Phosphate-P	mg/L				0.0254	0.0171	0.0080	0.0199	0.0199				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00020	0.00018	0.00017	0.00016	0.00016				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000045	0.0000150	0.0000025	0.0000024				
Calcium Ca	mg/L				9	8	8	9	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00022	0.00020	0.00027	0.00022	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.018	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.4	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.53	0.53				
Silver Ag	mg/L				0.0000056	0.0000029	0.0000053	0.0000034	0.0000033				
Sodium Na	mg/L				41	34	36	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-a-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				158	157	147	166	166				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.1	3.9	4.9	4.6	4.6				
Chloride	mg/L				66	62	61	69	69				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0015	0.0015	0.0014	0.0014				
Phosphate-P	mg/L				0.0249	0.0167	0.0077	0.0196	0.0196				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00016	0.00014	0.00014	0.00013	0.00013				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000029	0.0000043	0.0000148	0.0000023	0.0000023				
Calcium Ca	mg/L				9	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000007	0.0000008				
Molybdenum Mo	mg/L				0.00021	0.00018	0.00025	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000052	0.0000026	0.0000051	0.0000032	0.0000031				
Sodium Na	mg/L				40	33	35	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-a-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				155	155	144	165	164				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.9	3.8	4.8	4.6	4.6				
Chloride	mg/L				64	61	60	68	68				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0013	0.0013	0.0012				
Phosphate-P	mg/L				0.0245	0.0165	0.0075	0.0195	0.0195				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00013	0.00012	0.00012	0.00012	0.00012				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000027	0.0000042	0.0000147	0.0000022	0.0000022				
Calcium Ca	mg/L				8	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00019	0.00018	0.00025	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.007	0.020	0.019				
Potassium K	mg/L				2.8	2.3	2.2	2.5	2.5				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000049	0.0000024	0.0000049	0.0000033	0.0000031				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000044	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-a-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				154	154	143	163	163			
TSS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.9	3.8	4.8	4.5	4.5			
Chloride	mg/L				63	60	59	67	67			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0012	0.0012	0.0012	0.0011	0.0011			
Phosphate-P	mg/L				0.0244	0.0164	0.0074	0.0193	0.0193			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00012	0.00011	0.00011	0.00011	0.00011			
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000026	0.0000041	0.0000147	0.0000022	0.0000022			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2			
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008			
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007			
Molybdenum Mo	mg/L				0.00019	0.00017	0.00024	0.00020	0.00020			
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.8	2.2	2.2	2.5	2.5			
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061			
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52			
Silver Ag	mg/L				0.0000048	0.0000023	0.0000048	0.0000029	0.0000029			
Sodium Na	mg/L				38	32	34	37	37			
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062			
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043			
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0051	0.0052			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-4-a-C.3
Scenario 3 - Sediment Control Option 1

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	151	153				
TSS				3.9	5.6	5.8	6.7	6.7				
Free CN				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.09	0.01	0.03	0.03	0.03				
SCN				0.001	0.001	0.002	0.002	0.002				
Sulphate				3.8	3.9	4.3	4.9	5.2				
Chloride				61	62	62	67	69				
Total Ammonia				0.019	0.045	0.022	0.030	0.030				
Nitrate				0.08	0.11	0.14	0.19	0.21				
Nitrite				0.011	0.013	0.014	0.006	0.016				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi				0.00012	0.00021	0.00028	0.00034	0.00039				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000040	0.0000038	0.0000041	0.0000043				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.021	0.027	0.024	0.025				
Potassium K				3.2	2.9	3.0	3.1	3.3				
Selenium Se				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2				0.54	0.55	0.57	0.58	0.60				
Silver Ag				0.0000049	0.0000058	0.0000060	0.0000064	0.0000066				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000020	0.0000023	0.0000024	0.0000025				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000032	0.000040	0.000033	0.000034				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-a-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				160	139	143	165	166				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00020		0.00003		0.00003				
Total CN				0.004	0.002	0.002	0.002	0.002				
WAD CN				0.0003		0.0000	0.0000	0.0000				
CNO				0.22		0.03	0.03	0.03				
SCN				0.005	0.004	0.004	0.005	0.005				
Sulphate				7.3	6.7	6.9	7.5	7.7				
Chloride				74	73	71	77	78				
Total Ammonia				0.044	0.085	0.016	0.031	0.030				
Nitrate				0.29	0.30	0.31	0.36	0.38				
Nitrite				0.032	0.013	0.014	0.005	0.016				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000059	0.0000057	0.0000054	0.0000057	0.0000059				
Calcium Ca				21	18	18	19	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P				0.027	0.027	0.033	0.030	0.031				
Potassium K				4.8	4.1	4.1	4.3	4.4				
Selenium Se				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2				0.68	0.66	0.66	0.68	0.70				
Silver Ag				0.0000070	0.0000075	0.0000076	0.0000079	0.0000081				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.043				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000024	0.0000027	0.0000029	0.0000030	0.0000031				
Tin Sn				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0050				

Appendix I

Table I-4-a-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				171	148	150	171	172				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00013								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0002								
CNO				0.14								
SCN				0.006	0.005	0.005	0.005	0.005				
Sulphate				8.7	7.5	7.4	7.7	7.6				
Chloride				82	80	78	83	84				
Total Ammonia				0.036	0.057	0.016	0.017	0.017				
Nitrate				0.39	0.37	0.36	0.38	0.39				
Nitrite				0.030	0.009	0.014	0.004	0.005				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				50	46	46	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000068	0.0000062	0.0000056	0.0000057	0.0000057				
Calcium Ca				24	20	19	19	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0007	0.0007	0.0013	0.0006	0.0006				
Copper Cu				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.5	6.7	6.8	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P				0.032	0.031	0.036	0.033	0.033				
Potassium K				5.3	4.4	4.3	4.2	4.2				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.73	0.69	0.68	0.69	0.68				
Silver Ag				0.0000083	0.0000084	0.0000083	0.0000086	0.0000086				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.044	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000030	0.0000030	0.0000030	0.0000032	0.0000032				
Tin Sn				0.00051	0.00050	0.00051	0.00052	0.00052				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-4-a-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				173	158	169	201	212				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.005	0.004	0.003	0.003	0.003				
Sulphate				7.4	6.3	6.1	6.4	6.3				
Chloride				88	88	91	103	109				
Total Ammonia				0.012	0.012	0.017	0.016	0.016				
Nitrate				0.34	0.30	0.29	0.30	0.30				
Nitrite				0.011	0.002	0.003	0.003	0.003				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P				0.0276	0.0265	0.0314	0.0275	0.0272				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000061	0.0000057	0.0000051	0.0000052	0.0000052				
Calcium Ca				20	17	17	17	18				
Chromium Cr				0.001	0.001	0.001	0.000	0.000				
Cobalt Co				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P				0.033	0.031	0.035	0.032	0.031				
Potassium K				4.6	3.8	3.7	3.6	3.6				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.68	0.65	0.64	0.64	0.64				
Silver Ag				0.0000089	0.0000087	0.0000084	0.0000087	0.0000086				
Sodium Na				39	37	41	43	47				
Strontium Sr				0.043	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000032	0.0000034	0.0000035	0.0000037	0.0000039				
Tin Sn				0.00054	0.00051	0.00050	0.00051	0.00050				
Titanium Ti				0.0059	0.0060	0.0060	0.0060	0.0061				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0008	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-4-a-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				216	179	176	187	186				
TSS				4.0	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.002	0.002	0.002	0.002				
Sulphate				6.0	5.1	4.9	4.8	4.7				
Chloride				113	99	93	92	91				
Total Ammonia				0.008	0.013	0.017	0.016	0.016				
Nitrate				0.24	0.21	0.20	0.18	0.19				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P				0.0240	0.0233	0.0285	0.0235	0.0234				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00074	0.00056	0.00050	0.00044	0.00043				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000056	0.0000052	0.0000047	0.0000045	0.0000045				
Calcium Ca				19	16	15	14	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00044	0.00036	0.00037	0.00032	0.00032				
Nickel Ni				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.028	0.026	0.031	0.026	0.026				
Potassium K				4.0	3.3	3.2	3.0	3.0				
Selenium Se				0.00088	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.64	0.61	0.60	0.59	0.59				
Silver Ag				0.0000085	0.0000084	0.0000081	0.0000074	0.0000073				
Sodium Na				57	47	46	43	42				
Strontium Sr				0.042	0.043	0.037	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000038	0.0000039	0.0000040	0.0000038	0.0000040				
Tin Sn				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U				0.000029	0.000034	0.000042	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0017	0.0036	0.0033	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-a-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				177	150	150	170	167				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.4	3.9	3.9	4.1	3.9				
Chloride				86	80	76	80	78				
Total Ammonia				0.005	0.010	0.014	0.013	0.013				
Nitrate				0.11	0.10	0.10	0.11	0.10				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P				0.0201	0.0204	0.0259	0.0218	0.0215				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000040	0.0000039	0.0000034	0.0000035	0.0000034				
Calcium Ca				14	12	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0029	0.0028				
Magnesium Mg				7.2	6.5	6.6	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00030	0.00026	0.00028	0.00026	0.00025				
Nickel Ni				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.022	0.022	0.027	0.023	0.023				
Potassium K				3.4	2.9	2.8	2.8	2.7				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.57	0.56	0.56	0.57	0.56				
Silver Ag				0.0000059	0.0000062	0.0000061	0.0000063	0.0000058				
Sodium Na				48	40	40	38	38				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000022	0.0000023	0.0000024	0.0000026	0.0000026				
Tin Sn				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0034	0.0030	0.0020	0.0019				
Zirconium Zr				0.0049	0.0049	0.0050	0.0050	0.0050				

Appendix I

Table I-4-a-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				158	135	137	154	154				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.000				
Sulphate				3.6	3.3	3.4	3.4	3.4				
Chloride				74	70	67	70	70				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.05	0.04	0.04	0.03	0.03				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P				0.0182	0.0190	0.0247	0.0202	0.0201				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000034	0.0000029	0.0000028	0.0000027				
Calcium Ca				11	10	9	9	9				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00023	0.00021	0.00023	0.00020	0.00020				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.020	0.025	0.021	0.021				
Potassium K				3.1	2.6	2.6	2.5	2.5				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.55	0.54	0.54	0.53	0.53				
Silver Ag				0.0000054	0.0000056	0.0000053	0.0000047	0.0000047				
Sodium Na				44	36	37	35	35				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000023	0.0000020	0.0000019	0.0000017	0.0000017				
Tin Sn				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti				0.0060	0.0061	0.0061	0.0060	0.0061				
Uranium U				0.000027	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-4-a-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				148	128	131	148	148				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.2	3.0	3.1	3.2	3.2				
Chloride				67	65	63	66	66				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P				0.0172	0.0183	0.0240	0.0196	0.0196				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000032	0.0000030	0.0000025	0.0000024	0.0000024				
Calcium Ca				10	9	9	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00020	0.00018	0.00021	0.00018	0.00018				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.024	0.020	0.020				
Potassium K				2.9	2.5	2.5	2.4	2.4				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.53	0.53	0.53	0.52	0.53				
Silver Ag				0.0000046	0.0000050	0.0000048	0.0000043	0.0000042				
Sodium Na				41	35	36	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000015	0.0000015	0.0000013	0.0000013				
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0032	0.0028	0.0017	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-4-a-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

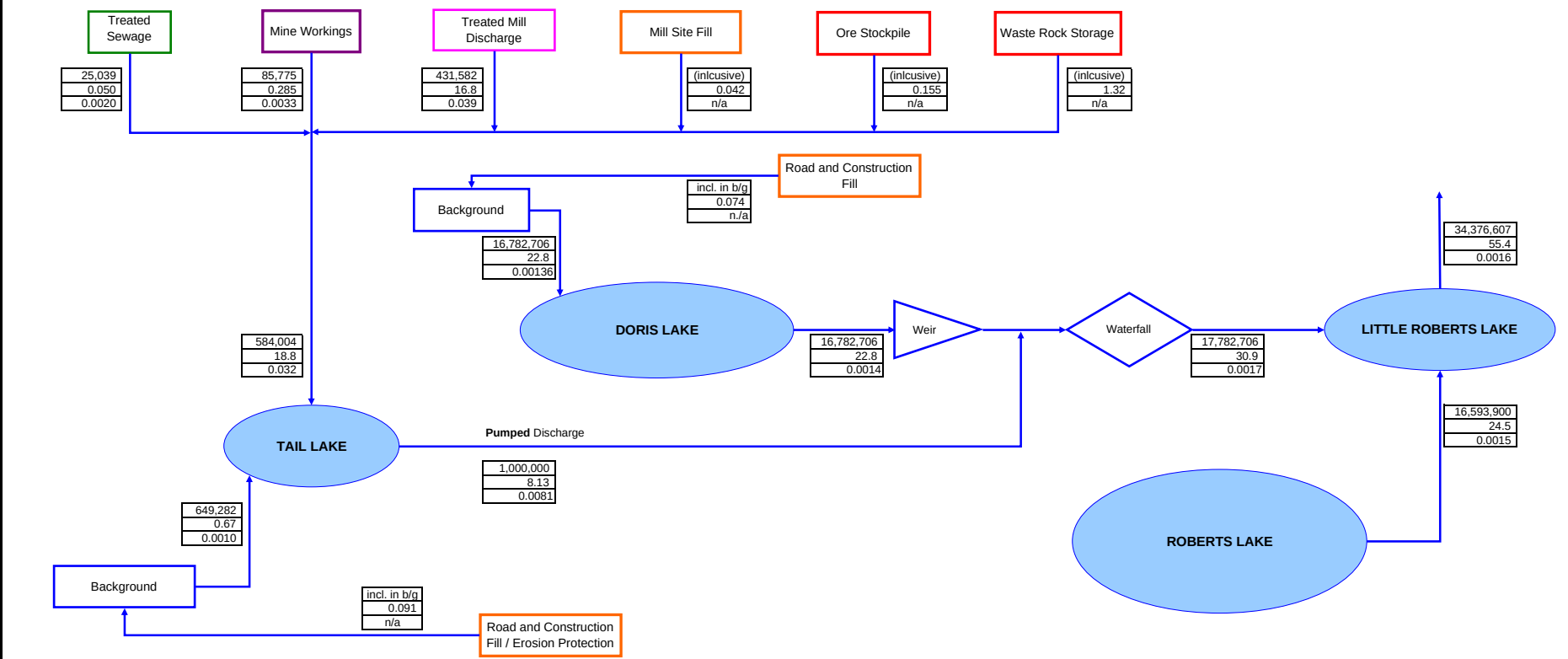
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				142	123	127	146	145				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.0	2.8	2.9	3.1	3.1				
Chloride				63	62	60	64	64				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P				0.0166	0.0178	0.0236	0.0194	0.0193				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000029	0.0000028	0.0000023	0.0000023	0.0000023				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00018	0.00017	0.00019	0.00017	0.00017				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.019	0.019				
Potassium K				2.8	2.4	2.4	2.4	2.4				
Selenium Se				0.00087	0.00057	0.00061	0.00056	0.00055				
Silicon SiO2				0.52	0.52	0.52	0.53	0.52				
Silver Ag				0.0000041	0.0000046	0.0000044	0.0000045	0.0000042				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000012	0.0000012	0.0000012	0.0000013	0.0000012				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Table I-4-a-C.3
Scenario 3 - Sediment Co

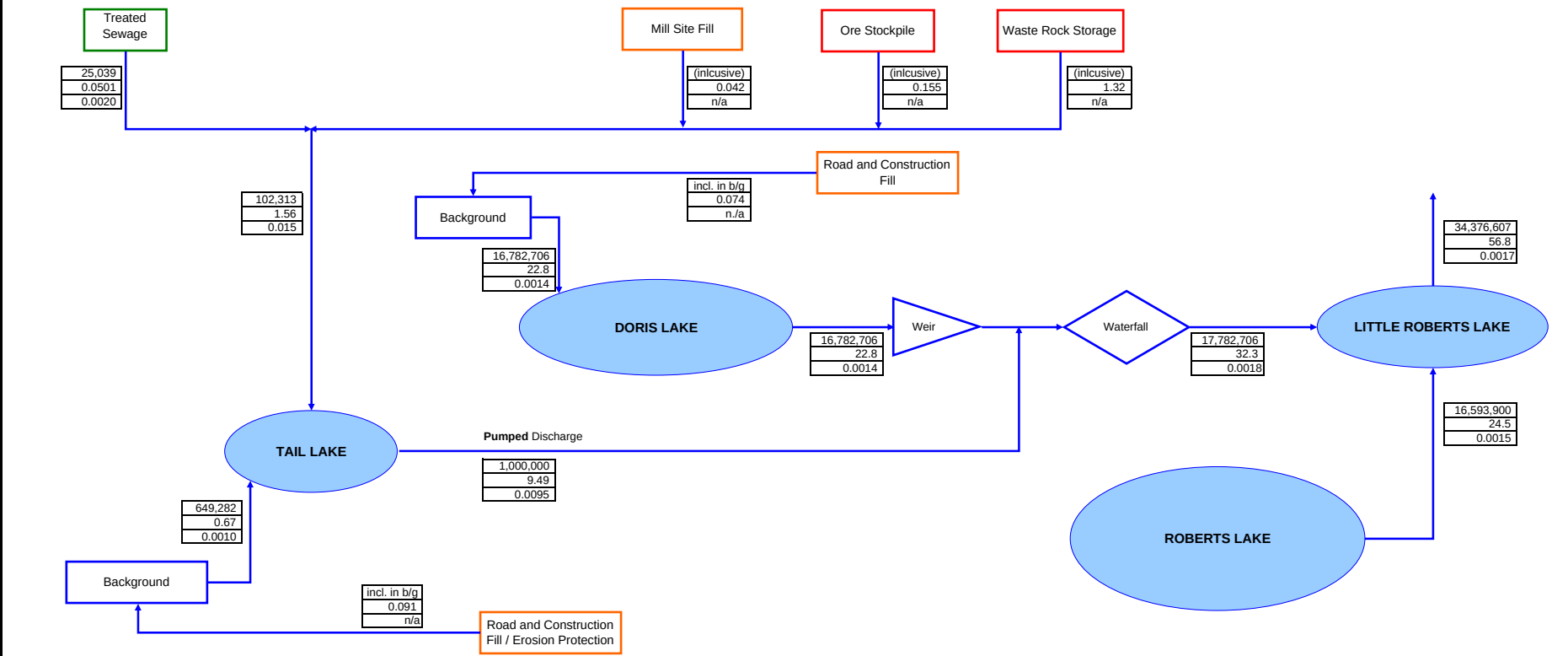
Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				140	121	125	143	143				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				2.9	2.7	2.9	3.0	3.0				
Chloride				61	61	59	62	62				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0011	0.0010	0.0010	0.0010	0.0010				
Phosphate-P				0.0164	0.0176	0.0234	0.0191	0.0191				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00006	0.00005	0.00005	0.00005	0.00005				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000027	0.0000027	0.0000022	0.0000022	0.0000022				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000009	0.0000008	0.0000008				
Molybdenum Mo				0.00017	0.00016	0.00019	0.00017	0.00017				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.016	0.018	0.023	0.019	0.019				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00087	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.52	0.52	0.52	0.52	0.52				
Silver Ag				0.0000039	0.0000044	0.0000043	0.0000039	0.0000038				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.039	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000029	0.000030	0.000030	0.000029	0.000030				
Thorium Th				0.0000011	0.0000011	0.0000011	0.0000010	0.0000010				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0060	0.0061	0.0061	0.0060	0.0061				
Uranium U				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

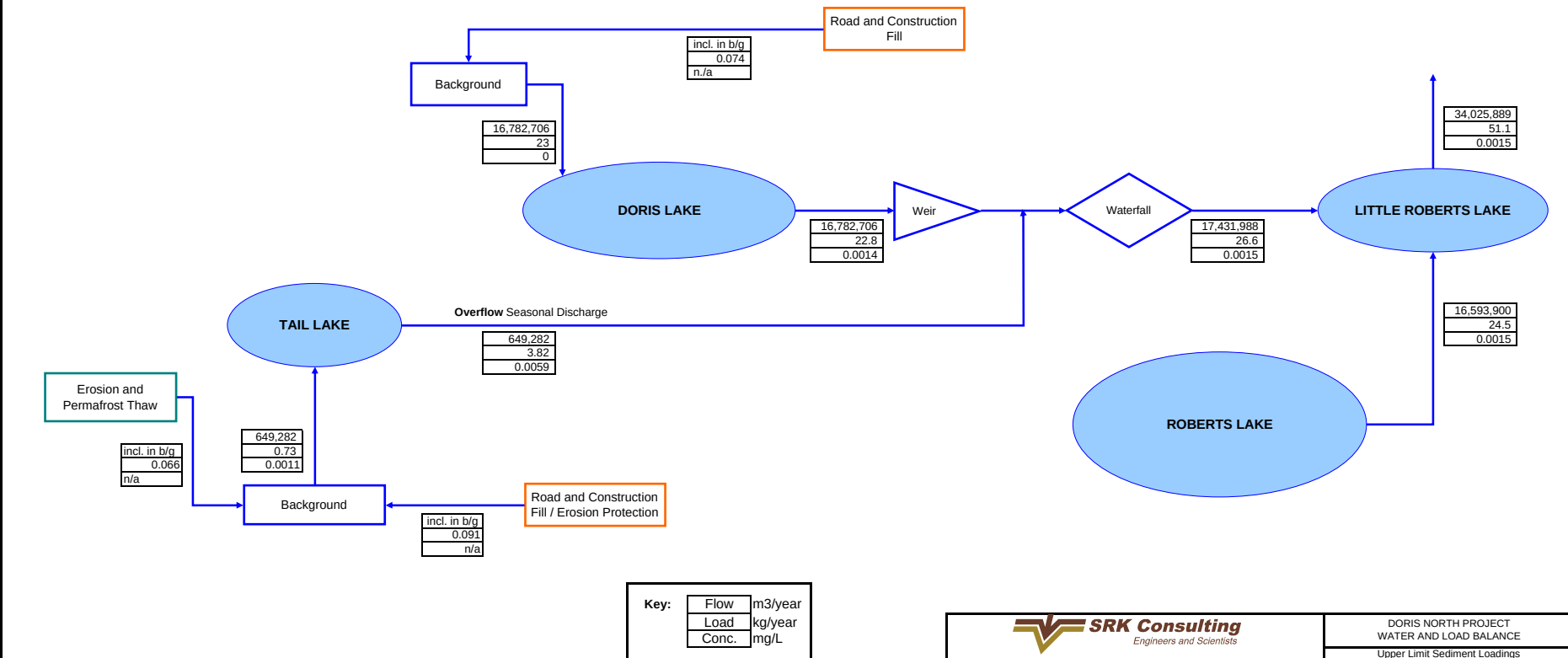
Sediment Control Option 2 - OPERATIONAL CONDITIONS
Year 2

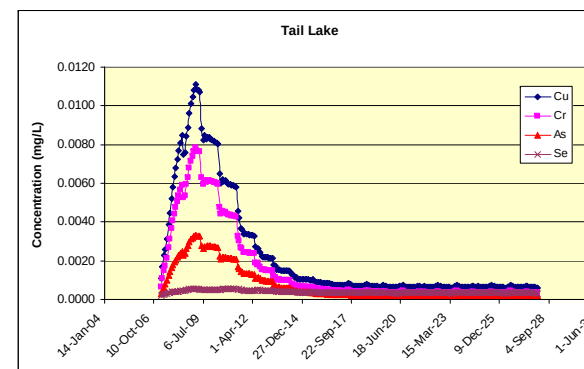
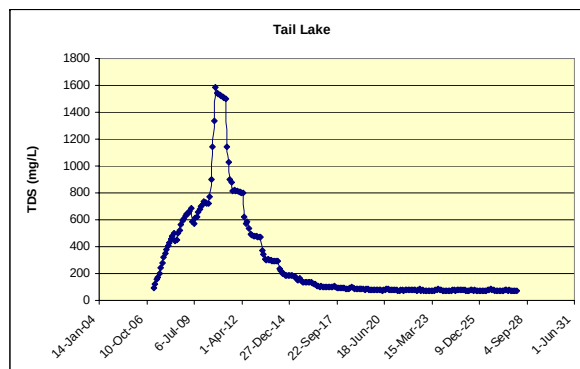
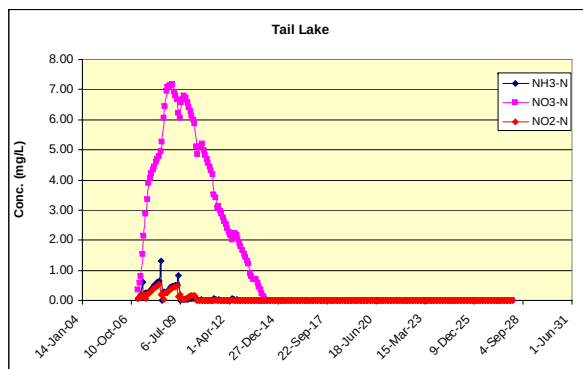
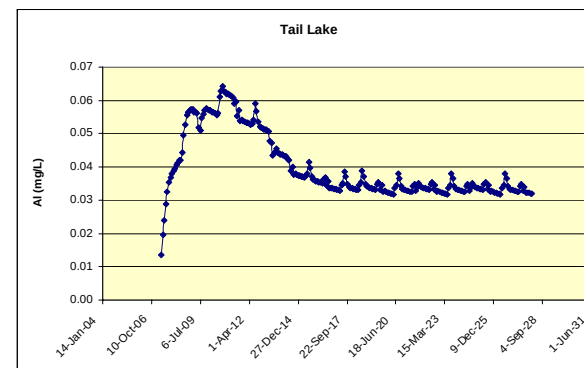
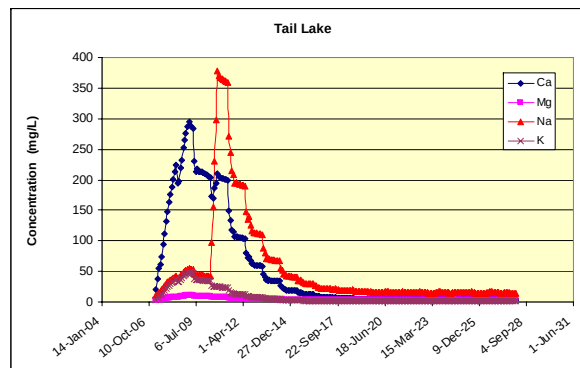
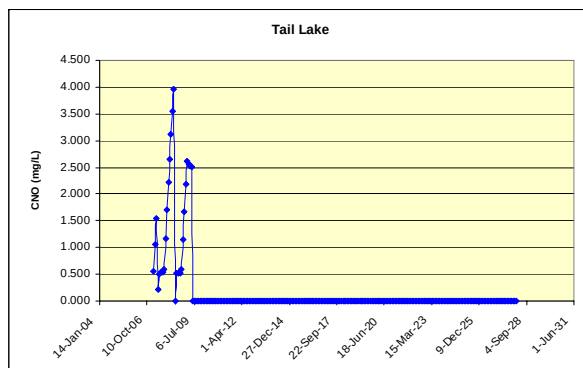
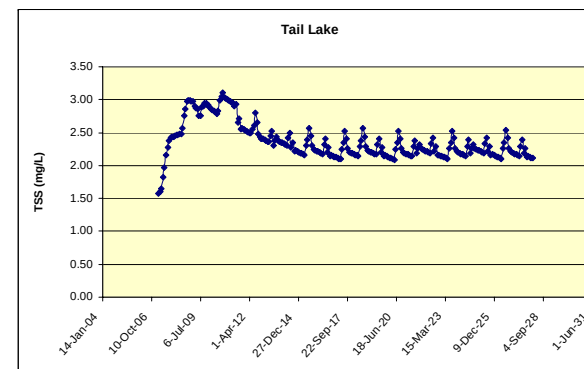
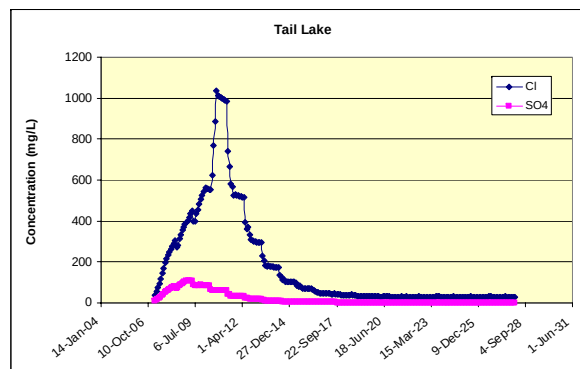
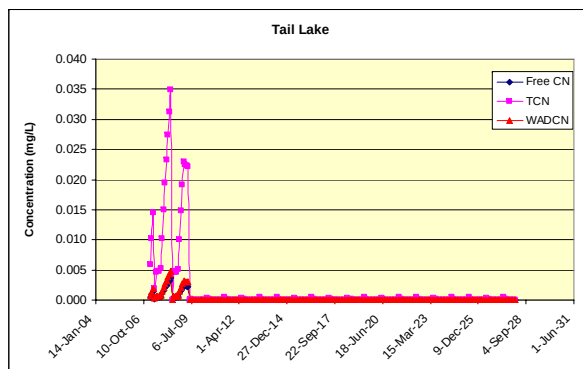


POST MILLING OPERATIONAL CONDITIONS
Year 3

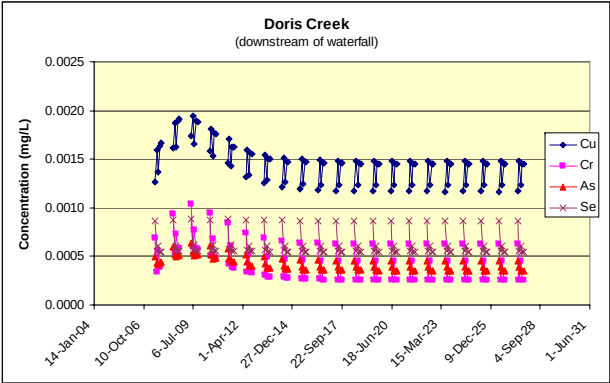
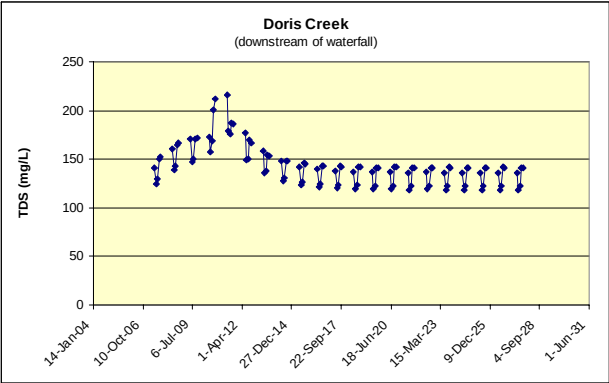
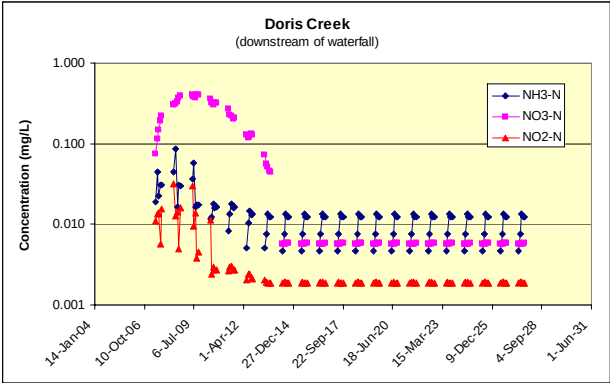
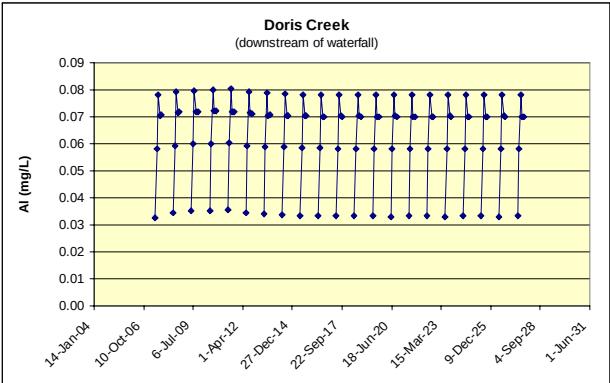
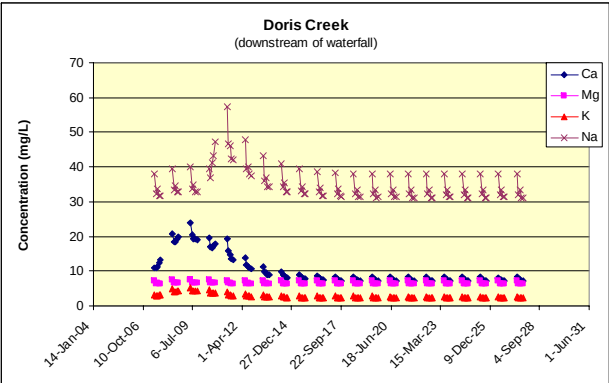
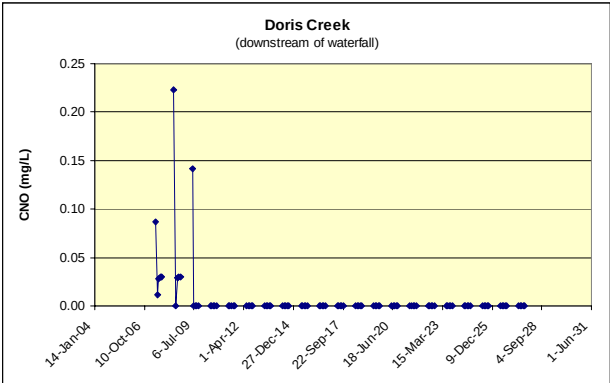
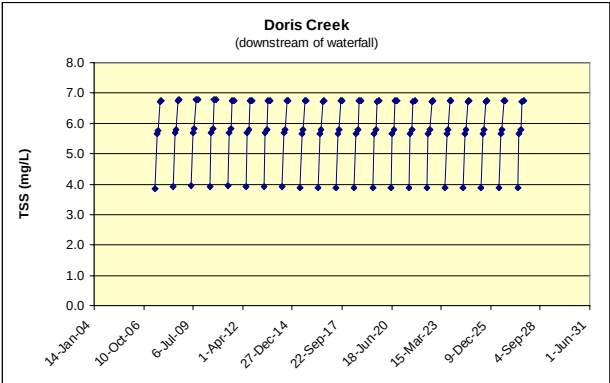
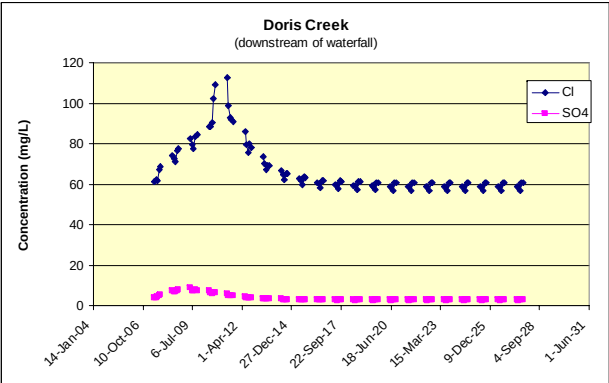
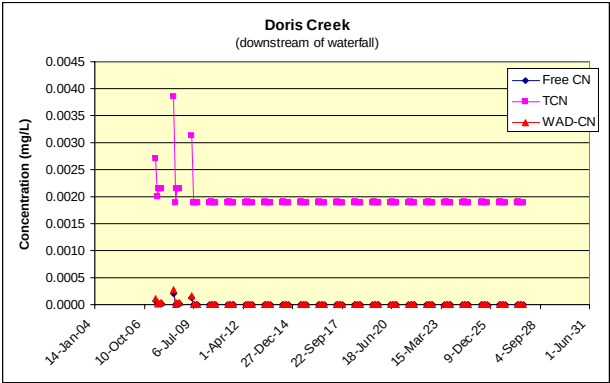


POST CLOSURE CONDITIONS
Year 5





Sediment Control Option 2



Appendix I

Table I-4-b-A.1
Scenario 3 - Sediment Control Option 2

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.1	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1038	112	91	
Total Ammonia	mg/L		0.97	1.32	0.085	0.045	9%
Nitrate	mg/L		2.9	7.2	0.40	0.21	14%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.06	0.08	0.25	80%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00073	0.00005	0.00003	
Bismuth Bi	mg/L			0.01879	0.00107	0.00064	
Boron B	mg/L			0.033	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000069	0.0000069	0.0000165	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	104%
Cobalt Co	mg/L			0.0123	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.00194	0.0021	97%
Iron Fe	mg/L		0.3	0.07	0.12	0.28	41%
Lead Pb	mg/L	0.2	0.002	0.00048	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.7	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000070	0.00000101	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.308	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00056	0.0009	0.00084	88%
Silicon SiO2	mg/L			4.7	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000091	0.0000075	9%
Sodium Na	mg/L			379	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000049	0.000031	0.0020	4%
Thorium Th	mg/L			0.000047	0.0000041	0.0000021	
Tin Sn	mg/L			0.00298	0.00055	0.00009	
Titanium Ti	mg/L			0.0062	0.0060	0.0062	
Uranium U	mg/L			0.000079	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0048	0.0050	0.0052	

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Option 2

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	173	202	245	280	321	353	381	407	429
TSS	mg/L	1.6	1.6	1.6	1.8	2.0	2.2	2.3	2.4	2.4	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00141	0.00019	0.00046	0.00049	0.00048	0.00054	0.00105	0.00155	0.00201	0.00241
Total CN	mg/L	0.006	0.010	0.015	0.002	0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0003	0.0006	0.0007	0.0006	0.0007	0.0014	0.0021	0.0027	0.0032
CNO	mg/L	0.55	1.06	1.55	0.21	0.50	0.54	0.53	0.59	1.16	1.70	2.22	2.65
SCN	mg/L	0.008	0.014	0.021	0.023	0.029	0.037	0.043	0.052	0.058	0.064	0.070	0.075
Sulphate	mg/L	7.5	13.4	19.3	23.0	28.5	36.1	42.5	49.9	55.6	60.7	65.5	69.6
Chloride	mg/L	37	57	77	95	118	147	171	197	216	233	248	262
Total Ammonia	mg/L	0.070	0.133	0.194	0.610	0.111	0.267	0.269	0.263	0.328	0.389	0.447	0.496
Nitrate	mg/L	0.35	0.58	0.80	1.51	2.12	2.87	3.36	3.88	4.06	4.20	4.34	4.44
Nitrite	mg/L	0.054	0.102	0.150	0.197	0.203	0.059	0.234	0.234	0.285	0.332	0.376	0.413
Alkalinity	mg/L	16	18	21	23	26	30	34	37	40	42	44	45
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0313	0.0381	0.0486	0.0572	0.0678	0.0765	0.0842	0.0916	0.0978
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0349	0.0416	0.0522	0.0608	0.0714	0.0800	0.0877	0.0949	0.1010
Org. Carbon	mg/L	3.0	2.9	2.8	3.1	3.4	3.6	3.6	3.6	3.6	3.5	3.3	3.3
Hardness CaCO3	mg/L	23	29	35	38	45	53	60	68	74	78	83	87
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0034	0.0046	0.0057	0.0067	0.0076	0.0080	0.0084	0.0088	0.0091
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0019	0.0021	0.0022
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0032	0.0038	0.0046	0.0053	0.0062	0.0068	0.0073	0.0078	0.0082
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00023	0.00028	0.00032	0.00035	0.00038	0.00040	0.00041	0.00042	0.00043
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00318	0.00436	0.00541	0.00637	0.00717	0.00760	0.00795	0.00828	0.00855
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.017	0.018	0.020	0.021	0.022	0.022	0.023
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000162	0.0000211	0.0000263	0.0000308	0.0000351	0.0000379	0.0000403	0.0000425	0.0000444
Calcium Ca	mg/L	21	38	54	61	74	94	111	131	148	162	176	188
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0025	0.0031	0.0040	0.0047	0.0055	0.0062	0.0068	0.0074	0.0078
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0026	0.0031	0.0039	0.0045	0.0052	0.0058	0.0063	0.0068	0.0072
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00013	0.00016	0.00020	0.00023	0.00026	0.00027	0.00029	0.00030	0.00031
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0028	0.0032	0.0034	0.0037	0.0038	0.0039	0.0040	0.0041
Magnesium Mg	mg/L	2.5	2.9	3.3	3.8	4.4	5.2	5.7	6.3	6.7	7.0	7.3	7.5
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.020	0.022
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000018	0.0000023	0.0000028	0.0000032	0.0000036	0.0000039	0.0000042	0.0000044	0.0000046
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00217	0.00265	0.00338	0.00398	0.00472	0.00532	0.00586	0.00638	0.00681
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0022	0.0027	0.0034	0.0040	0.0046	0.0051	0.0056	0.0060	0.0063
Phosphorus P	mg/L	0.020	0.033	0.047	0.057	0.070	0.088	0.103	0.120	0.134	0.146	0.157	0.166
Potassium K	mg/L	3.8	6.6	9.3	10.4	12.6	15.9	18.7	22.0	24.7	27.2	29.5	31.4
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00028	0.00031	0.00035	0.00037	0.00039	0.00040	0.00041	0.00041	0.00042
Silicon SiO2	mg/L	0.70	0.92	1.14	1.31	1.55	1.86	2.12	2.41	2.62	2.81	2.98	3.13
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000696	0.0000794	0.0000858	0.0000896	0.0000938	0.0000946	0.0000945	0.0000945	0.0000943
Sodium Na	mg/L	11	13	16	17	20	24	26	30	32	34	36	38
Strontium Sr	mg/L	0.017	0.021	0.026	0.029	0.035	0.042	0.047	0.054	0.059	0.063	0.067	0.070
Tellurium Te	mg/L	0.025	0.024	0.024	0.026	0.028	0.029	0.030	0.030	0.030	0.029	0.028	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000023	0.000026	0.000029	0.000032	0.000034	0.000035	0.000036	0.000036	0.000037
Thorium Th	mg/L				0.000009	0.000014	0.000017	0.000020	0.000021	0.000021	0.000020	0.000020	0.000019
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00054	0.00074	0.00091	0.00106	0.00119	0.00125	0.00130	0.00134	0.00138
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0033	0.0036	0.0039	0.0040	0.0041	0.0041	0.0040	0.0039	0.0039
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000036	0.000043	0.000046	0.000049	0.000050	0.000049	0.000048	0.000046	0.000045
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0018	0.0020	0.0021	0.0022	0.0023	0.0024
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0057	0.0071	0.0089	0.0107	0.0126	0.0140	0.0152	0.0164	0.0174
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0028	0.0030	0.0032	0.0034	0.0034	0.0034	0.0033	0.0032	0.0031

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	454	475	497	443	450	496	523	564	589	609	628	643
TSS	mg/L	2.5	2.5	2.5	2.5	2.6	2.8	2.9	3.0	3.0	3.0	3.0	3.0
Free CN	mg/L	0.00284	0.00322	0.00360		0.00047	0.00048	0.00048	0.00053	0.00104	0.00152	0.00198	0.00238
Total CN	mg/L	0.027	0.031	0.035		0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0038	0.0043	0.0048		0.0006	0.0006	0.0006	0.0007	0.0014	0.0020	0.0026	0.0032
CNO	mg/L	3.12	3.55	3.96		0.52	0.53	0.52	0.58	1.14	1.68	2.18	2.61
SCN	mg/L	0.080	0.085	0.090	0.078	0.079	0.087	0.092	0.100	0.106	0.110	0.115	0.118
Sulphate	mg/L	74.1	78.1	82.0	72.7	74.1	82.3	87.2	94.5	99.1	102.7	106.2	109.0
Chloride	mg/L	277	290	302	274	282	313	332	357	372	384	395	404
Total Ammonia	mg/L	0.550	0.597	0.645	1.322		0.278	0.264	0.259	0.323	0.384	0.441	0.489
Nitrate	mg/L	4.57	4.68	4.78	4.95	5.25	6.06	6.45	6.96	7.06	7.10	7.14	7.16
Nitrite	mg/L	0.454	0.490	0.526	0.181	0.209	0.046	0.241	0.241	0.290	0.336	0.379	0.416
Alkalinity	mg/L	47	49	50	46	48	52	55	58	60	62	63	64
OrthoPhosphate-P	mg/L	0.1047	0.1107	0.1167	0.1014	0.1024	0.1138	0.1204	0.1308	0.1379	0.1436	0.1490	0.1535
Phosphate-P	mg/L	0.1079	0.1138	0.1197	0.1048	0.1057	0.1172	0.1237	0.1341	0.1412	0.1467	0.1521	0.1565
Org. Carbon	mg/L	3.2	3.1	3.0	3.2	3.5	3.7	3.7	3.8	3.7	3.6	3.4	3.4
Hardness CaCO3	mg/L	91	95	99	89	91	101	106	113	118	121	124	127
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.06
Antimony Sb	mg/L	0.0094	0.0097	0.0100	0.0099	0.0105	0.0117	0.0126	0.0134	0.0137	0.0139	0.0141	0.0142
Arsenic As	mg/L	0.0023	0.0024	0.0025	0.0023	0.0024	0.0026	0.0028	0.0030	0.0031	0.0032	0.0033	0.0033
Barium Ba	mg/L	0.0087	0.0091	0.0095	0.0085	0.0087	0.0096	0.0102	0.0110	0.0115	0.0118	0.0122	0.0125
Beryllium Be	mg/L	0.00044	0.00045	0.00045	0.00046	0.00049	0.00054	0.00056	0.00059	0.00060	0.00061	0.00061	0.00061
Bismuth Bi	mg/L	0.00887	0.00914	0.00941	0.00935	0.01002	0.01114	0.01192	0.01271	0.01300	0.01317	0.01333	0.01346
Boron B	mg/L	0.024	0.024	0.025	0.024	0.025	0.028	0.029	0.031	0.032	0.032	0.032	0.033
Cadmium Cd	mg/L	0.0000466	0.0000484	0.0000502	0.0000476	0.0000499	0.0000554	0.0000591	0.0000633	0.0000654	0.0000669	0.0000683	0.0000694
Calcium Ca	mg/L	201	213	224	195	197	219	232	252	265	276	286	295
Chromium Cr	mg/L	0.005	0.006	0.006	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.008	0.008
Cobalt Co	mg/L	0.0084	0.0089	0.0093	0.0082	0.0083	0.0092	0.0097	0.0106	0.0111	0.0116	0.0120	0.0123
Copper Cu	mg/L	0.0077	0.0081	0.0085	0.0075	0.0076	0.0084	0.0089	0.0096	0.0101	0.0105	0.0108	0.0111
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00033	0.00034	0.00035	0.00034	0.00035	0.00039	0.00042	0.00044	0.00046	0.00047	0.00047	0.00048
Lithium Li	mg/L	0.0042	0.0043	0.0044	0.0042	0.0044	0.0048	0.0050	0.0052	0.0053	0.0054	0.0054	0.0055
Magnesium Mg	mg/L	7.8	8.1	8.3	7.8	8.0	8.8	9.3	9.8	10.1	10.3	10.5	10.7
Manganese Mn	mg/L	0.023	0.024	0.026	0.023	0.023	0.025	0.027	0.029	0.031	0.032	0.033	0.034
Mercury Hg	mg/L	0.0000048	0.0000050	0.0000052	0.0000049	0.0000051	0.0000056	0.0000060	0.0000064	0.0000066	0.0000068	0.0000069	0.0000070
Molybdenum Mo	mg/L	0.00729	0.00771	0.00812	0.00706	0.00714	0.00793	0.00839	0.00912	0.00961	0.01001	0.01038	0.01069
Nickel Ni	mg/L	0.0067	0.0071	0.0074	0.0066	0.0068	0.0075	0.0079	0.0086	0.0090	0.0093	0.0096	0.0098
Phosphorus P	mg/L	0.177	0.186	0.195	0.174	0.177	0.197	0.209	0.225	0.236	0.244	0.252	0.259
Potassium K	mg/L	33.6	35.4	37.3	32.5	32.9	36.5	38.6	41.9	44.1	45.9	47.6	49.0
Selenium Se	mg/L	0.00042	0.00042	0.00043	0.00043	0.00045	0.00049	0.00051	0.00053	0.00054	0.00054	0.00054	0.00054
Silicon SiO2	mg/L	3.29	3.43	3.58	3.24	3.32	3.66	3.86	4.14	4.31	4.44	4.56	4.66
Silver Ag	mg/L	0.0000945	0.0000944	0.0000944	0.0001006	0.0001077	0.0001147	0.0001176	0.0001217	0.0001219	0.0001209	0.0001200	0.0001191
Sodium Na	mg/L	40	41	43	39	40	44	46	49	51	52	54	55
Strontium Sr	mg/L	0.074	0.077	0.080	0.072	0.074	0.081	0.086	0.092	0.096	0.099	0.101	0.104
Tellurium Te	mg/L	0.026	0.026	0.025	0.027	0.028	0.030	0.031	0.031	0.030	0.029	0.029	0.028
Thallium Tl	mg/L	0.000037	0.000038	0.000038	0.000038	0.000040	0.000043	0.000046	0.000048	0.000048	0.000049	0.000049	0.000049
Thorium Th	mg/L	0.000019	0.000018	0.000018	0.000023	0.000027	0.000030	0.000032	0.000034	0.000033	0.000032	0.000031	0.000030
Tin Sn	mg/L	0.00142	0.00146	0.00150	0.00150	0.00162	0.00180	0.00193	0.00205	0.00209	0.00211	0.00213	0.00214
Titanium Ti	mg/L	0.0038	0.0037	0.0037	0.0039	0.0041	0.0044	0.0045	0.0046	0.0046	0.0045	0.0044	0.0043
Uranium U	mg/L	0.000044	0.000043	0.000042	0.000050	0.000055	0.000059	0.000061	0.000063	0.000062	0.000060	0.000058	0.000057
Vanadium V	mg/L	0.0025	0.0026	0.0027	0.0026	0.0027	0.0030	0.0032	0.0034	0.0035	0.0035	0.0036	0.0036
Zinc Zn	mg/L	0.0185	0.0195	0.0204	0.0180	0.0183	0.0204	0.0218	0.0236	0.0248	0.0256	0.0265	0.0272
Zirconium Zr	mg/L	0.0030	0.0029	0.0028	0.0031	0.0034	0.0036	0.0037	0.0038	0.0037	0.0036	0.0034	0.0034

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	652	668	684	589	573	612	624	654	679	698	716	733
TSS	mg/L	2.9	2.9	2.9	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L	0.00232	0.00230	0.00228									
Total CN	mg/L	0.022	0.022	0.022		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0031	0.0031	0.0030									
CNO	mg/L	2.56	2.54	2.51									
SCN	mg/L	0.116	0.115	0.114	0.092	0.084	0.086	0.084	0.084	0.084	0.083	0.082	0.082
Sulphate	mg/L	107.2	106.9	106.5	88.3	83.1	85.9	85.1	86.3	86.9	86.6	86.4	86.3
Chloride	mg/L	416	434	451	399	399	435	452	481	506	525	545	563
Total Ammonia	mg/L	0.490	0.496	0.502	0.828		0.031	0.037	0.021	0.034	0.046	0.058	0.069
Nitrate	mg/L	6.93	6.79	6.65	6.21	6.07	6.58	6.65	6.80	6.71	6.56	6.41	6.27
Nitrite	mg/L	0.435	0.459	0.483	0.126	0.202	0.024	0.038	0.038	0.070	0.102	0.133	0.161
Alkalinity	mg/L	63	62	62	53	51	53	53	53	53	52	52	52
OrthoPhosphate-P	mg/L	0.1595	0.1671	0.1749	0.1501	0.1478	0.1611	0.1673	0.1789	0.1895	0.1982	0.2070	0.2149
Phosphate-P	mg/L	0.1624	0.1700	0.1778	0.1535	0.1511	0.1645	0.1707	0.1823	0.1929	0.2016	0.2104	0.2183
Org. Carbon	mg/L	3.3	3.3	3.2	3.5	3.7	4.0	4.0	4.1	4.1	4.0	4.0	4.0
Hardness CaCO3	mg/L	124	123	122	103	98	101	100	101	101	100	99	98
Total Metals													
Aluminum Al	mg/L	0.06	0.06	0.06	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Antimony Sb	mg/L	0.0145	0.0148	0.0152	0.0142	0.0146	0.0159	0.0167	0.0175	0.0182	0.0186	0.0190	0.0194
Arsenic As	mg/L	0.0033	0.0033	0.0032	0.0028	0.0026	0.0027	0.0027	0.0028	0.0028	0.0028	0.0027	0.0027
Barium Ba	mg/L	0.0122	0.0122	0.0121	0.0101	0.0095	0.0098	0.0097	0.0098	0.0098	0.0098	0.0097	0.0096
Beryllium Be	mg/L	0.00061	0.00062	0.00063	0.00060	0.00061	0.00065	0.00067	0.00069	0.00071	0.00072	0.00072	0.00073
Bismuth Bi	mg/L	0.01370	0.01410	0.01450	0.01363	0.01401	0.01529	0.01604	0.01693	0.01753	0.01796	0.01839	0.01879
Boron B	mg/L	0.032	0.032	0.032	0.029	0.029	0.031	0.031	0.032	0.032	0.032	0.032	0.032
Cadmium Cd	mg/L	0.0000679	0.0000674	0.0000669	0.0000574	0.0000551	0.0000572	0.0000571	0.0000579	0.0000579	0.0000574	0.0000569	0.0000564
Calcium Ca	mg/L	289	286	284	230	213	218	213	214	214	212	210	208
Chromium Cr	mg/L	0.008	0.008	0.008	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0121	0.0120	0.0119	0.0097	0.0091	0.0093	0.0091	0.0092	0.0092	0.0092	0.0091	0.0091
Copper Cu	mg/L	0.0109	0.0108	0.0107	0.0088	0.0082	0.0085	0.0083	0.0084	0.0084	0.0083	0.0082	0.0082
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00048	0.00048	0.00048	0.00042	0.00042	0.00044	0.00045	0.00046	0.00046	0.00047	0.00047	0.00047
Lithium Li	mg/L	0.0054	0.0054	0.0053	0.0049	0.0049	0.0051	0.0051	0.0052	0.0053	0.0052	0.0052	0.0052
Magnesium Mg	mg/L	10.5	10.4	10.4	9.2	9.0	9.4	9.4	9.6	9.6	9.6	9.6	9.5
Manganese Mn	mg/L	0.033	0.033	0.033	0.027	0.025	0.026	0.025	0.025	0.026	0.025	0.025	0.025
Mercury Hg	mg/L	0.0000069	0.0000069	0.0000068	0.0000059	0.0000056	0.0000059	0.0000058	0.0000059	0.0000059	0.0000059	0.0000058	0.0000058
Molybdenum Mo	mg/L	0.01047	0.01038	0.01030	0.00834	0.00770	0.00787	0.00768	0.00772	0.00772	0.00765	0.00758	0.00752
Nickel Ni	mg/L	0.0097	0.0096	0.0096	0.0080	0.0076	0.0079	0.0078	0.0079	0.0080	0.0079	0.0079	0.0079
Phosphorus P	mg/L	0.263	0.271	0.279	0.239	0.234	0.251	0.257	0.271	0.282	0.291	0.300	0.308
Potassium K	mg/L	47.9	47.5	47.1	38.3	35.4	36.2	35.4	35.5	35.5	35.2	34.8	34.6
Selenium Se	mg/L	0.00053	0.00052	0.00052	0.00049	0.00049	0.00051	0.00051	0.00052	0.00052	0.00051	0.00051	0.00050
Silicon SiO2	mg/L	4.56	4.53	4.49	3.80	3.60	3.71	3.67	3.70	3.70	3.67	3.64	3.61
Silver Ag	mg/L	0.0001176	0.0001176	0.0001176	0.0001178	0.0001214	0.0001272	0.0001280	0.0001307	0.0001319	0.0001317	0.0001316	0.0001317
Sodium Na	mg/L	54	53	53	45	43	44	43	44	44	43	43	43
Strontium Sr	mg/L	0.102	0.101	0.100	0.085	0.080	0.083	0.082	0.083	0.083	0.082	0.082	0.081
Tellurium Te	mg/L	0.027	0.027	0.027	0.029	0.030	0.032	0.033	0.034	0.034	0.033	0.033	0.033
Thallium Tl	mg/L	0.000048	0.000048	0.000047	0.000044	0.000043	0.000045	0.000046	0.000046	0.000046	0.000046	0.000045	0.000045
Thorium Th	mg/L	0.000029	0.000029	0.000029	0.000030	0.000031	0.000034	0.000035	0.000037	0.000037	0.000036	0.000036	0.000035
Tin Sn	mg/L	0.00217	0.00223	0.00229	0.00216	0.00224	0.00245	0.00257	0.00271	0.00286	0.00286	0.00292	0.00298
Titanium Ti	mg/L	0.0042	0.0042	0.0042	0.0044	0.0046	0.0049	0.0050	0.0051	0.0051	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000056	0.000055	0.000055	0.000058	0.000062	0.000065	0.000066	0.000068	0.000068	0.000068	0.000067	0.000067
Vanadium V	mg/L	0.0036	0.0037	0.0037	0.0034	0.0034	0.0036	0.0037	0.0039	0.0040	0.0040	0.0041	0.0041
Zinc Zn	mg/L	0.0267	0.0265	0.0264	0.0218	0.0204	0.0211	0.0210	0.0213	0.0214	0.0213	0.0212	0.0211
Zirconium Zr	mg/L	0.0033	0.0033	0.0032	0.0035	0.0036	0.0039	0.0040	0.0041	0.0041	0.0040	0.0040	0.0039

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	728	724	721	769	903	1140	1337	1583	1546	1535	1527	1521
TSS	mg/L	2.8	2.8	2.8	2.8	2.8	3.0	3.0	3.1	3.0	3.0	3.0	3.0
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.081	0.081	0.080	0.063	0.057	0.059	0.057	0.058	0.057	0.056	0.056	0.056
Sulphate	mg/L	85.6	85.2	84.8	66.9	61.3	63.0	61.4	62.1	60.6	60.2	59.9	59.7
Chloride	mg/L	558	556	553	553	625	771	888	1038	1014	1007	1001	997
Total Ammonia	mg/L	0.068	0.068	0.067	0.030	0.024	0.011	0.017	0.006	0.006	0.006	0.006	0.006
Nitrate	mg/L	6.12	6.00	5.87	5.09	4.86	5.09	5.10	5.20	4.97	4.83	4.69	4.57
Nitrite	mg/L	0.160	0.159	0.159		0.008	0.005	0.004	0.003	0.003	0.003	0.003	0.003
Alkalinity	mg/L	51	51	51	44	43	45	44	45	44	44	44	43
OrthoPhosphate-P	mg/L	0.2133	0.2123	0.2112	0.1659	0.1513	0.1553	0.1512	0.1528	0.1492	0.1482	0.1474	0.1468
Phosphate-P	mg/L	0.2166	0.2156	0.2144	0.1701	0.1556	0.1599	0.1558	0.1574	0.1537	0.1527	0.1518	0.1512
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.3	4.6	4.7	4.8	4.7	4.6	4.6	4.6
Hardness CaCO3	mg/L	97	97	96	81	77	81	80	81	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Antimony Sb	mg/L	0.0192	0.0191	0.0190	0.0150	0.0137	0.0140	0.0137	0.0138	0.0135	0.0134	0.0134	0.0133
Arsenic As	mg/L	0.0027	0.0027	0.0027	0.0022	0.0021	0.0022	0.0022	0.0022	0.0021	0.0021	0.0021	0.0021
Barium Ba	mg/L	0.0096	0.0095	0.0095	0.0077	0.0072	0.0075	0.0074	0.0075	0.0073	0.0072	0.0072	0.0072
Beryllium Be	mg/L	0.00073	0.00072	0.00072	0.00061	0.00058	0.00060	0.00059	0.00060	0.00059	0.00058	0.00058	0.00058
Bismuth Bi	mg/L	0.01864	0.01855	0.01846	0.01449	0.01321	0.01356	0.01321	0.01334	0.01303	0.01294	0.01287	0.01282
Boron B	mg/L	0.032	0.032	0.032	0.028	0.028	0.029	0.030	0.030	0.030	0.029	0.029	0.029
Cadmium Cd	mg/L	0.0000560	0.0000557	0.0000555	0.0000476	0.0000460	0.0000483	0.0000486	0.0000497	0.0000485	0.0000482	0.0000479	0.0000477
Calcium Ca	mg/L	206	205	204	172	169	186	194	210	205	204	203	202
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.004	0.005	0.004	0.005	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0090	0.0089	0.0089	0.0070	0.0064	0.0066	0.0064	0.0065	0.0063	0.0063	0.0063	0.0062
Copper Cu	mg/L	0.0081	0.0081	0.0080	0.0065	0.0060	0.0062	0.0061	0.0061	0.0060	0.0060	0.0059	0.0059
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07
Lead Pb	mg/L	0.00047	0.00046	0.00046	0.00039	0.00036	0.00038	0.00038	0.00038	0.00037	0.00037	0.00037	0.00037
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0046	0.0046	0.0048	0.0048	0.0049	0.0048	0.0047	0.0047	0.0047
Magnesium Mg	mg/L	9.5	9.4	9.4	8.1	7.9	8.2	8.2	8.4	8.2	8.1	8.1	8.0
Manganese Mn	mg/L	0.025	0.025	0.025	0.020	0.018	0.019	0.018	0.018	0.018	0.018	0.018	0.018
Mercury Hg	mg/L	0.0000058	0.0000057	0.0000057	0.0000053	0.0000053	0.0000056	0.0000057	0.0000058	0.0000057	0.0000057	0.0000056	0.0000056
Molybdenum Mo	mg/L	0.00746	0.00743	0.00739	0.00582	0.00531	0.00545	0.00531	0.00537	0.00524	0.00521	0.00518	0.00516
Nickel Ni	mg/L	0.0078	0.0078	0.0078	0.0062	0.0057	0.0059	0.0057	0.0058	0.0057	0.0056	0.0056	0.0056
Phosphorus P	mg/L	0.305	0.304	0.302	0.241	0.221	0.228	0.222	0.225	0.220	0.218	0.217	0.216
Potassium K	mg/L	34.3	34.1	34.0	27.0	24.7	25.4	24.8	25.1	24.5	24.4	24.2	24.1
Selenium Se	mg/L	0.00050	0.00050	0.00050	0.00049	0.00050	0.00054	0.00054	0.00056	0.00054	0.00054	0.00054	0.00054
Silicon SiO2	mg/L	3.58	3.57	3.55	2.99	2.82	2.94	2.91	2.95	2.89	2.87	2.85	2.84
Silver Ag	mg/L	0.0001306	0.0001300	0.0001294	0.0001237	0.0001244	0.0001292	0.0001278	0.0001299	0.0001268	0.0001260	0.0001253	0.0001248
Sodium Na	mg/L	42	42	42	98	155	230	299	379	370	367	365	364
Strontium Sr	mg/L	0.080	0.080	0.080	0.067	0.063	0.066	0.065	0.066	0.065	0.064	0.064	0.064
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.037	0.038	0.039	0.038	0.038	0.038	0.038
Thallium Tl	mg/L	0.000045	0.000044	0.000044	0.000041	0.000041	0.000044	0.000044	0.000045	0.000044	0.000044	0.000044	0.000043
Thorium Th	mg/L	0.000035	0.000035	0.000035	0.000036	0.000038	0.000042	0.000044	0.000046	0.000045	0.000044	0.000044	0.000044
Tin Sn	mg/L	0.00296	0.00294	0.00293	0.00233	0.00215	0.00222	0.00218	0.00221	0.00216	0.00214	0.00213	0.00212
Titanium Ti	mg/L	0.0050	0.0050	0.0050	0.0053	0.0055	0.0059	0.0060	0.0062	0.0060	0.0060	0.0059	0.0059
Uranium U	mg/L	0.000066	0.000066	0.000066	0.000068	0.000072	0.000076	0.000077	0.000079	0.000078	0.000077	0.000077	0.000076
Vanadium V	mg/L	0.0041	0.0041	0.0040	0.0033	0.0031	0.0032	0.0031	0.0032	0.0031	0.0031	0.0031	0.0031
Zinc Zn	mg/L	0.0210	0.0209	0.0208	0.0165	0.0152	0.0157	0.0156	0.0159	0.0155	0.0154	0.0153	0.0152
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0040	0.0042	0.0045	0.0046	0.0048	0.0046	0.0046	0.0046	0.0046

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1515	1507	1499	1141	1028	900	880	817	822	816	812	809
TSS	mg/L	3.0	3.0	2.9	2.9	2.9	2.7	2.7	2.5	2.6	2.5	2.5	2.5
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.055	0.055	0.055	0.041	0.036	0.032	0.031	0.029	0.029	0.029	0.028	0.028
Sulphate	mg/L	59.4	59.1	58.8	44.4	39.9	34.9	34.1	31.6	31.8	31.6	31.4	31.3
Chloride	mg/L	993	988	983	741	665	582	567	527	530	526	523	521
Total Ammonia	mg/L	0.006	0.006	0.006	0.050	0.026	0.012	0.018	0.006	0.006	0.006	0.006	0.006
Nitrate	mg/L	4.44	4.31	4.18	3.52	3.40	3.08	3.13	2.95	2.86	2.74	2.62	2.50
Nitrite	mg/L	0.003	0.003	0.003	0.009	0.010	0.004	0.004	0.003	0.003	0.003	0.003	0.003
Alkalinity	mg/L	43	43	43	37	36	32	32	30	31	30	30	30
OrthoPhosphate-P	mg/L	0.1462	0.1455	0.1446	0.1083	0.0966	0.0844	0.0821	0.0762	0.0766	0.0761	0.0757	0.0754
Phosphate-P	mg/L	0.1506	0.1499	0.1490	0.1136	0.1019	0.0891	0.0868	0.0806	0.0811	0.0805	0.0801	0.0798
Org. Carbon	mg/L	4.6	4.6	4.5	4.6	4.8	4.4	4.5	4.2	4.2	4.2	4.2	4.2
Hardness CaCO3	mg/L	78	77	77	64	61	55	55	51	51	51	51	51
Total Metals													
Aluminum Al	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0133	0.0132	0.0131	0.0098	0.0088	0.0077	0.0075	0.0070	0.0070	0.0070	0.0069	0.0069
Arsenic As	mg/L	0.0021	0.0021	0.0021	0.0017	0.0016	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Barium Ba	mg/L	0.0072	0.0071	0.0071	0.0056	0.0052	0.0046	0.0046	0.0043	0.0043	0.0043	0.0043	0.0043
Beryllium Be	mg/L	0.00058	0.00057	0.00057	0.00048	0.00046	0.00041	0.00040	0.00037	0.00038	0.00037	0.00037	0.00037
Bismuth Bi	mg/L	0.01277	0.01270	0.01263	0.00945	0.00842	0.00735	0.00716	0.00664	0.00668	0.00664	0.00660	0.00658
Boron B	mg/L	0.029	0.029	0.029	0.026	0.025	0.023	0.023	0.022	0.022	0.022	0.022	0.022
Cadmium Cd	mg/L	0.0000475	0.0000473	0.0000470	0.0000400	0.0000387	0.0000349	0.0000356	0.0000335	0.0000337	0.0000335	0.0000333	0.0000332
Calcium Ca	mg/L	201	200	199	150	134	117	114	106	107	106	106	105
Chromium Cr	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0062	0.0062	0.0061	0.0046	0.0041	0.0036	0.0035	0.0033	0.0033	0.0033	0.0033	0.0032
Copper Cu	mg/L	0.0059	0.0059	0.0058	0.0046	0.0042	0.0037	0.0036	0.0034	0.0034	0.0034	0.0034	0.0033
Iron Fe	mg/L	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00037	0.00036	0.00036	0.00030	0.00028	0.00025	0.00024	0.00024	0.00024	0.00024	0.00024	0.00023
Lithium Li	mg/L	0.0047	0.0047	0.0046	0.0042	0.0042	0.0037	0.0038	0.0035	0.0036	0.0035	0.0035	0.0035
Magnesium Mg	mg/L	8.0	8.0	7.9	6.9	6.6	6.0	6.0	5.6	5.7	5.6	5.6	5.6
Manganese Mn	mg/L	0.018	0.018	0.017	0.013	0.012	0.011	0.010	0.010	0.010	0.010	0.010	0.010
Mercury Hg	mg/L	0.0000056	0.0000056	0.0000055	0.0000051	0.0000051	0.0000046	0.0000048	0.0000045	0.0000045	0.0000045	0.0000045	0.0000044
Molybdenum Mo	mg/L	0.00514	0.00511	0.00508	0.00382	0.00342	0.00298	0.00291	0.00270	0.00271	0.00269	0.00268	0.00267
Nickel Ni	mg/L	0.0056	0.0055	0.0055	0.0042	0.0038	0.0034	0.0033	0.0031	0.0031	0.0031	0.0030	0.0030
Phosphorus P	mg/L	0.215	0.214	0.213	0.163	0.148	0.130	0.127	0.118	0.119	0.118	0.117	0.117
Potassium K	mg/L	24.0	23.9	23.8	18.1	16.4	14.3	14.0	13.0	13.1	13.0	12.9	12.9
Selenium Se	mg/L	0.00053	0.00053	0.00053	0.00052	0.00053	0.00048	0.00049	0.00046	0.00046	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	2.83	2.81	2.80	2.33	2.20	1.96	1.96	1.83	1.84	1.83	1.82	1.81
Silver Ag	mg/L	0.0001243	0.0001237	0.0001230	0.0001183	0.0001194	0.0001057	0.0001050	0.0000980	0.0000986	0.0000980	0.0000974	0.0000971
Sodium Na	mg/L	362	360	358	272	245	214	209	194	195	194	193	192
Strontium Sr	mg/L	0.063	0.063	0.063	0.052	0.049	0.044	0.044	0.041	0.041	0.041	0.041	0.041
Tellurium Te	mg/L	0.038	0.037	0.037	0.038	0.039	0.036	0.037	0.034	0.035	0.034	0.034	0.034
Thallium Tl	mg/L	0.000043	0.000043	0.000043	0.000040	0.000040	0.000036	0.000037	0.000035	0.000035	0.000034	0.000034	0.000034
Thorium Th	mg/L	0.000044	0.000043	0.000043	0.000043	0.000045	0.000041	0.000044	0.000041	0.000042	0.000041	0.000041	0.000041
Tin Sn	mg/L	0.00211	0.00210	0.00209	0.00160	0.00147	0.00129	0.00127	0.00119	0.00119	0.00119	0.00118	0.00118
Titanium Ti	mg/L	0.0059	0.0059	0.0058	0.0060	0.0061	0.0056	0.0058	0.0054	0.0055	0.0054	0.0054	0.0054
Uranium U	mg/L	0.000076	0.000076	0.000075	0.000076	0.000079	0.000072	0.000073	0.000069	0.000069	0.000069	0.000068	0.000068
Vanadium V	mg/L	0.0030	0.0030	0.0030	0.0024	0.0023	0.0020	0.0020	0.0018	0.0018	0.0018	0.0018	0.0018
Zinc Zn	mg/L	0.0152	0.0151	0.0150	0.0115	0.0104	0.0092	0.0093	0.0087	0.0087	0.0087	0.0086	0.0086
Zirconium Zr	mg/L	0.0046	0.0045	0.0045	0.0046	0.0047	0.0043	0.0044	0.0042	0.0042	0.0042	0.0041	0.0041

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	806	802	797	624	570	589	534	494	483	480	477	475
TSS	mg/L	2.5	2.5	2.5	2.5	2.6	2.8	2.7	2.5	2.4	2.4	2.4	2.4
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.028	0.028	0.028	0.021	0.019	0.019	0.017	0.016	0.016	0.016	0.016	0.015
Sulphate	mg/L	31.2	31.0	30.9	23.8	21.7	22.3	20.2	18.7	18.3	18.2	18.1	18.0
Chloride	mg/L	519	517	514	396	359	370	335	310	302	300	299	298
Total Ammonia	mg/L	0.006	0.006	0.006	0.048	0.025	0.013	0.019	0.006	0.006	0.006	0.006	0.006
Nitrate	mg/L	2.39	2.27	2.15	2.01	2.06	2.24	2.16	2.05	1.89	1.77	1.65	1.54
Nitrite	mg/L	0.003	0.003	0.003	0.009	0.010	0.005	0.004	0.003	0.003	0.003	0.003	0.003
Alkalinity	mg/L	30	30	30	27	28	29	27	25	25	25	25	24
OrthoPhosphate-P	mg/L	0.0751	0.0748	0.0743	0.0565	0.0508	0.0522	0.0470	0.0434	0.0424	0.0421	0.0419	0.0418
Phosphate-P	mg/L	0.0795	0.0791	0.0786	0.0617	0.0559	0.0577	0.0520	0.0481	0.0470	0.0467	0.0464	0.0462
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.8	4.6	4.3	4.2	4.1	4.1	4.1
Hardness CaCO3	mg/L	50	50	50	44	44	46	43	40	39	39	39	39
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0069	0.0068	0.0068	0.0052	0.0047	0.0048	0.0044	0.0040	0.0040	0.0039	0.0039	0.0039
Arsenic As	mg/L	0.0013	0.0013	0.0013	0.0011	0.0011	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010
Barium Ba	mg/L	0.0042	0.0042	0.0042	0.0035	0.0033	0.0035	0.0033	0.0030	0.0030	0.0029	0.0029	0.0029
Beryllium Be	mg/L	0.00037	0.00037	0.00037	0.00033	0.00033	0.00034	0.00031	0.00029	0.00028	0.00028	0.00028	0.00028
Bismuth Bi	mg/L	0.00655	0.00652	0.00648	0.00492	0.00442	0.00454	0.00409	0.00377	0.00369	0.00366	0.00364	0.00363
Boron B	mg/L	0.021	0.021	0.021	0.020	0.020	0.022	0.021	0.019	0.019	0.019	0.019	0.019
Cadmium Cd	mg/L	0.0000330	0.0000329	0.0000327	0.0000294	0.0000293	0.0000314	0.0000299	0.0000282	0.0000275	0.0000273	0.0000272	0.0000271
Calcium Ca	mg/L	105	104	104	80	72	74	67	62	61	60	60	60
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0032	0.0032	0.0032	0.0025	0.0022	0.0023	0.0021	0.0019	0.0019	0.0019	0.0018	0.0018
Copper Cu	mg/L	0.0033	0.0033	0.0033	0.0027	0.0025	0.0027	0.0024	0.0022	0.0022	0.0022	0.0022	0.0022
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00023	0.00023	0.00023	0.00020	0.00020	0.00021	0.00020	0.00018	0.00018	0.00018	0.00018	0.00018
Lithium Li	mg/L	0.0035	0.0035	0.0035	0.0034	0.0034	0.0036	0.0034	0.0032	0.0031	0.0031	0.0031	0.0031
Magnesium Mg	mg/L	5.5	5.5	5.5	5.1	5.0	5.4	5.0	4.7	4.6	4.6	4.5	4.5
Manganese Mn	mg/L	0.010	0.010	0.010	0.008	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006
Mercury Hg	mg/L	0.0000044	0.0000044	0.0000044	0.0000043	0.0000043	0.0000047	0.0000044	0.0000042	0.0000041	0.0000041	0.0000040	0.0000040
Molybdenum Mo	mg/L	0.00266	0.00265	0.00263	0.00202	0.00182	0.00187	0.00169	0.00156	0.00152	0.00151	0.00150	0.00150
Nickel Ni	mg/L	0.0030	0.0030	0.0030	0.0024	0.0022	0.0023	0.0021	0.0019	0.0019	0.0019	0.0019	0.0019
Phosphorus P	mg/L	0.116	0.116	0.115	0.091	0.084	0.087	0.079	0.073	0.072	0.071	0.071	0.071
Potassium K	mg/L	12.8	12.8	12.7	10.0	9.1	9.5	8.6	8.0	7.8	7.7	7.7	7.6
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00046	0.00048	0.00051	0.00048	0.00045	0.00044	0.00044	0.00044	0.00043
Silicon SiO2	mg/L	1.81	1.80	1.79	1.58	1.54	1.62	1.52	1.41	1.38	1.37	1.36	1.36
Silver Ag	mg/L	0.0000967	0.0000962	0.0000957	0.0000978	0.0001011	0.0001055	0.0000971	0.0000904	0.0000883	0.0000877	0.0000872	0.0000869
Sodium Na	mg/L	192	191	190	147	134	139	126	116	114	113	112	112
Strontium Sr	mg/L	0.040	0.040	0.040	0.035	0.034	0.036	0.034	0.032	0.031	0.031	0.030	0.030
Tellurium Te	mg/L	0.034	0.034	0.034	0.035	0.037	0.039	0.037	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000034	0.000034	0.000034	0.000033	0.000034	0.000036	0.000034	0.000032	0.000031	0.000031	0.000031	0.000031
Thorium Th	mg/L	0.000041	0.000041	0.000040	0.000041	0.000043	0.000047	0.000045	0.000043	0.000042	0.000042	0.000042	0.000041
Tin Sn	mg/L	0.00117	0.00116	0.00116	0.00091	0.00086	0.00090	0.00082	0.00077	0.00075	0.00074	0.00074	0.00074
Titanium Ti	mg/L	0.0053	0.0053	0.0053	0.0056	0.0058	0.0062	0.0059	0.0055	0.0054	0.0054	0.0053	0.0053
Uranium U	mg/L	0.000068	0.000068	0.000067	0.000070	0.000074	0.000078	0.000074	0.000070	0.000068	0.000068	0.000067	0.000067
Vanadium V	mg/L	0.0018	0.0018	0.0018	0.0015	0.0015	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013	0.0012
Zinc Zn	mg/L	0.0086	0.0085	0.0085	0.0067	0.0061	0.0064	0.0061	0.0058	0.0056	0.0056	0.0056	0.0055
Zirconium Zr	mg/L	0.0041	0.0041	0.0041	0.0042	0.0044	0.0047	0.0045	0.0042	0.0041	0.0041	0.0041	0.0041

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	473	471	468	374	345	305	301	306	299	297	295	294
TSS	mg/L	2.4	2.4	2.4	2.5	2.5	2.3	2.4	2.4	2.4	2.4	2.4	2.3
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.015	0.015	0.015	0.011	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008
Sulphate	mg/L	17.9	17.8	17.7	13.7	12.5	11.0	10.8	10.9	10.7	10.6	10.5	10.5
Chloride	mg/L	296	295	293	228	208	183	180	183	178	177	176	176
Total Ammonia	mg/L	0.006	0.006	0.006		0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.43	1.32	1.20	0.90	0.81	0.71	0.69	0.69	0.57	0.46	0.35	0.24
Nitrite	mg/L	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	24	24	24	23	24	22	22	22	22	22	22	22
OrthoPhosphate-P	mg/L	0.0416	0.0414	0.0411	0.0313	0.0281	0.0246	0.0240	0.0243	0.0237	0.0236	0.0234	0.0233
Phosphate-P	mg/L	0.0461	0.0458	0.0456	0.0365	0.0333	0.0293	0.0288	0.0291	0.0284	0.0282	0.0281	0.0280
Org. Carbon	mg/L	4.1	4.1	4.0	4.2	4.5	4.1	4.2	4.3	4.2	4.2	4.1	4.1
Hardness CaCO3	mg/L	39	38	38	35	36	32	33	34	33	33	33	32
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.05	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0039	0.0039	0.0038	0.0029	0.0026	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022	0.0022
Arsenic As	mg/L	0.0010	0.0010	0.0009	0.0008	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Barium Ba	mg/L	0.0029	0.0029	0.0029	0.0025	0.0024	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022
Beryllium Be	mg/L	0.00028	0.00028	0.00028	0.00025	0.00024	0.00021	0.00021	0.00021	0.00020	0.00020	0.00020	0.00020
Bismuth Bi	mg/L	0.00361	0.00360	0.00358	0.00269	0.00240	0.00210	0.00204	0.00207	0.00202	0.00200	0.00199	0.00198
Boron B	mg/L	0.019	0.018	0.018	0.017	0.017	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Cadmium Cd	mg/L	0.0000270	0.0000268	0.0000267	0.0000207	0.0000188	0.0000165	0.0000162	0.0000164	0.0000160	0.0000159	0.0000158	0.0000158
Calcium Ca	mg/L	59	59	59	45	41	36	35	36	35	35	34	34
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0018	0.0018	0.0018	0.0014	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010
Copper Cu	mg/L	0.0022	0.0021	0.0021	0.0018	0.0017	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.05
Lead Pb	mg/L	0.00017	0.00017	0.00017	0.00014	0.00013	0.00012	0.00011	0.00012	0.00011	0.00011	0.00011	0.00011
Lithium Li	mg/L	0.0030	0.0030	0.0030	0.0030	0.0030	0.0028	0.0028	0.0029	0.0028	0.0028	0.0028	0.0028
Magnesium Mg	mg/L	4.5	4.5	4.5	4.3	4.3	3.9	4.0	4.1	4.0	4.0	4.0	4.0
Manganese Mn	mg/L	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Mercury Hg	mg/L	0.0000040	0.0000040	0.0000040	0.0000036	0.0000036	0.0000032	0.0000032	0.0000033	0.0000032	0.0000032	0.0000032	0.0000032
Molybdenum Mo	mg/L	0.00149	0.00148	0.00148	0.00114	0.00103	0.00090	0.00088	0.00089	0.00087	0.00087	0.00086	0.00086
Nickel Ni	mg/L	0.0018	0.0018	0.0018	0.0015	0.0014	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Phosphorus P	mg/L	0.070	0.070	0.070	0.054	0.049	0.043	0.042	0.042	0.041	0.041	0.041	0.040
Potassium K	mg/L	7.6	7.6	7.5	6.0	5.6	4.9	4.9	5.0	4.9	4.8	4.8	4.8
Selenium Se	mg/L	0.00043	0.00043	0.00043	0.00043	0.00044	0.00040	0.00040	0.00041	0.00040	0.00040	0.00040	0.00040
Silicon SiO2	mg/L	1.35	1.35	1.34	1.20	1.17	1.05	1.06	1.08	1.06	1.05	1.05	1.04
Silver Ag	mg/L	0.0000865	0.0000861	0.0000856	0.0000848	0.0000859	0.0000752	0.0000733	0.0000741	0.0000724	0.0000719	0.0000715	0.0000712
Sodium Na	mg/L	111	111	110	87	80	71	70	71	69	69	68	68
Strontium Sr	mg/L	0.030	0.030	0.030	0.027	0.027	0.025	0.025	0.026	0.025	0.025	0.025	0.025
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000031	0.000031	0.000030	0.000029	0.000029	0.000026	0.000027	0.000027	0.000027	0.000026	0.000026	0.000026
Thorium Th	mg/L	0.000041	0.000041	0.000041	0.000032	0.000030	0.000026	0.000026	0.000026	0.000026	0.000026	0.000025	0.000025
Tin Sn	mg/L	0.00073	0.00073	0.00073	0.00056	0.00053	0.00048	0.00048	0.00048	0.00047	0.00047	0.00047	0.00046
Titanium Ti	mg/L	0.0053	0.0053	0.0052	0.0055	0.0057	0.0052	0.0054	0.0055	0.0054	0.0054	0.0053	0.0053
Uranium U	mg/L	0.000067	0.000066	0.000066	0.000061	0.000060	0.000053	0.000052	0.000052	0.000051	0.000051	0.000051	0.000050
Vanadium V	mg/L	0.0012	0.0012	0.0012	0.0011	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
Zinc Zn	mg/L	0.0055	0.0055	0.0055	0.0043	0.0039	0.0035	0.0037	0.0039	0.0038	0.0037	0.0037	0.0037
Zirconium Zr	mg/L	0.0041	0.0040	0.0040	0.0040	0.0041	0.0037	0.0038	0.0039	0.0038	0.0038	0.0038	0.0038

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	293	291	289	239	225	199	198	185	186	185	184	183
TSS	mg/L	2.3	2.3	2.3	2.4	2.5	2.3	2.4	2.2	2.2	2.2	2.2	2.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.008	0.008	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Sulphate	mg/L	10.5	10.4	10.4	8.1	7.5	6.6	6.5	6.1	6.1	6.1	6.0	6.0
Chloride	mg/L	175	174	173	137	127	112	111	103	104	103	103	102
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	0.13	0.02		0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	21	21	21	21	22	20	20	19	19	19	19	19
OrthoPhosphate-P	mg/L	0.0233	0.0231	0.0230	0.0176	0.0158	0.0139	0.0136	0.0126	0.0127	0.0126	0.0125	0.0125
Phosphate-P	mg/L	0.0279	0.0277	0.0276	0.0229	0.0211	0.0187	0.0184	0.0171	0.0172	0.0171	0.0170	0.0169
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.1	4.2	3.9	4.0	3.9	3.9	3.9
Hardness CaCO3	mg/L	32	32	32	31	32	29	29	28	28	28	28	27
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0022	0.0022	0.0022	0.0017	0.0015	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012
Arsenic As	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Barium Ba	mg/L	0.0022	0.0022	0.0022	0.0019	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017
Beryllium Be	mg/L	0.00020	0.00020	0.00020	0.00019	0.00019	0.00016	0.00016	0.00015	0.00015	0.00015	0.00015	0.00015
Bismuth Bi	mg/L	0.00198	0.00197	0.00196	0.00146	0.00131	0.00114	0.00111	0.00103	0.00103	0.00103	0.00102	0.00102
Boron B	mg/L	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.013	0.013	0.013
Cadmium Cd	mg/L	0.0000157	0.0000156	0.0000155	0.0000123	0.0000112	0.0000099	0.0000098	0.0000091	0.0000091	0.0000091	0.0000090	0.0000090
Calcium Ca	mg/L	34	34	34	26	24	21	21	19	20	19	19	19
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0010	0.0010	0.0010	0.0008	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Copper Cu	mg/L	0.0015	0.0015	0.0015	0.0013	0.0013	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010	0.0010
Iron Fe	mg/L	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00011	0.00011	0.00011	0.00009	0.00009	0.00008	0.00008	0.00007	0.00007	0.00007	0.00007	0.00007
Lithium Li	mg/L	0.0028	0.0028	0.0028	0.0028	0.0029	0.0026	0.0027	0.0025	0.0025	0.0025	0.0025	0.0025
Magnesium Mg	mg/L	3.9	3.9	3.9	3.8	3.9	3.6	3.7	3.5	3.5	3.5	3.5	3.4
Manganese Mn	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Mercury Hg	mg/L	0.0000032	0.0000031	0.0000031	0.0000030	0.0000030	0.0000027	0.0000028	0.0000026	0.0000026	0.0000026	0.0000026	0.0000026
Molybdenum Mo	mg/L	0.00085	0.00085	0.00085	0.00066	0.00060	0.00053	0.00052	0.00048	0.00048	0.00048	0.00048	0.00048
Nickel Ni	mg/L	0.0012	0.0012	0.0012	0.0010	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Phosphorus P	mg/L	0.040	0.040	0.040	0.032	0.029	0.025	0.025	0.023	0.023	0.023	0.023	0.023
Potassium K	mg/L	4.8	4.7	4.7	3.9	3.7	3.3	3.3	3.0	3.1	3.0	3.0	3.0
Selenium Se	mg/L	0.00039	0.00039	0.00039	0.00040	0.00041	0.00037	0.00038	0.00036	0.00036	0.00036	0.00035	0.00035
Silicon SiO2	mg/L	1.04	1.03	1.03	0.97	0.96	0.87	0.88	0.83	0.83	0.83	0.82	0.82
Silver Ag	mg/L	0.0000709	0.0000706	0.0000702	0.0000733	0.0000757	0.0000660	0.0000644	0.0000598	0.0000601	0.0000597	0.0000594	0.0000592
Sodium Na	mg/L	68	67	67	54	51	45	45	42	42	42	42	41
Strontium Sr	mg/L	0.025	0.025	0.024	0.023	0.024	0.021	0.022	0.021	0.021	0.021	0.021	0.021
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.032	0.033	0.032	0.032	0.032
Thallium Tl	mg/L	0.000026	0.000026	0.000026	0.000025	0.000026	0.000023	0.000024	0.000023	0.000023	0.000022	0.000022	0.000022
Thorium Th	mg/L	0.000025	0.000025	0.000025	0.000021	0.000019	0.000017	0.000017	0.000016	0.000016	0.000016	0.000016	0.000016
Tin Sn	mg/L	0.00046	0.00046	0.00046	0.00036	0.00035	0.00032	0.00032	0.00030	0.00030	0.00030	0.00030	0.00030
Titanium Ti	mg/L	0.0053	0.0053	0.0052	0.0055	0.0057	0.0052	0.0054	0.0051	0.0051	0.0051	0.0050	0.0050
Uranium U	mg/L	0.000050	0.000050	0.000050	0.000049	0.000049	0.000043	0.000042	0.000039	0.000040	0.000039	0.000039	0.000039
Vanadium V	mg/L	0.0009	0.0009	0.0009	0.0008	0.0008	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006
Zinc Zn	mg/L	0.0037	0.0037	0.0037	0.0029	0.0027	0.0024	0.0027	0.0026	0.0026	0.0026	0.0026	0.0026
Zirconium Zr	mg/L	0.0038	0.0037	0.0037	0.0038	0.0039	0.0036	0.0037	0.0034	0.0035	0.0034	0.0034	0.0034

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	182	181	180	158	153	161	149	139	136	135	134	134
TSS	mg/L	2.2	2.2	2.2	2.3	2.4	2.6	2.5	2.3	2.2	2.2	2.2	2.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Sulphate	mg/L	6.0	6.0	5.9	4.9	4.6	4.8	4.4	4.1	4.0	4.0	4.0	4.0
Chloride	mg/L	102	101	101	84	80	84	77	72	70	69	69	69
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	19	19	19	19	20	22	20	19	19	19	18	18
OrthoPhosphate-P	mg/L	0.0124	0.0124	0.0123	0.0097	0.0088	0.0091	0.0083	0.0077	0.0075	0.0075	0.0074	0.0074
Phosphate-P	mg/L	0.0168	0.0168	0.0167	0.0148	0.0140	0.0146	0.0134	0.0124	0.0121	0.0120	0.0120	0.0119
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.4	4.7	4.4	4.1	4.0	4.0	4.0	4.0
Hardness CaCO3	mg/L	27	27	27	27	28	30	29	27	26	26	26	26
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0012	0.0012	0.0012	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007
Arsenic As	mg/L	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Barium Ba	mg/L	0.0017	0.0017	0.0017	0.0016	0.0016	0.0017	0.0017	0.0016	0.0015	0.0015	0.0015	0.0015
Beryllium Be	mg/L	0.00015	0.00014	0.00014	0.00015	0.00015	0.00016	0.00014	0.00013	0.00013	0.00013	0.00013	0.00013
Bismuth Bi	mg/L	0.00101	0.00101	0.00100	0.00076	0.00069	0.00071	0.00063	0.00059	0.00057	0.00057	0.00057	0.00056
Boron B	mg/L	0.013	0.013	0.013	0.013	0.013	0.014	0.014	0.013	0.013	0.012	0.012	0.012
Cadmium Cd	mg/L	0.0000090	0.0000089	0.0000089	0.0000073	0.0000069	0.0000072	0.0000066	0.0000061	0.0000060	0.0000059	0.0000059	0.0000059
Calcium Ca	mg/L	19	19	19	15	14	15	14	13	12	12	12	12
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0006	0.0006	0.0006	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003
Copper Cu	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00007	0.00007	0.00007	0.00006	0.00006	0.00007	0.00006	0.00006	0.00006	0.00006	0.00005	0.00005
Lithium Li	mg/L	0.0025	0.0025	0.0025	0.0026	0.0027	0.0029	0.0027	0.0026	0.0025	0.0025	0.0025	0.0025
Magnesium Mg	mg/L	3.4	3.4	3.4	3.5	3.6	3.9	3.7	3.5	3.4	3.4	3.3	3.3
Manganese Mn	mg/L	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Mercury Hg	mg/L	0.0000026	0.0000025	0.0000025	0.0000025	0.0000026	0.0000028	0.0000026	0.0000025	0.0000024	0.0000024	0.0000024	0.0000024
Molybdenum Mo	mg/L	0.00048	0.00047	0.00047	0.00038	0.00036	0.00037	0.00034	0.00031	0.00031	0.00030	0.00030	0.00030
Nickel Ni	mg/L	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Phosphorus P	mg/L	0.022	0.022	0.022	0.019	0.017	0.018	0.016	0.015	0.014	0.014	0.014	0.014
Potassium K	mg/L	3.0	3.0	3.0	2.6	2.6	2.7	2.5	2.3	2.3	2.3	2.3	2.2
Selenium Se	mg/L	0.00035	0.00035	0.00035	0.00037	0.00038	0.00041	0.00039	0.00036	0.00035	0.00035	0.00035	0.00035
Silicon SiO2	mg/L	0.82	0.81	0.81	0.80	0.82	0.87	0.82	0.77	0.75	0.75	0.74	0.74
Silver Ag	mg/L	0.0000589	0.0000587	0.0000583	0.0000642	0.0000674	0.0000693	0.0000625	0.0000577	0.0000564	0.0000560	0.0000557	0.0000555
Sodium Na	mg/L	41	41	41	35	34	36	33	31	30	30	30	30
Strontium Sr	mg/L	0.020	0.020	0.020	0.020	0.021	0.022	0.021	0.020	0.020	0.019	0.019	0.019
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.038	0.036	0.034	0.033	0.033	0.033	0.032
Thallium Tl	mg/L	0.000022	0.000022	0.000022	0.000023	0.000023	0.000025	0.000024	0.000022	0.000022	0.000021	0.000021	0.000021
Thorium Th	mg/L	0.000016	0.000016	0.000015	0.000014	0.000013	0.000014	0.000013	0.000012	0.000012	0.000011	0.000011	0.000011
Tin Sn	mg/L	0.00030	0.00030	0.00029	0.00024	0.00025	0.00026	0.00025	0.00023	0.00023	0.00023	0.00023	0.00022
Titanium Ti	mg/L	0.0050	0.0050	0.0050	0.0053	0.0055	0.0059	0.0057	0.0053	0.0052	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000039	0.000039	0.000039	0.000040	0.000042	0.000043	0.000039	0.000036	0.000035	0.000035	0.000035	0.000035
Vanadium V	mg/L	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
Zinc Zn	mg/L	0.0026	0.0025	0.0025	0.0021	0.0020	0.0021	0.0022	0.0022	0.0021	0.0021	0.0021	0.0021
Zirconium Zr	mg/L	0.0034	0.0034	0.0034	0.0035	0.0037	0.0039	0.0037	0.0035	0.0034	0.0034	0.0034	0.0034

Appendix I

Table I-4-b-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	133	133	132	121	120	108	110	103	104	103	102
TSS	mg/L	2.2	2.2	2.2	2.3	2.4	2.2	2.3	2.1	2.2	2.1	2.1
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Sulphate	mg/L	3.9	3.9	3.9	3.3	3.2	2.9	2.9	2.7	2.7	2.7	2.7
Chloride	mg/L	69	68	68	59	57	52	52	49	49	49	48
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	18	18	18	19	20	18	19	17	18	17	17
OrthoPhosphate-P	mg/L	0.0074	0.0073	0.0073	0.0059	0.0054	0.0048	0.0048	0.0044	0.0045	0.0044	0.0044
Phosphate-P	mg/L	0.0119	0.0118	0.0117	0.0111	0.0107	0.0096	0.0095	0.0089	0.0089	0.0089	0.0088
Org. Carbon	mg/L	4.0	3.9	3.9	4.2	4.4	4.0	4.1	3.9	3.9	3.9	3.8
Hardness CaCO3	mg/L	26	26	26	26	27	25	26	24	25	24	24
Total Metals												
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0007	0.0007	0.0007	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic As	mg/L	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002
Barium Ba	mg/L	0.0015	0.0015	0.0015	0.0014	0.0015	0.0014	0.0014	0.0014	0.0014	0.0013	0.0013
Beryllium Be	mg/L	0.00012	0.00012	0.00012	0.00013	0.00014	0.00012	0.00012	0.00011	0.00011	0.00011	0.00011
Bismuth Bi	mg/L	0.00056	0.00056	0.00056	0.00042	0.00038	0.00033	0.00033	0.00030	0.00030	0.00030	0.00030
Boron B	mg/L	0.012	0.012	0.012	0.012	0.013	0.012	0.012	0.012	0.012	0.012	0.012
Cadmium Cd	mg/L	0.0000059	0.0000058	0.0000058	0.0000050	0.0000048	0.0000043	0.0000043	0.0000040	0.0000041	0.0000040	0.0000040
Calcium Ca	mg/L	12	12	12	10	10	9	9	8	8	8	8
Chromium Cr	mg/L	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Cobalt Co	mg/L	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Copper Cu	mg/L	0.0009	0.0009	0.0009	0.0008	0.0009	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00004	0.00004	0.00004	0.00004
Lithium Li	mg/L	0.0025	0.0024	0.0024	0.0026	0.0027	0.0024	0.0025	0.0024	0.0024	0.0024	0.0024
Magnesium Mg	mg/L	3.3	3.3	3.3	3.4	3.5	3.3	3.4	3.2	3.2	3.2	3.1
Manganese Mn	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Mercury Hg	mg/L	0.0000023	0.0000023	0.0000023	0.0000024	0.0000025	0.0000022	0.0000023	0.0000022	0.0000022	0.0000022	0.0000022
Molybdenum Mo	mg/L	0.00030	0.00030	0.00030	0.00025	0.00024	0.00021	0.00021	0.00020	0.00020	0.00020	0.00020
Nickel Ni	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Phosphorus P	mg/L	0.014	0.014	0.014	0.012	0.012	0.010	0.010	0.009	0.009	0.009	0.009
Potassium K	mg/L	2.2	2.2	2.2	2.0	2.0	1.8	1.9	1.8	1.8	1.8	1.7
Selenium Se	mg/L	0.00035	0.00034	0.00034	0.00036	0.00038	0.00034	0.00035	0.00033	0.00033	0.00033	0.00033
Silicon SiO2	mg/L	0.74	0.73	0.73	0.75	0.77	0.70	0.72	0.68	0.68	0.67	0.67
Silver Ag	mg/L	0.0000553	0.0000550	0.0000547	0.0000616	0.0000652	0.0000570	0.0000557	0.0000518	0.0000521	0.0000517	0.0000514
Sodium Na	mg/L	29	29	29	26	26	23	24	22	22	22	22
Strontium Sr	mg/L	0.019	0.019	0.019	0.019	0.020	0.018	0.019	0.018	0.018	0.018	0.018
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.036	0.033	0.034	0.032	0.032	0.032	0.031
Thallium Tl	mg/L	0.000021	0.000021	0.000021	0.000022	0.000023	0.000021	0.000021	0.000020	0.000020	0.000020	0.000020
Thorium Th	mg/L	0.000011	0.000011	0.000011	0.000010	0.000010	0.000009	0.000009	0.000009	0.000009	0.000009	0.000009
Tin Sn	mg/L	0.00022	0.00022	0.00022	0.00019	0.00020	0.00018	0.00019	0.00018	0.00018	0.00018	0.00018
Titanium Ti	mg/L	0.0051	0.0050	0.0050	0.0054	0.0056	0.0051	0.0053	0.0050	0.0050	0.0050	0.0049
Uranium U	mg/L	0.000035	0.000035	0.000034	0.000037	0.000039	0.000034	0.000034	0.000032	0.000032	0.000032	0.000031
Vanadium V	mg/L	0.0005	0.0005	0.0005	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Zinc Zn	mg/L	0.0021	0.0021	0.0021	0.0017	0.0016	0.0015	0.0018	0.0018	0.0018	0.0017	0.0017
Zirconium Zr	mg/L	0.0033	0.0033	0.0033	0.0035	0.0036	0.0033	0.0034	0.0032	0.0032	0.0032	0.0032

Appendix I

Table I-4-b-A.3
Scenario 3 - Sediment Control Option 2

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	117442	101234	86389	86424	83234	78530	81148	81148	73295
TSS	183	177	183	1239	685	341	375	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18393	17118	15417	15321	14802	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	71048	57314	58180	52622	47526	49110	49110	44357
Total Ammonia	149	145	149	316	256	194	203	170	145	149	149	135
Nitrate	758	733	758	2080	1593	1110	1184	915	733	758	758	684
Nitrite	116	112	116	144	136	124	123	120	112	116	116	105
Alkalinity	6928	6704	6928	15548	12117	8343	8349	7362	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1171.73	314.49	328.91	86.92				
Hardness CaCO3	14992	14508	14992	26182	22190	16931	17008	15652	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	21.38	13.37	9.80	9.53	6.16	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.68	3.45	2.23	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.74	0.62	0.48	0.49	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.01	1.76	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.24	0.16	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.56	3.32	2.11	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.79	7.69	4.63	4.90	3.49	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42278	42244	41191	40036	40747	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.33	1.27	1.12	1.06	1.05	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.86	1.82	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.85	1.70	1.53	1.50	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	22.01	11.98	9.45	9.59	6.06	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.14	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.85	1.16	0.69	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2878	2096	1465	1472	1205	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.18	4.98	4.81	4.76	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.78	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	47	41	37	36	35	32	33	33	30
Potassium K	6696	6480	6696	7122	7038	6795	6631	6739	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.22	0.13	0.07	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	986	787	637	641	587	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11749	9529	7314	7361	6675	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.75	8.41	2.65	3.32	0.89	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.75	0.57	0.34	0.38	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.43	1.23	0.47	0.56	0.23	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.11	0.81	0.53	0.55	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.5	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.20	1.10	0.37	0.47	0.14				

Appendix I

Table I-4-b-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	117011	101009	86327	86328	83208	78530	81148	81148	73295
TSS	183	177	183	1227	680	339	372	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18385	17113	15415	15319	14802	13840	14302	14302	12918
Chloride	49110	47526	49110	82247	70972	57293	58150	52614	47526	49110	49110	44357
Total Ammonia	149	145	149	316	256	194	203	170	145	149	149	135
Nitrate	758	733	758	2080	1593	1110	1184	915	733	758	758	684
Nitrite	116	112	116	144	136	124	123	120	112	116	116	105
Alkalinity	6928	6704	6928	15450	12059	8326	8329	7357	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2098.99	1158.56	310.77	324.90	85.83				
Hardness CaCO3	14992	14508	14992	26053	22109	16908	16978	15644	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	21.31	13.34	9.77	9.51	6.16	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.68	3.45	2.23	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.74	0.62	0.48	0.49	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.00	1.76	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.24	0.16	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.56	3.32	2.11	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.74	7.66	4.62	4.88	3.49	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42257	42233	41187	40030	40745	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.32	1.27	1.12	1.06	1.05	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.86	1.82	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.85	1.70	1.53	1.50	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.84	11.91	9.40	9.54	6.04	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.14	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.84	1.15	0.69	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2862	2087	1461	1468	1204	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.18	4.98	4.81	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.78	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	47	41	37	36	35	32	33	33	30
Potassium K	6696	6480	6696	7116	7034	6794	6630	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.22	0.13	0.07	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	983	785	636	640	586	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11687	9494	7303	7347	6671	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.55	8.32	2.62	3.28	0.88	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.75	0.57	0.34	0.38	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.40	1.22	0.46	0.55	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.11	0.80	0.53	0.55	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.5	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.18	1.09	0.37	0.47	0.14				

Appendix I

Table I-4-b-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	87387	70473	55832	56817	52721	49028	50662	50662	45759
TSS				1046	495	155	195	51				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5689	4037	2376	2692	1777	1247	1289	1289	1164
Chloride	49110	47526	49110	82214	70956	57290	58148	52614	47526	49110	49110	44357
Total Ammonia	25	24	25	181	122	66	78	43	24	25	25	22
Nitrate	29	28	29	1261	794	351	440	173	28	29	29	26
Nitrite	64	62	64	91	82	72	72	68	62	64	64	58
Alkalinity				8718	5118	1396	1623	429				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2092.35	1155.64	310.19	324.55	85.81				
Hardness CaCO3				11508	7099	1913	2467	652				
Total Metals												
Aluminum Al	0.81	0.78	0.81	14.80	7.85	5.33	4.98	2.15	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.56	3.33	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.32	0.21	0.10	0.11	0.06	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.82	0.49	0.25	0.27	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.21	0.13	0.06	0.07	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.53	3.29	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.91	5.03	2.24	2.52	1.21	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	3155	1902	919	1048	504	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.39	0.31	0.16	0.14	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.29	0.20	0.12	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.45	0.26	0.09	0.11	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	16.85	7.08	4.82	5.05	1.57	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.09	0.06	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.43	0.74	0.29	0.34	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1911	1114	496	533	242	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.91	0.57	0.40	0.49	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.66	0.44	0.24	0.27	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	35	30	26	26	24	22	23	23	21
Potassium K	25	24	25	654	360	121	172	67	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.17	0.08	0.03	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	420	219	82	100	37	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5529	3142	959	1207	329	12	12	12	11
Strontium Sr	0	0	0	9	5	2	3	1	0	0	0	0
Tellurium Te				17.47	8.27	2.59	3.26	0.86				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.35	1.17	0.42	0.51	0.19	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.90	0.60	0.34	0.36	0.25	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.2	0.8	0.5	1.0	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				2.04	1.01	0.33	0.42	0.12				

Appendix I

Table I-4-b-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				417065	398294	383460	386128	380307				
TSS				1191	564	177	222	59				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				914	560	164	265	76				
Chloride				244203	238777	232707	233499	231215				
Total Ammonia				89	55	23	31	11				
Nitrate				695	431	181	232	81				
Nitrite				17	10	4	5	2				
Alkalinity				8830	5188	1417	1649	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2119.25	1171.42	314.86	329.81	87.29				
Hardness CaCO3				11656	7196	1942	2507	663				
Total Metals												
Aluminum Al				23.59	11.29	5.75	5.71	1.69				
Antimony Sb				0.08	0.06	0.04	0.05	0.02				
Arsenic As				0.24	0.15	0.05	0.07	0.02				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.10	0.05	0.01	0.01	0.00				
Bismuth Bi				0.04	0.02	0.01	0.01	0.00				
Boron B				7.14	4.10	1.43	1.67	0.48				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				24585	23531	22765	22854	22439				
Chromium Cr				0.18	0.15	0.06	0.02	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.01				
Copper Cu				0.39	0.21	0.05	0.07	0.02				
Iron Fe				27.41	11.86	6.16	6.80	1.84				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.32	0.63	0.20	0.25	0.07				
Magnesium Mg				1630	868	314	337	90				
Manganese Mn				0.58	0.26	0.17	0.24	0.07				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.05	0.03	0.01	0.01	0.00				
Nickel Ni				0.23	0.12	0.03	0.04	0.01				
Phosphorus P				8	4	1	2	1				
Potassium K				686	352	97	149	40				
Selenium Se				0.22	0.11	0.03	0.04	0.01				
Silicon SiO2				416	207	70	88	25				
Silver Ag				0.05	0.02	0.00	0.00	0.00				
Sodium Na				133217	129700	126812	127144	125968				
Strontium Sr				9	5	1	2	1				
Tellurium Te				17.69	8.39	2.63	3.31	0.88				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				0.07	0.07	0.02	0.03	0.01				
Titanium Ti				2.80	1.33	0.42	0.53	0.14				
Uranium U				0.03	0.02	0.00	0.01	0.00				
Vanadium V				0.32	0.16	0.04	0.04	0.01				
Zinc Zn				0.5	0.3	0.2	0.6	0.2				
Zirconium Zr				2.06	1.02	0.34	0.43	0.12				

Appendix I

Table I-4-b-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				39489	20419	5256	7929	2081				
TSS				1211	574	177	223	58				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				925	567	165	265	76				
Chloride				14037	8525	2318	3112	817				
Total Ammonia				89	55	23	31	11				
Nitrate				695	431	181	232	81				
Nitrite				17	10	4	5	2				
Alkalinity				8975	5275	1419	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2153.97	1191.12	315.39	330.38	86.71				
Hardness CaCO3				11847	7317	1945	2511	659				
Total Metals												
Aluminum Al				23.87	11.41	5.76	5.72	1.69				
Antimony Sb				0.08	0.06	0.04	0.05	0.02				
Arsenic As				0.24	0.15	0.05	0.07	0.02				
Barium Ba				0.62	0.34	0.15	0.16	0.04				
Beryllium Be				0.10	0.05	0.01	0.01	0.00				
Bismuth Bi				0.04	0.02	0.01	0.01	0.00				
Boron B				7.24	4.16	1.43	1.67	0.48				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				2342	1274	490	580	163				
Chromium Cr				0.19	0.15	0.06	0.02	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.01				
Copper Cu				0.40	0.21	0.05	0.07	0.02				
Iron Fe				27.83	12.05	6.17	6.81	1.83				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.35	0.64	0.20	0.25	0.07				
Magnesium Mg				1656	882	315	338	90				
Manganese Mn				0.59	0.27	0.17	0.24	0.06				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.05	0.03	0.01	0.01	0.00				
Nickel Ni				0.23	0.12	0.03	0.04	0.01				
Phosphorus P				8	4	1	2	1				
Potassium K				697	357	97	149	39				
Selenium Se				0.22	0.11	0.03	0.04	0.01				
Silicon SiO2				422	210	70	88	25				
Silver Ag				0.05	0.02	0.00	0.00	0.00				
Sodium Na				7798	4225	1269	1602	421				
Strontium Sr				9	5	1	2	1				
Tellurium Te				17.98	8.53	2.64	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				0.07	0.07	0.02	0.03	0.01				
Titanium Ti				2.84	1.35	0.42	0.53	0.14				
Uranium U				0.03	0.02	0.00	0.01	0.00				
Vanadium V				0.33	0.16	0.04	0.04	0.01				
Zinc Zn				0.5	0.3	0.2	0.6	0.2				
Zirconium Zr				2.09	1.03	0.34	0.43	0.12				

Appendix I

Table I-4-b-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				39345	20343	5320	7972	2092				
TSS				1206	572	179	224	59				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				922	566	166	266	76				
Chloride				13985	8493	2346	3129	821				
Total Ammonia				89	55	23	31	11				
Nitrate				695	431	181	232	81				
Nitrite				17	10	4	5	2				
Alkalinity				8942	5255	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2146.11	1186.67	319.23	332.17	87.16				
Hardness CaCO3				11804	7290	1969	2525	662				
Total Metals												
Aluminum Al				23.81	11.38	5.81	5.74	1.69				
Antimony Sb				0.08	0.06	0.04	0.05	0.02				
Arsenic As				0.24	0.15	0.05	0.07	0.02				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.10	0.05	0.01	0.01	0.00				
Bismuth Bi				0.04	0.02	0.01	0.01	0.00				
Boron B				7.22	4.15	1.44	1.67	0.48				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				2335	1270	495	583	164				
Chromium Cr				0.18	0.15	0.06	0.02	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.01				
Copper Cu				0.40	0.21	0.05	0.07	0.02				
Iron Fe				27.74	12.01	6.24	6.84	1.84				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.34	0.64	0.20	0.25	0.07				
Magnesium Mg				1650	879	318	339	90				
Manganese Mn				0.59	0.27	0.17	0.24	0.07				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.05	0.03	0.01	0.01	0.00				
Nickel Ni				0.23	0.12	0.03	0.04	0.01				
Phosphorus P				8	4	1	2	1				
Potassium K				695	356	98	150	40				
Selenium Se				0.22	0.11	0.03	0.04	0.01				
Silicon SiO2				420	210	70	89	25				
Silver Ag				0.05	0.02	0.00	0.00	0.00				
Sodium Na				7769	4209	1284	1610	423				
Strontium Sr				9	5	1	2	1				
Tellurium Te				17.91	8.49	2.67	3.33	0.88				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				0.07	0.07	0.02	0.03	0.01				
Titanium Ti				2.83	1.35	0.42	0.53	0.14				
Uranium U				0.03	0.02	0.00	0.01	0.00				
Vanadium V				0.33	0.16	0.04	0.04	0.01				
Zinc Zn				0.5	0.3	0.2	0.6	0.2				
Zirconium Zr				2.08	1.03	0.34	0.43	0.12				

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Table I-4-b-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				39433	20389	5249	7918	2096				
TSS				1209	573	177	223	59				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	51				
Chloride				14016	8512	2315	3108	823				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8962	5267	1417	1650	437				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2150.88	1189.37	314.97	329.92	87.32				
Hardness CaCO3				11830	7306	1942	2507	664				
Total Metals												
Aluminum Al				17.50	7.46	4.09	3.59	0.95				
Antimony Sb				0.05	0.05	0.03	0.04	0.01				
Arsenic As				0.09	0.06	0.02	0.02	0.00				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.75	3.23	1.04	1.17	0.31				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1967	1041	392	455	120				
Chromium Cr				0.16	0.14	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.36	0.19	0.04	0.05	0.01				
Iron Fe				26.31	11.11	5.77	6.30	1.67				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.31	0.62	0.19	0.24	0.06				
Magnesium Mg				1616	858	304	325	86				
Manganese Mn				0.56	0.25	0.16	0.23	0.06				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.05	0.03	0.01	0.01	0.00				
Nickel Ni				0.20	0.10	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				687	351	94	146	39				
Selenium Se				0.19	0.09	0.02	0.03	0.01				
Silicon SiO2				351	166	51	65	17				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				7777	4213	1265	1597	423				
Strontium Sr				9	5	1	2	1				
Tellurium Te				17.92	8.50	2.62	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.81	1.33	0.41	0.52	0.14				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.27	0.13	0.02	0.02	0.00				
Zinc Zn				0.4	0.2	0.1	0.6	0.1				
Zirconium Zr				1.80	0.85	0.26	0.33	0.09				

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Table I-4-b-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				39503	20426	5258	7932	2082				
TSS				1211	574	177	223	59				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				707	432	108	192	50				
Chloride				14041	8528	2319	3113	817				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8978	5277	1420	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2154.72	1191.54	315.49	330.49	86.74				
Hardness CaCO3				11851	7319	1946	2512	659				
Total Metals												
Aluminum Al				17.53	7.47	4.10	3.60	0.94				
Antimony Sb				0.05	0.05	0.03	0.04	0.01				
Arsenic As				0.09	0.06	0.02	0.02	0.00				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.76	3.24	1.04	1.17	0.31				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1970	1043	393	456	120				
Chromium Cr				0.16	0.14	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.36	0.19	0.04	0.05	0.01				
Iron Fe				26.36	11.13	5.78	6.31	1.66				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.32	0.62	0.19	0.24	0.06				
Magnesium Mg				1619	859	305	325	85				
Manganese Mn				0.56	0.25	0.16	0.23	0.06				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.05	0.03	0.01	0.01	0.00				
Nickel Ni				0.20	0.10	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				688	352	94	146	38				
Selenium Se				0.19	0.09	0.02	0.03	0.01				
Silicon SiO2				351	167	51	65	17				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				7791	4221	1267	1599	420				
Strontium Sr				9	5	1	2	1				
Tellurium Te				17.96	8.51	2.63	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.81	1.33	0.41	0.52	0.14				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.27	0.13	0.02	0.02	0.00				
Zinc Zn				0.4	0.2	0.1	0.6	0.1				
Zirconium Zr				1.80	0.85	0.26	0.33	0.09				

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Table I-4-b-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				39358	20350	5322	7975	2093				
TSS				1207	572	180	224	59				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				705	431	109	193	51				
Chloride				13990	8496	2347	3130	821				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8945	5257	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2146.79	1187.06	319.34	332.29	87.19				
Hardness CaCO3				11807	7292	1969	2525	663				
Total Metals												
Aluminum Al				17.46	7.45	4.15	3.62	0.95				
Antimony Sb				0.05	0.05	0.03	0.04	0.01				
Arsenic As				0.09	0.06	0.02	0.02	0.00				
Barium Ba				0.59	0.33	0.15	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.74	3.23	1.06	1.18	0.31				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1963	1039	398	458	120				
Chromium Cr				0.16	0.14	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.36	0.19	0.04	0.05	0.01				
Iron Fe				26.26	11.09	5.85	6.35	1.67				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.31	0.62	0.20	0.24	0.06				
Magnesium Mg				1613	856	309	327	86				
Manganese Mn				0.55	0.25	0.16	0.23	0.06				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.05	0.03	0.01	0.01	0.00				
Nickel Ni				0.20	0.10	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				686	350	96	147	38				
Selenium Se				0.19	0.09	0.02	0.03	0.01				
Silicon SiO2				350	166	52	65	17				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				7763	4205	1282	1608	422				
Strontium Sr				9	5	1	2	1				
Tellurium Te				17.89	8.48	2.66	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.80	1.33	0.42	0.52	0.14				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.27	0.13	0.02	0.02	0.00				
Zinc Zn				0.3	0.2	0.1	0.6	0.1				
Zirconium Zr				1.79	0.85	0.27	0.33	0.09				

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Table I-4-b-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				39445	20396	5251	7920	2079				
TSS				1209	573	177	223	58				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	50				
Chloride				14021	8515	2316	3109	816				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8965	5269	1418	1650	433				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2151.56	1189.76	315.06	330.02	86.62				
Hardness CaCO3				11834	7309	1943	2508	658				
Total Metals												
Aluminum Al				17.50	7.46	4.10	3.59	0.94				
Antimony Sb				0.05	0.05	0.03	0.04	0.01				
Arsenic As				0.09	0.06	0.02	0.02	0.00				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.75	3.23	1.04	1.17	0.31				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1967	1041	393	455	119				
Chromium Cr				0.16	0.14	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.01	0.01	0.00				
Copper Cu				0.36	0.19	0.04	0.05	0.01				
Iron Fe				26.32	11.12	5.78	6.30	1.65				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.32	0.62	0.19	0.24	0.06				
Magnesium Mg				1617	858	304	325	85				
Manganese Mn				0.56	0.25	0.16	0.23	0.06				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.05	0.03	0.01	0.01	0.00				
Nickel Ni				0.20	0.10	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				687	351	94	146	38				
Selenium Se				0.19	0.09	0.02	0.03	0.01				
Silicon SiO2				351	166	51	65	17				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				7780	4214	1265	1597	419				
Strontium Sr				9	5	1	2	1				
Tellurium Te				17.93	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.81	1.33	0.41	0.52	0.14				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.27	0.13	0.02	0.02	0.00				
Zinc Zn				0.4	0.2	0.1	0.6	0.1				
Zirconium Zr				1.80	0.85	0.26	0.33	0.09				

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Table I-4-b-B.1
Scenario 3 - Sediment Control Option 1

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.1	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1038	112	91	
Total Ammonia	mg/L		0.97	1.32	0.085	0.045	9%
Nitrate	mg/L		2.9	7.2	0.40	0.21	14%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.06	0.08	0.25	80%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00073	0.00005	0.00003	
Bismuth Bi	mg/L			0.01879	0.00107	0.00064	
Boron B	mg/L			0.033	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000069	0.0000069	0.0000165	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	104%
Cobalt Co	mg/L			0.0123	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.07	0.12	0.28	41%
Lead Pb	mg/L	0.2	0.002	0.00048	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.7	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000070	0.0000010	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.308	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00056	0.00088	0.00084	88%
Silicon SiO2	mg/L			4.7	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000091	0.0000075	9%
Sodium Na	mg/L			379	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000049	0.000031	0.002001	4%
Thorium Th	mg/L			0.000047	0.0000041	0.0000021	
Tin Sn	mg/L			0.00298	0.00055	0.00009	
Titanium Ti	mg/L			0.0062	0.0060	0.0062	
Uranium U	mg/L			0.000079	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0048	0.0050	0.0052	

Appendix I

Table I-4-b-B.2
Scenario 3 - Sediment Control Option 2

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	151	153				
TSS	mg/L				3.9	5.6	5.8	6.7	6.7				
Free CN	mg/L				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.09	0.01	0.03	0.03	0.03				
SCN	mg/L				0.001	0.001	0.002	0.002	0.002				
Sulphate	mg/L				3.8	3.9	4.3	4.9	5.2				
Chloride	mg/L				61	62	62	67	69				
Total Ammonia	mg/L				0.019	0.045	0.023	0.030	0.031				
Nitrate	mg/L				0.08	0.12	0.15	0.19	0.22				
Nitrite	mg/L				0.011	0.014	0.014	0.006	0.016				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P	mg/L				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon	mg/L				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi	mg/L				0.00012	0.00021	0.00028	0.00034	0.00039				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000040	0.0000039	0.0000041	0.0000044				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.021	0.027	0.024	0.025				
Potassium K	mg/L				3.2	2.9	3.0	3.1	3.3				
Selenium Se	mg/L				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.55	0.57	0.58	0.60				
Silver Ag	mg/L				0.0000049	0.0000059	0.0000061	0.0000065	0.0000067				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000003	0.000003				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

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Table I-4-b-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS mg/L				160	139	143	165	166				
TSS mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN mg/L				0.00020		0.00003	0.00003	0.00003				
Total CN mg/L				0.004	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0003		0.0000	0.0000	0.0000				
CNO mg/L				0.22		0.03	0.03	0.03				
SCN mg/L				0.005	0.004	0.004	0.005	0.005				
Sulphate mg/L				7.3	6.7	6.9	7.5	7.7				
Chloride mg/L				74	73	71	77	78				
Total Ammonia mg/L				0.044	0.085	0.016	0.031	0.030				
Nitrate mg/L				0.30	0.31	0.33	0.37	0.39				
Nitrite mg/L				0.032	0.013	0.014	0.005	0.016				
Alkalinity mg/L				29	27	28	28	28				
OrthoPhosphate-P mg/L				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P mg/L				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3 mg/L				48	45	45	47	47				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba mg/L				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be mg/L				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi mg/L				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd mg/L				0.0000060	0.0000058	0.0000055	0.0000058	0.0000060				
Calcium Ca mg/L				21	18	18	19	20				
Chromium Cr mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co mg/L				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo mg/L				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni mg/L				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P mg/L				0.027	0.027	0.033	0.030	0.031				
Potassium K mg/L				4.8	4.1	4.1	4.3	4.4				
Selenium Se mg/L				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2 mg/L				0.68	0.66	0.67	0.69	0.70				
Silver Ag mg/L				0.0000071	0.0000076	0.0000077	0.0000081	0.0000083				
Sodium Na mg/L				39	33	35	33	33				
Strontium Sr mg/L				0.043	0.044	0.038	0.042	0.043				
Tellurium Te mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn mg/L				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn mg/L				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

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Table I-4-b-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS mg/L				171	148	150	171	172				
TSS mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN mg/L				0.00013								
Total CN mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0002								
CNO mg/L				0.14								
SCN mg/L				0.006	0.005	0.005	0.005	0.005				
Sulphate mg/L				8.7	7.5	7.4	7.7	7.6				
Chloride mg/L				82	80	78	83	84				
Total Ammonia mg/L				0.036	0.057	0.016	0.017	0.017				
Nitrate mg/L				0.40	0.38	0.37	0.40	0.40				
Nitrite mg/L				0.030	0.010	0.014	0.004	0.005				
Alkalinity mg/L				29	27	28	28	28				
OrthoPhosphate-P mg/L				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P mg/L				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3 mg/L				50	46	46	47	47				
Total Metals												
Aluminum Al mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba mg/L				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi mg/L				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd mg/L				0.0000069	0.0000064	0.0000058	0.0000059	0.0000059				
Calcium Ca mg/L				24	20	19	19	19				
Chromium Cr mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co mg/L				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu mg/L				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb mg/L				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.5	6.7	6.8	6.6	6.6				
Manganese Mn mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg mg/L				0.0000010	0.0000010	0.0000009	0.0000010	0.0000010				
Molybdenum Mo mg/L				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni mg/L				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P mg/L				0.032	0.031	0.036	0.033	0.033				
Potassium K mg/L				5.3	4.4	4.3	4.2	4.2				
Selenium Se mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2 mg/L				0.73	0.69	0.68	0.69	0.69				
Silver Ag mg/L				0.0000084	0.0000086	0.0000085	0.0000088	0.0000089				
Sodium Na mg/L				40	34	35	33	33				
Strontium Sr mg/L				0.044	0.044	0.038	0.042	0.042				
Tellurium Te mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000004				
Tin Sn mg/L				0.00051	0.00050	0.00051	0.00052	0.00053				
Titanium Ti mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn mg/L				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr mg/L				0.0049	0.0049	0.0050	0.0050	0.0050				

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Table I-4-b-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				173	158	169	201	212				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.005	0.004	0.003	0.003	0.003				
Sulphate	mg/L				7.4	6.3	6.2	6.4	6.3				
Chloride	mg/L				88	88	90	102	109				
Total Ammonia	mg/L				0.012	0.012	0.018	0.016	0.016				
Nitrate	mg/L				0.36	0.32	0.30	0.32	0.32				
Nitrite	mg/L				0.011	0.002	0.003	0.003	0.003				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P	mg/L				0.0276	0.0264	0.0314	0.0274	0.0272				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000063	0.0000058	0.0000053	0.0000054	0.0000054				
Calcium Ca	mg/L				20	17	17	17	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.031	0.036	0.032	0.031				
Potassium K	mg/L				4.6	3.8	3.7	3.6	3.6				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.68	0.65	0.64	0.64	0.64				
Silver Ag	mg/L				0.0000091	0.0000089	0.0000087	0.0000089	0.0000089				
Sodium Na	mg/L				39	37	41	43	47				
Strontium Sr	mg/L				0.043	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00055	0.00051	0.00050	0.00051	0.00050				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000029	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0008	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-4-b-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				216	179	176	187	186				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.1	4.9	4.8	4.8				
Chloride	mg/L				112	99	93	92	91				
Total Ammonia	mg/L				0.008	0.013	0.018	0.016	0.016				
Nitrate	mg/L				0.27	0.23	0.22	0.20	0.21				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P	mg/L				0.0240	0.0233	0.0284	0.0234	0.0233				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00074	0.00056	0.00051	0.00044	0.00043				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.023				
Cadmium Cd	mg/L				0.0000058	0.0000054	0.0000048	0.0000046	0.0000047				
Calcium Ca	mg/L				19	16	15	14	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00043	0.00036	0.00036	0.00032	0.00031				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.028	0.027	0.031	0.026	0.026				
Potassium K	mg/L				4.0	3.3	3.2	3.0	3.0				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00055	0.00056				
Silicon SiO2	mg/L				0.64	0.61	0.60	0.59	0.59				
Silver Ag	mg/L				0.0000087	0.0000086	0.0000084	0.0000076	0.0000076				
Sodium Na	mg/L				57	47	46	42	42				
Strontium Sr	mg/L				0.042	0.043	0.037	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000029	0.000034	0.000042	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0002	0.0002				
Zinc Zn	mg/L				0.0017	0.0036	0.0033	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-b-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				177	150	150	170	167				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.4	3.9	3.9	4.1	4.0				
Chloride	mg/L				86	79	75	80	78				
Total Ammonia	mg/L				0.005	0.010	0.015	0.013	0.013				
Nitrate	mg/L				0.13	0.12	0.12	0.13	0.13				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P	mg/L				0.0200	0.0203	0.0258	0.0216	0.0213				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000042	0.0000040	0.0000035	0.0000037	0.0000036				
Calcium Ca	mg/L				14	12	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00030	0.00026	0.00027	0.00026	0.00025				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.022	0.022	0.027	0.023	0.023				
Potassium K	mg/L				3.4	2.8	2.8	2.7	2.7				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.57	0.56	0.56	0.56	0.56				
Silver Ag	mg/L				0.0000062	0.0000064	0.0000063	0.0000066	0.0000061				
Sodium Na	mg/L				48	40	40	38	37				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000003	0.000003				
Tin Sn	mg/L				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0034	0.0030	0.0020	0.0019				
Zirconium Zr	mg/L				0.0049	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-b-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				158	135	137	154	154				
TSS	mg/L				3.9	5.7	5.8	6.7	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.000				
Sulphate	mg/L				3.6	3.3	3.4	3.4	3.4				
Chloride	mg/L				74	70	67	69	69				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.07	0.06	0.05	0.05	0.04				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P	mg/L				0.0181	0.0189	0.0245	0.0201	0.0200				
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi	mg/L				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000039	0.0000035	0.0000029	0.0000028	0.0000028				
Calcium Ca	mg/L				11	10	9	9	9				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.3	6.3				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00023	0.00021	0.00023	0.00020	0.00020				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.020	0.025	0.021	0.021				
Potassium K	mg/L				3.1	2.6	2.6	2.5	2.5				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.55	0.54	0.54	0.53	0.53				
Silver Ag	mg/L				0.0000056	0.0000057	0.0000054	0.0000048	0.0000047				
Sodium Na	mg/L				43	36	37	34	34				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000001	0.000001				
Tin Sn	mg/L				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000031	0.000039	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

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Table I-4-b-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				148	128	131	148	148				
TSS	mg/L				3.9	5.7	5.8	6.7	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.2	3.0	3.1	3.2	3.2				
Chloride	mg/L				67	65	62	65	65				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P	mg/L				0.0171	0.0182	0.0238	0.0195	0.0194				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000032	0.0000030	0.0000025	0.0000024	0.0000024				
Calcium Ca	mg/L				10	9	9	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.3	6.3				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00021	0.00018	0.00018				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.018	0.019	0.024	0.020	0.020				
Potassium K	mg/L				2.9	2.5	2.5	2.4	2.4				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.52	0.52				
Silver Ag	mg/L				0.0000047	0.0000051	0.0000049	0.0000043	0.0000042				
Sodium Na	mg/L				41	34	35	33	33				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.0000001	0.0000001	0.0000001	0.0000001	0.0000001				
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0031	0.0028	0.0017	0.0018				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

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Table I-4-b-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				142	123	127	146	145				
TSS	mg/L				3.9	5.7	5.8	6.8	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.0	2.8	2.9	3.1	3.1				
Chloride	mg/L				63	62	60	64	63				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P	mg/L				0.0165	0.0177	0.0234	0.0192	0.0192				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				44	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000029	0.0000028	0.0000023	0.0000023	0.0000023				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.4	6.3	6.3				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00017	0.00017	0.00019	0.00017	0.00017				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P	mg/L				0.017	0.018	0.024	0.019	0.019				
Potassium K	mg/L				2.8	2.4	2.4	2.4	2.3				
Selenium Se	mg/L				0.00087	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52				
Silver Ag	mg/L				0.0000041	0.0000045	0.0000044	0.0000045	0.0000041				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.039	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-b-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				140	121	125	143	143			
TSS	mg/L				3.9	5.7	5.8	6.7	6.7			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				2.9	2.7	2.9	3.0	3.0			
Chloride	mg/L				61	60	58	62	62			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				27	25	27	26	26			
OrthoPhosphate-P	mg/L				0.0011	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0162	0.0175	0.0233	0.0189	0.0189			
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0			
Hardness CaCO3	mg/L				44	42	42	43	43			
Total Metals												
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005			
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000027	0.0000026	0.0000022	0.0000021	0.0000021			
Calcium Ca	mg/L				9	8	8	7	7			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0012	0.0015	0.0015			
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.1	6.4	6.4	6.3	6.3			
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007			
Molybdenum Mo	mg/L				0.00016	0.00016	0.00019	0.00016	0.00016			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.016	0.018	0.023	0.019	0.019			
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3			
Selenium Se	mg/L				0.00087	0.00056	0.00060	0.00054	0.00054			
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51			
Silver Ag	mg/L				0.0000039	0.0000044	0.0000043	0.0000038	0.0000038			
Sodium Na	mg/L				39	33	34	32	32			
Strontium Sr	mg/L				0.039	0.041	0.035	0.039	0.039			
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049			
Thallium Tl	mg/L				0.000029	0.000030	0.000030	0.000029	0.000030			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039			
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0059	0.0060			
Uranium U	mg/L				0.000025	0.000030	0.000038	0.000031	0.000031			
Vanadium V	mg/L				0.0005	0.0001	0.0003	0.0002	0.0002			
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017			
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049			

Table I-4-b-B.3
Scenario 3 - Sediment Control Option 2

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1073956	586904	257660	384118	135770				
TSS				29483	26699	11501	17154	5992				
Free CN				0.60	0.05	0.05	0.07	0.02				
Total CN				21	9	4	5	2				
WAD CN				0.81	0.07	0.07	0.09	0.03				
CNO				665	55	57	77	27				
SCN				9	6	3	5	2				
Sulphate				28611	18322	8590	12421	4652				
Chloride				468083	295283	123233	171437	61017				
Total Ammonia				143	213	45	78	27				
Nitrate				576	546	298	489	195				
Nitrite				83	64	28	15	14				
Alkalinity				206688	119301	53699	68141	23935				
OrthoPhosphate-P				17	12	6	9	3				
Phosphate-P				132	89	50	54	19				
Org. Carbon				40778	23698	14478	12543	4379				
Hardness CaCO3				342229	200983	84935	113548	39956				
Total Metals												
Aluminum Al				250	275	156	179	63				
Antimony Sb				3.4	4.6	5.9	1.9	0.7				
Arsenic As				3.8	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.09	0.04	0.06	0.02				
Bismuth Bi				0.92	0.99	0.55	0.86	0.35				
Boron B				253	104	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				84525	51191	22667	31230	11729				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.30	1.29	2.02	0.75	0.30				
Copper Cu				10	8	3	4	1				
Iron Fe				379	566	163	223	78				
Lead Pb				0.19	0.32	0.09	0.12	0.04				
Lithium Li				21	13	6	7	3				
Magnesium Mg				53966	30307	12949	16336	5729				
Manganese Mn				50	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.96	1.26	0.64	0.87	0.33				
Nickel Ni				3.73	3.14	1.18	1.54	0.57				
Phosphorus P				142	97	54	61	22				
Potassium K				24293	13561	5932	7916	2900				
Selenium Se				6.59	2.64	1.20	1.39	0.49				
Silicon SiO2				4141	2616	1128	1490	533				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				289400	152276	66908	80717	28310				
Strontium Sr				303	195	71	102	36				
Tellurium Te				370	230	97	125	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.02	1.94	0.84	1.10	0.39				
Titanium Ti				44	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.09	0.03				
Vanadium V				4.30	0.50	0.60	0.57	0.21				
Zinc Zn				8.69	15.70	6.16	5.40	1.97				
Zirconium Zr				37	23	10	13	4				

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Table I-4-b-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1220165	658674	285400	420123	147948				
TSS				29841	26873	11568	17241	6021				
Free CN				1.54		0.05	0.07	0.02				
Total CN				29	9	4	5	2				
WAD CN				2.06		0.07	0.09	0.03				
CNO				1699		58	76	26				
SCN				38	21	9	13	5				
Sulphate				55505	31529	13694	19045	6893				
Chloride				564931	342809	141595	195266	69076				
Total Ammonia				336	402	33	79	27				
Nitrate				2281	1460	648	947	350				
Nitrite				244	60	28	13	14				
Alkalinity				219476	125568	56119	71284	24998				
OrthoPhosphate-P				55	30	13	18	7				
Phosphate-P				170	108	57	64	23				
Org. Carbon				40852	23731	14490	12559	4385				
Hardness CaCO3				369674	214447	90137	120301	42240				
Total Metals												
Aluminum Al				262	281	158	182	64				
Antimony Sb				6.9	6.3	6.5	2.8	1.0				
Arsenic As				4.6	2.5	1.0	1.3	0.5				
Barium Ba				25	16	7	9	3				
Beryllium Be				0.26	0.15	0.07	0.09	0.03				
Bismuth Bi				4.27	2.64	1.18	1.68	0.62				
Boron B				259	108	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.01				
Calcium Ca				157279	86937	36485	49162	17794				
Chromium Cr				7	3	1	1	1				
Cobalt Co				4.35	2.79	2.60	1.51	0.55				
Copper Cu				12	9	3	5	2				
Iron Fe				389	571	165	226	79				
Lead Pb				0.30	0.38	0.11	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56103	31353	13353	16861	5906				
Manganese Mn				59	99	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.61	2.56	1.14	1.52	0.55				
Nickel Ni				6.11	4.31	1.63	2.12	0.76				
Phosphorus P				206	128	66	76	27				
Potassium K				36289	19455	8210	10873	3900				
Selenium Se				6.67	2.68	1.22	1.42	0.49				
Silicon SiO2				5187	3129	1326	1747	620				
Silver Ag				0.05	0.04	0.02	0.02	0.01				
Sodium Na				301048	157989	69116	83582	29279				
Strontium Sr				327	207	76	108	38				
Tellurium Te				370	230	97	125	44				
Thallium Tl				0.23	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.54	2.20	0.94	1.23	0.44				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.15	0.91	0.76	0.78	0.28				
Zinc Zn				15.35	18.97	7.43	7.04	2.53				
Zirconium Zr				37	23	10	13	4				

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Table I-4-b-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1300322	697522	299220	436673	153011				
TSS				30001	26945	11589	17259	6024				
Free CN				0.98								
Total CN				24	9	4	5	2				
WAD CN				1.31								
CNO				1077								
SCN				49	24	9	12	4				
Sulphate				66005	35684	14700	19564	6783				
Chloride				628689	376026	154662	212713	75121				
Total Ammonia				275	270	33	44	16				
Nitrate				3083	1793	740	1020	360				
Nitrite				226	45	27	10	4				
Alkalinity				224269	127428	56526	71400	24887				
OrthoPhosphate-P				80	43	18	25	9				
Phosphate-P				195	121	62	71	25				
Org. Carbon				40952	23797	14519	12600	4400				
Hardness CaCO3				379716	218247	90921	120414	41950				
Total Metals												
Aluminum Al				268	283	159	183	64				
Antimony Sb				9.1	7.5	7.0	3.4	1.2				
Arsenic As				4.9	2.6	1.0	1.3	0.5				
Barium Ba				26	17	7	9	3				
Beryllium Be				0.33	0.19	0.08	0.11	0.04				
Bismuth Bi				6.45	3.77	1.63	2.27	0.83				
Boron B				262	109	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.02	0.01				
Calcium Ca				182951	96249	38204	48910	16813				
Chromium Cr				8	3	2	1	1				
Cobalt Co				5.47	3.21	2.69	1.52	0.52				
Copper Cu				13	9	3	5	2				
Iron Fe				394	573	166	226	79				
Lead Pb				0.35	0.40	0.12	0.16	0.06				
Lithium Li				22	14	6	7	3				
Magnesium Mg				57010	31738	13459	16943	5914				
Manganese Mn				62	100	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				5.54	2.90	1.20	1.51	0.52				
Nickel Ni				7.05	4.68	1.72	2.18	0.76				
Phosphorus P				242	146	72	84	30				
Potassium K				40507	20983	8490	10825	3735				
Selenium Se				6.71	2.69	1.22	1.42	0.50				
Silicon SiO2				5580	3277	1358	1754	610				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				305336	159621	69457	83644	29162				
Strontium Sr				335	210	76	108	38				
Tellurium Te				371	231	97	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.02	0.01	0.01	0.00				
Tin Sn				3.88	2.37	1.01	1.32	0.47				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.16	0.08	0.09	0.03				
Vanadium V				5.61	1.13	0.83	0.87	0.31				
Zinc Zn				17.91	19.97	7.66	7.14	2.49				
Zirconium Zr				38	23	10	13	4				

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Table I-4-b-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1316091	745342	336198	512442	188653				
TSS				29982	26955	11597	17275	6031				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				34	17	6	8	3				
Sulphate				56715	30012	12257	16270	5601				
Chloride				672180	416851	180013	260954	96899				
Total Ammonia				89	58	35	41	15				
Nitrate				2747	1497	604	807	282				
Nitrite				87	12	6	7	2				
Alkalinity				219552	124925	55549	70173	24476				
OrthoPhosphate-P				96	47	18	24	8				
Phosphate-P				211	125	63	70	24				
Org. Carbon				41238	23954	14584	12693	4433				
Hardness CaCO3				368526	212290	88579	117438	40947				
Total Metals												
Aluminum Al				268	284	159	184	64				
Antimony Sb				10.8	7.7	6.9	3.1	1.1				
Arsenic As				4.7	2.4	1.0	1.2	0.4				
Barium Ba				25	16	6	9	3				
Beryllium Be				0.37	0.19	0.08	0.10	0.03				
Bismuth Bi				8.15	4.00	1.54	2.02	0.69				
Boron B				262	109	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.00				
Calcium Ca				148858	80835	33288	44370	15907				
Chromium Cr				7	2	1	1	0				
Cobalt Co				4.17	2.48	2.39	1.13	0.39				
Copper Cu				12	9	3	5	2				
Iron Fe				393	574	166	227	79				
Lead Pb				0.35	0.39	0.12	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56568	31455	13335	16778	5854				
Manganese Mn				58	98	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.30	2.23	0.94	1.17	0.40				
Nickel Ni				6.26	4.20	1.51	1.89	0.65				
Phosphorus P				252	146	71	81	28				
Potassium K				34850	17969	7294	9280	3209				
Selenium Se				6.70	2.69	1.22	1.42	0.50				
Silicon SiO2				5175	3060	1271	1644	572				
Silver Ag				0.07	0.04	0.02	0.02	0.01				
Sodium Na				300690	173709	82078	110301	41923				
Strontium Sr				326	205	74	106	37				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				4.16	2.42	1.00	1.29	0.45				
Titanium Ti				45	28	12	15	5				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.73	1.11	0.80	0.81	0.28				
Zinc Zn				15.50	18.57	7.07	6.37	2.22				
Zirconium Zr				38	24	10	13	4				

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Table I-4-b-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1649633	844341	350162	477954	165786				
TSS				30041	26984	11608	17226	6014				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				23	11	4	5	2				
Sulphate				45556	24015	9860	12242	4232				
Chloride				856535	467046	184488	233789	80876				
Total Ammonia				62	64	35	41	15				
Nitrate				2023	1079	441	518	184				
Nitrite				20	14	6	7	2				
Alkalinity				216162	123072	54813	68410	23877				
OrthoPhosphate-P				67	32	12	14	5				
Phosphate-P				183	110	57	60	21				
Org. Carbon				41509	24095	14641	12662	4422				
Hardness CaCO3				360257	207793	86790	113734	39688				
Total Metals												
Aluminum Al				270	285	160	183	64				
Antimony Sb				8.2	6.3	6.3	2.2	0.8				
Arsenic As				4.4	2.3	0.9	1.1	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.31	0.16	0.06	0.07	0.03				
Bismuth Bi				5.65	2.66	1.01	1.13	0.39				
Boron B				261	108	47	57	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.00				
Calcium Ca				146523	74860	29391	34517	11901				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.99	1.85	2.14	0.71	0.24				
Copper Cu				11	8	3	4	1				
Iron Fe				396	576	167	226	79				
Lead Pb				0.31	0.37	0.11	0.13	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55941	31113	13197	16452	5743				
Manganese Mn				55	96	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.31	1.70	0.72	0.81	0.28				
Nickel Ni				5.29	3.68	1.30	1.53	0.53				
Phosphorus P				214	125	63	67	23				
Potassium K				30487	15626	6357	7689	2668				
Selenium Se				6.71	2.70	1.23	1.41	0.49				
Silicon SiO2				4854	2886	1202	1503	525				
Silver Ag				0.07	0.04	0.02	0.02	0.01				
Sodium Na				436407	219997	92081	108035	37453				
Strontium Sr				319	201	73	103	36				
Tellurium Te				376	233	98	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.80	2.22	0.92	1.16	0.40				
Titanium Ti				46	28	12	15	5				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.30	0.88	0.71	0.64	0.22				
Zinc Zn				13.03	17.23	6.53	5.43	1.90				
Zirconium Zr				38	24	10	13	4				

Table I-4-b-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1348988	706899	298900	433395	148496				
TSS				29844	26891	11573	17246	6011				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				12	6	2	3	1				
Sulphate				33414	18438	7775	10387	3519				
Chloride				655561	375198	150234	203517	69236				
Total Ammonia				38	49	29	33	12				
Nitrate				967	562	242	335	113				
Nitrite				16	11	5	5	2				
Alkalinity				210537	120486	53843	67953	23617				
OrthoPhosphate-P				37	18	7	9	3				
Phosphate-P				152	96	51	55	19				
Org. Carbon				41323	24005	14607	12727	4427				
Hardness CaCO3				348734	202509	84813	112518	39109				
Total Metals												
Aluminum Al				261	280	158	182	63				
Antimony Sb				5.5	5.1	5.9	1.8	0.6				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.20	0.10	0.04	0.06	0.02				
Bismuth Bi				2.99	1.44	0.55	0.72	0.23				
Boron B				257	106	46	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				105353	55996	22348	28236	9495				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.70	1.25	1.92	0.51	0.17				
Copper Cu				10	8	3	4	1				
Iron Fe				391	573	166	227	79				
Lead Pb				0.22	0.32	0.09	0.12	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54870	30615	13010	16357	5691				
Manganese Mn				52	95	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.26	1.22	0.55	0.65	0.22				
Nickel Ni				4.19	3.17	1.11	1.37	0.47				
Phosphorus P				168	104	55	59	20				
Potassium K				25739	13453	5546	6987	2395				
Selenium Se				6.65	2.67	1.22	1.41	0.49				
Silicon SiO2				4363	2652	1112	1436	496				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				363995	186897	79735	97239	33278				
Strontium Sr				309	197	71	101	35				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.37	2.03	0.85	1.09	0.38				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				4.72	0.60	0.60	0.55	0.19				
Zinc Zn				10.11	15.87	6.03	5.00	1.73				
Zirconium Zr				38	23	10	13	4				

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Table I-4-b-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1208037	640342	273705	392674	136850				
TSS				29787	26866	11564	17177	5997				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				7	3	1	1	0				
Sulphate				27789	15747	6747	8758	3047				
Chloride				560986	330525	133322	176713	61510				
Total Ammonia				38	36	26	31	11				
Nitrate				558	267	102	116	39				
Nitrite				16	9	4	5	2				
Alkalinity				208170	119375	53425	66867	23353				
OrthoPhosphate-P				23	12	5	5	2				
Phosphate-P				138	89	49	51	18				
Org. Carbon				41302	23998	14604	12622	4409				
Hardness CaCO3				343689	200134	83917	110534	38602				
Total Metals												
Aluminum Al				261	279	157	180	63				
Antimony Sb				4.2	4.5	5.6	1.4	0.5				
Arsenic As				3.8	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.16	0.08	0.03	0.04	0.01				
Bismuth Bi				1.75	0.85	0.33	0.37	0.13				
Boron B				255	105	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				86106	46848	18869	22758	7906				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.11	0.97	1.81	0.34	0.12				
Copper Cu				10	7	3	4	1				
Iron Fe				391	573	166	225	79				
Lead Pb				0.20	0.31	0.08	0.10	0.04				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54433	30404	12929	16151	5640				
Manganese Mn				50	94	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.76	0.98	0.46	0.52	0.18				
Nickel Ni				3.69	2.93	1.02	1.22	0.42				
Phosphorus P				149	94	51	53	18				
Potassium K				23518	12404	5149	6341	2210				
Selenium Se				6.64	2.66	1.21	1.39	0.49				
Silicon SiO2				4172	2551	1071	1354	473				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				330005	170843	73658	87485	30480				
Strontium Sr				305	195	70	100	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				3.19	1.93	0.81	1.03	0.36				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.08	0.03				
Vanadium V				4.48	0.48	0.55	0.46	0.16				
Zinc Zn				8.81	15.24	5.78	4.58	1.61				
Zirconium Zr				38	23	10	13	4				

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Table I-4-b-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1131301	604436	260169	377448	131677				
TSS				29767	26858	11561	17172	5996				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				4	2	1	1	0				
Sulphate				24618	14263	6188	8128	2833				
Chloride				509395	306373	124217	166478	58032				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				206962	118815	53216	66627	23272				
OrthoPhosphate-P				15	8	3	4	1				
Phosphate-P				131	86	47	50	17				
Org. Carbon				41310	24003	14607	12623	4409				
Hardness CaCO3				341047	198903	83456	110009	38424				
Total Metals												
Aluminum Al				257	278	156	179	63				
Antimony Sb				3.5	4.1	5.5	1.3	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.12	0.06	0.03	0.03	0.01				
Bismuth Bi				1.05	0.52	0.20	0.24	0.08				
Boron B				254	104	45	56	19				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				75425	41847	16983	20639	7186				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.77	0.81	1.75	0.27	0.09				
Copper Cu				9	7	3	4	1				
Iron Fe				390	573	166	225	79				
Lead Pb				0.17	0.30	0.08	0.10	0.03				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54191	30292	12887	16103	5624				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.49	0.86	0.41	0.46	0.16				
Nickel Ni				3.40	2.79	0.97	1.16	0.40				
Phosphorus P				136	88	48	51	18				
Potassium K				22306	11836	4935	6100	2128				
Selenium Se				6.63	2.65	1.21	1.39	0.49				
Silicon SiO2				4038	2488	1048	1328	464				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				311482	162173	70389	83810	29232				
Strontium Sr				303	194	70	99	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				3.07	1.88	0.79	1.01	0.35				
Titanium Ti				45	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.33	0.41	0.53	0.43	0.15				
Zinc Zn				8.04	14.88	5.64	4.43	1.56				
Zirconium Zr				38	23	10	13	4				

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Table I-4-b-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1084533	583016	252171	371986	129241				
TSS				29704	26826	11548	17214	6001				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				2	1	0	0	0				
Sulphate				22723	13397	5865	7871	2728				
Chloride				478451	292229	118938	162388	56340				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205842	118288	53015	66865	23276				
OrthoPhosphate-P				11	6	2	3	1				
Phosphate-P				126	84	47	49	17				
Org. Carbon				41221	23958	14589	12704	4420				
Hardness CaCO3				338932	197919	83082	110244	38396				
Total Metals												
Aluminum Al				255	276	156	180	63				
Antimony Sb				3.1	3.9	5.4	1.2	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				0.65	0.34	0.13	0.17	0.06				
Boron B				253	104	45	56	19				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				69064	38942	15900	19753	6831				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.57	0.72	1.71	0.24	0.08				
Copper Cu				9	7	2	4	1				
Iron Fe				388	572	165	226	79				
Lead Pb				0.16	0.29	0.08	0.10	0.03				
Lithium Li				21	13	6	7	2				
Magnesium Mg				53976	30191	12849	16144	5624				
Manganese Mn				49	93	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.33	0.78	0.38	0.44	0.15				
Nickel Ni				3.23	2.71	0.94	1.14	0.40				
Phosphorus P				128	85	47	49	17				
Potassium K				21564	11496	4808	6016	2090				
Selenium Se				6.61	2.65	1.20	1.40	0.49				
Silicon SiO2				3944	2445	1032	1328	461				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				300258	157037	68472	82437	28637				
Strontium Sr				301	193	70	99	35				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.00	0.00	0.00	0.00				
Tin Sn				3.00	1.85	0.78	1.00	0.35				
Titanium Ti				45	28	12	15	5				
Uranium U				0.19	0.14	0.08	0.08	0.03				
Vanadium V				4.23	0.36	0.51	0.43	0.15				
Zinc Zn				7.56	14.66	5.56	4.38	1.54				
Zirconium Zr				37	23	10	13	4				

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Table I-4-b-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1063722	573231	248476	364428	127259				
TSS				29711	26831	11550	17162	5992				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				1	0	0	0	0				
Sulphate				21854	12987	5710	7596	2652				
Chloride				464336	285578	116425	157797	55087				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205608	118185	52978	66365	23183				
OrthoPhosphate-P				9	5	2	2	1				
Phosphate-P				124	83	46	48	17				
Org. Carbon				41246	23972	14595	12611	4405				
Hardness CaCO3				338340	197648	82983	109487	38247				
Total Metals												
Aluminum Al				254	276	156	179	62				
Antimony Sb				2.9	3.8	5.4	1.2	0.4				
Arsenic As				3.5	1.8	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.09	0.05	0.02	0.02	0.01				
Bismuth Bi				0.45	0.25	0.10	0.12	0.04				
Boron B				253	104	45	55	19				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				66131	37559	15377	18848	6579				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.48	0.67	1.70	0.21	0.07				
Copper Cu				9	7	2	4	1				
Iron Fe				389	572	165	225	79				
Lead Pb				0.15	0.29	0.07	0.09	0.03				
Lithium Li				21	13	6	7	2				
Magnesium Mg				53927	30169	12841	16052	5607				
Manganese Mn				48	93	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.26	0.75	0.37	0.42	0.15				
Nickel Ni				3.15	2.68	0.93	1.11	0.39				
Phosphorus P				125	83	46	48	17				
Potassium K				21236	11342	4750	5894	2059				
Selenium Se				6.61	2.64	1.20	1.39	0.48				
Silicon SiO2				3910	2430	1026	1303	456				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				295218	154666	67576	80676	28168				
Strontium Sr				300	192	70	99	35				
Tellurium Te				373	232	98	125	44				
Thallium Tl				0.22	0.14	0.06	0.08	0.03				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				2.97	1.83	0.77	0.99	0.35				
Titanium Ti				45	28	12	15	5				
Uranium U				0.19	0.14	0.08	0.08	0.03				
Vanadium V				4.19	0.34	0.50	0.41	0.14				
Zinc Zn				7.35	14.56	5.52	4.30	1.51				
Zirconium Zr				37	23	10	13	4				

Table I-4-b-C.1
Scenario 3 - Sediment Control Option 2

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.1	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1038	112	91	
Total Ammonia	mg/L		0.97	1.32	0.085	0.045	9%
Nitrate	mg/L		2.9	7.2	0.40	0.21	14%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.06	0.08	0.25	80%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00073	0.00005	0.00003	
Bismuth Bi	mg/L			0.01879	0.00107	0.00064	
Boron B	mg/L			0.033	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000069	0.0000069	0.0000165	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	104%
Cobalt Co	mg/L			0.0123	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.07	0.12	0.28	41%
Lead Pb	mg/L	0.2	0.002	0.00048	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.7	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000070	0.0000010	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.308	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00056	0.00088	0.00084	88%
Silicon SiO2	mg/L			4.7	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000091	0.0000075	9%
Sodium Na	mg/L			379	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000049	0.000031	0.002001	4%
Thorium Th	mg/L			0.000047	0.0000041	0.0000021	
Tin Sn	mg/L			0.00298	0.00055	0.00009	
Titanium Ti	mg/L			0.0062	0.0060	0.0062	
Uranium U	mg/L			0.000079	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0048	0.0050	0.0052	

Appendix I

Table I-4-b-C.2
Scenario 3 - Sediment Control Option 2

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				155	155	146	167	168				
TSS	mg/L				7.0	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.05	0.01	0.01	0.02	0.02				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.4	5.5	5.5	5.7				
Chloride	mg/L				63	61	60	69	70				
Total Ammonia	mg/L				0.012	0.024	0.005	0.016	0.016				
Nitrate	mg/L				0.04	0.06	0.07	0.10	0.12				
Nitrite	mg/L				0.007	0.008	0.006	0.004	0.009				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0018	0.0019	0.0021	0.0024	0.0027				
Phosphate-P	mg/L				0.0249	0.0170	0.0082	0.0205	0.0208				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00002				
Bismuth Bi	mg/L				0.00015	0.00019	0.00023	0.00026	0.00029				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000048	0.0000155	0.0000032	0.0000033				
Calcium Ca	mg/L				9	8	9	10	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0003				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00024	0.00023	0.00031	0.00029	0.00031				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.018	0.009	0.022	0.022				
Potassium K	mg/L				3.0	2.5	2.5	2.9	3.0				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.55	0.56	0.57				
Silver Ag	mg/L				0.0000053	0.0000031	0.0000057	0.0000043	0.0000044				
Sodium Na	mg/L				38	32	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-4-b-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				164	163	153	174	175				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00010		0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001		0.0000	0.0000	0.0000				
CNO	mg/L				0.12		0.02	0.02	0.02				
SCN	mg/L				0.003	0.002	0.002	0.003	0.003				
Sulphate	mg/L				6.2	5.8	6.8	6.8	7.0				
Chloride	mg/L				70	66	65	74	75				
Total Ammonia	mg/L				0.025	0.045	0.002	0.017	0.016				
Nitrate	mg/L				0.16	0.16	0.17	0.20	0.21				
Nitrite	mg/L				0.018	0.008	0.006	0.004	0.009				
Alkalinity	mg/L				24	24	25	27	27				
OrthoPhosphate-P	mg/L				0.0044	0.0039	0.0040	0.0043	0.0045				
Phosphate-P	mg/L				0.0275	0.0190	0.0101	0.0224	0.0226				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0020	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00038	0.00037	0.00039	0.00043	0.00045				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000043	0.0000057	0.0000164	0.0000040	0.0000041				
Calcium Ca	mg/L				14	12	12	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.009				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00042	0.00037	0.00044	0.00043	0.00044				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.030	0.021	0.012	0.025	0.025				
Potassium K	mg/L				3.8	3.1	3.1	3.5	3.6				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.60	0.60	0.61	0.62				
Silver Ag	mg/L				0.0000065	0.0000040	0.0000066	0.0000051	0.0000052				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00005	0.00005	0.00005	0.00005	0.00006				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-4-b-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow													
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				170	167	157	178	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00007								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.07								
SCN	mg/L				0.003	0.003	0.002	0.003	0.002				
Sulphate	mg/L				6.9	6.3	7.1	7.0	6.9				
Chloride	mg/L				74	70	69	78	78				
Total Ammonia	mg/L				0.021	0.031	0.002	0.010	0.010				
Nitrate	mg/L				0.21	0.20	0.19	0.21	0.21				
Nitrite	mg/L				0.016	0.006	0.006	0.003	0.003				
Alkalinity	mg/L				25	25	25	27	27				
OrthoPhosphate-P	mg/L				0.0061	0.0054	0.0053	0.0057	0.0059				
Phosphate-P	mg/L				0.0292	0.0205	0.0114	0.0238	0.0240				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				47	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00052	0.00050	0.00051	0.00055	0.00057				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000048	0.0000060	0.0000165	0.0000041	0.0000041				
Calcium Ca	mg/L				16	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0016	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	5.3	5.4	7.4	7.4				
Manganese Mn	mg/L				0.025	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00048	0.00041	0.00046	0.00042	0.00042				
Nickel Ni	mg/L				0.0009	0.0007	0.0009	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.023	0.014	0.027	0.027				
Potassium K	mg/L				4.1	3.3	3.2	3.5	3.5				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.63	0.61	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000072	0.0000045	0.0000070	0.0000055	0.0000055				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000102	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00007	0.00006	0.00007	0.00007	0.00008				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0042	0.0023	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-4-b-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				171	172	166	193	199				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.2	5.6	6.5	6.3	6.2				
Chloride	mg/L				77	74	75	87	91				
Total Ammonia	mg/L				0.009	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.19	0.17	0.15	0.17	0.17				
Nitrite	mg/L				0.007	0.002	0.001	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0071	0.0058	0.0054	0.0055	0.0054				
Phosphate-P	mg/L				0.0302	0.0209	0.0115	0.0237	0.0235				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0010	0.0021	0.0016	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00064	0.00052	0.00049	0.00050	0.00049				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000044	0.0000057	0.0000162	0.0000038	0.0000038				
Calcium Ca	mg/L				14	12	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00039	0.00033	0.00039	0.00035	0.00035				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.023	0.014	0.026	0.026				
Potassium K	mg/L				3.7	3.0	2.9	3.2	3.2				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.59	0.59	0.59	0.59				
Silver Ag	mg/L				0.0000075	0.0000046	0.0000071	0.0000055	0.0000055				
Sodium Na	mg/L				39	34	38	43	45				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00009	0.00007	0.00006	0.00007	0.00007				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0021	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0052				

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Table I-4-b-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				194	183	170	186	186				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.5	5.0	5.8	5.5	5.4				
Chloride	mg/L				90	80	76	82	82				
Total Ammonia	mg/L				0.007	0.008	0.002	0.009	0.009				
Nitrate	mg/L				0.14	0.12	0.11	0.11	0.11				
Nitrite	mg/L				0.002	0.003	0.001	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0052	0.0042	0.0038	0.0035	0.0034				
Phosphate-P	mg/L				0.0283	0.0193	0.0100	0.0216	0.0215				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0020	0.0014	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00047	0.00038	0.00035	0.00032	0.00031				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000042	0.0000055	0.0000160	0.0000034	0.0000034				
Calcium Ca	mg/L				14	11	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00033	0.00028	0.00033	0.00028	0.00028				
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.030	0.021	0.012	0.023	0.023				
Potassium K	mg/L				3.4	2.7	2.6	2.9	2.9				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.59	0.57	0.57	0.56	0.56				
Silver Ag	mg/L				0.0000073	0.0000045	0.0000069	0.0000049	0.0000048				
Sodium Na	mg/L				48	39	41	42	42				
Strontium Sr	mg/L				0.046	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00005	0.00004	0.00004	0.00004				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0039	0.0020	0.0018	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0052	0.0051	0.0051				

Appendix I

Table I-4-b-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				173	168	157	177	176				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.7	4.4	5.3	5.1	5.0				
Chloride	mg/L				76	70	67	76	75				
Total Ammonia	mg/L				0.005	0.006	0.001	0.007	0.008				
Nitrate	mg/L				0.07	0.06	0.06	0.07	0.07				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0032	0.0026	0.0025	0.0025	0.0024				
Phosphate-P	mg/L				0.0263	0.0178	0.0086	0.0207	0.0205				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0042				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00029	0.00024	0.00023	0.00023	0.00022				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000034	0.0000048	0.0000154	0.0000029	0.0000029				
Calcium Ca	mg/L				11	9	9	10	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00026	0.00022	0.00029	0.00025	0.00025				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.019	0.009	0.022	0.021				
Potassium K	mg/L				3.1	2.5	2.4	2.7	2.7				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00061	0.00061				
Silicon SiO2	mg/L				0.55	0.55	0.54	0.55	0.54				
Silver Ag	mg/L				0.0000060	0.0000033	0.0000058	0.0000043	0.0000041				
Sodium Na	mg/L				43	35	37	40	40				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00003	0.00003	0.00002	0.00003	0.00002				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-4-b-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				164	161	150	169	169				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.3	4.1	5.0	4.8	4.8				
Chloride	mg/L				70	65	63	70	70				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.04	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0022	0.0019	0.0018	0.0017	0.0017				
Phosphate-P	mg/L				0.0253	0.0171	0.0080	0.0199	0.0198				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00020	0.00018	0.00017	0.00016	0.00016				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000032	0.0000046	0.0000150	0.0000025	0.0000025				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00022	0.00020	0.00026	0.00022	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.018	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000057	0.0000030	0.0000054	0.0000034	0.0000034				
Sodium Na	mg/L				41	34	36	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-4-b-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				158	157	147	166	166				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.1	3.9	4.9	4.6	4.6				
Chloride	mg/L				66	62	61	68	68				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0015	0.0015	0.0014	0.0014				
Phosphate-P	mg/L				0.0248	0.0167	0.0076	0.0195	0.0195				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00016	0.00014	0.00014	0.00013	0.00013				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000029	0.0000043	0.0000148	0.0000023	0.0000023				
Calcium Ca	mg/L				9	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00025	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000053	0.0000026	0.0000051	0.0000032	0.0000031				
Sodium Na	mg/L				39	33	35	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000000	0.000000				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-4-b-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake													
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				155	155	144	165	164				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.9	3.8	4.8	4.6	4.6				
Chloride	mg/L				64	60	59	67	67				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0013	0.0013	0.0012				
Phosphate-P	mg/L				0.0245	0.0164	0.0074	0.0194	0.0194				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00013	0.00012	0.00012	0.00012	0.00012				
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd	mg/L				0.0000027	0.0000042	0.0000147	0.0000022	0.0000022				
Calcium Ca	mg/L				8	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00019	0.00018	0.00025	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.007	0.020	0.019				
Potassium K	mg/L				2.8	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.52	0.52	0.52	0.53	0.52				
Silver Ag	mg/L				0.0000049	0.0000024	0.0000049	0.0000033	0.0000031				
Sodium Na	mg/L				39	32	34	37	37				
Strontium Sr	mg/L				0.045	0.037	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-4-b-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Robert Lake												Water Quality in Little Robert Lake Outflow			
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16			
Parameter															
TDS	mg/L				154	154	143	163	163						
TSS	mg/L				7.1	8.1	4.1	5.1	5.1						
Free CN	mg/L														
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002						
WAD CN	mg/L														
CNO	mg/L														
SCN	mg/L				0.000	0.000	0.000	0.000	0.000						
Sulphate	mg/L				3.9	3.8	4.8	4.5	4.5						
Chloride	mg/L				63	60	59	66	67						
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007						
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01						
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002						
Alkalinity	mg/L				24	24	25	26	26						
OrthoPhosphate-P	mg/L				0.0012	0.0012	0.0012	0.0011	0.0011						
Phosphate-P	mg/L				0.0243	0.0163	0.0073	0.0193	0.0193						
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1						
Hardness CaCO3	mg/L				44	39	41	45	45						
Total Metals															
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15						
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006						
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004						
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042						
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001						
Bismuth Bi	mg/L				0.00012	0.00011	0.00011	0.00011	0.00011						
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027						
Cadmium Cd	mg/L				0.0000026	0.0000041	0.0000146	0.0000021	0.0000021						
Calcium Ca	mg/L				8	7	7	8	8						
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000						
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001						
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019						
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16						
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025						
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029						
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2						
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008						
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007						
Molybdenum Mo	mg/L				0.00019	0.00017	0.00024	0.00020	0.00020						
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006						
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019						
Potassium K	mg/L				2.8	2.2	2.2	2.5	2.5						
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00060						
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52						
Silver Ag	mg/L				0.0000048	0.0000023	0.0000048	0.0000029	0.0000029						
Sodium Na	mg/L				38	32	34	37	37						
Strontium Sr	mg/L				0.045	0.037	0.040	0.046	0.046						
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051						
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001						
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000						
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001						
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0061	0.0062						
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043						
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003						
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0051	0.0052						
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051						

Appendix I

Table I-4-b-C.3
Scenario 3 - Sediment Control Option 2

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	151	153				
TSS				3.9	5.6	5.8	6.7	6.7				
Free CN				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.09	0.01	0.03	0.03	0.03				
SCN				0.001	0.001	0.002	0.002	0.002				
Sulphate				3.8	3.9	4.3	4.9	5.2				
Chloride				61	62	62	67	69				
Total Ammonia				0.019	0.045	0.023	0.030	0.031				
Nitrate				0.08	0.12	0.15	0.19	0.22				
Nitrite				0.011	0.014	0.014	0.006	0.016				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi				0.00012	0.00021	0.00028	0.00034	0.00039				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000040	0.0000039	0.0000041	0.0000044				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.021	0.027	0.024	0.025				
Potassium K				3.2	2.9	3.0	3.1	3.3				
Selenium Se				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2				0.54	0.55	0.57	0.58	0.60				
Silver Ag				0.0000049	0.0000059	0.0000061	0.0000065	0.0000067				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000021	0.0000024	0.0000025	0.0000027				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-b-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				160	139	143	165	166				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00020		0.00003	0.00003	0.00003				
Total CN				0.004	0.002	0.002	0.002	0.002				
WAD CN				0.0003		0.0000	0.0000	0.0000				
CNO				0.22		0.03	0.03	0.03				
SCN				0.005	0.004	0.004	0.005	0.005				
Sulphate				7.3	6.7	6.9	7.5	7.7				
Chloride				74	73	71	77	78				
Total Ammonia				0.044	0.085	0.016	0.031	0.030				
Nitrate				0.30	0.31	0.33	0.37	0.39				
Nitrite				0.032	0.013	0.014	0.005	0.016				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi				0.00056	0.00056	0.00059	0.00066	0.00070				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000060	0.0000058	0.0000055	0.0000058	0.0000060				
Calcium Ca				21	18	18	19	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P				0.027	0.027	0.033	0.030	0.031				
Potassium K				4.8	4.1	4.1	4.3	4.4				
Selenium Se				0.00087	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2				0.68	0.66	0.67	0.69	0.70				
Silver Ag				0.0000071	0.0000076	0.0000077	0.0000081	0.0000083				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.043				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000026	0.0000029	0.0000031	0.0000033	0.0000034				
Tin Sn				0.00046	0.00046	0.00047	0.00048	0.00049				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-4-b-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				171	148	150	171	172				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00013								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0002								
CNO				0.14								
SCN				0.006	0.005	0.005	0.005	0.005				
Sulphate				8.7	7.5	7.4	7.7	7.6				
Chloride				82	80	78	83	84				
Total Ammonia				0.036	0.057	0.016	0.017	0.017				
Nitrate				0.40	0.38	0.37	0.40	0.40				
Nitrite				0.030	0.010	0.014	0.004	0.005				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				50	46	46	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000069	0.0000064	0.0000058	0.0000059	0.0000059				
Calcium Ca				24	20	19	19	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.5	6.7	6.8	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000010	0.0000009	0.0000010	0.0000010				
Molybdenum Mo				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni				0.0009	0.0010	0.0009	0.0009	0.0008				
Phosphorus P				0.032	0.031	0.036	0.033	0.033				
Potassium K				5.3	4.4	4.3	4.2	4.2				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.73	0.69	0.68	0.69	0.69				
Silver Ag				0.0000084	0.0000086	0.0000085	0.0000088	0.0000089				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.044	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000032	0.0000032	0.0000033	0.0000035	0.0000036				
Tin Sn				0.00051	0.00050	0.00051	0.00052	0.00053				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0023	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0050	0.0050	0.0050				

Appendix I

Table I-4-b-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				173	158	169	201	212				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.005	0.004	0.003	0.003	0.003				
Sulphate				7.4	6.3	6.2	6.4	6.3				
Chloride				88	88	90	102	109				
Total Ammonia				0.012	0.012	0.018	0.016	0.016				
Nitrate				0.36	0.32	0.30	0.32	0.32				
Nitrite				0.011	0.002	0.003	0.003	0.003				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P				0.0276	0.0264	0.0314	0.0274	0.0272				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000063	0.0000058	0.0000053	0.0000054	0.0000054				
Calcium Ca				20	17	17	17	18				
Chromium Cr				0.001	0.001	0.001	0.000	0.000				
Cobalt Co				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P				0.033	0.031	0.036	0.032	0.031				
Potassium K				4.6	3.8	3.7	3.6	3.6				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.68	0.65	0.64	0.64	0.64				
Silver Ag				0.0000091	0.0000089	0.0000087	0.0000089	0.0000089				
Sodium Na				39	37	41	43	47				
Strontium Sr				0.043	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000035	0.0000036	0.0000037	0.0000039	0.0000041				
Tin Sn				0.00055	0.00051	0.00050	0.00051	0.00050				
Titanium Ti				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000029	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0008	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-b-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				216	179	176	187	186				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.002	0.002	0.002	0.002				
Sulphate				6.0	5.1	4.9	4.8	4.8				
Chloride				112	99	93	92	91				
Total Ammonia				0.008	0.013	0.018	0.016	0.016				
Nitrate				0.27	0.23	0.22	0.20	0.21				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P				0.0240	0.0233	0.0284	0.0234	0.0233				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00074	0.00056	0.00051	0.00044	0.00043				
Boron B				0.034	0.023	0.023	0.022	0.023				
Cadmium Cd				0.0000058	0.0000054	0.0000048	0.0000046	0.0000047				
Calcium Ca				19	16	15	14	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00043	0.00036	0.00036	0.00032	0.00031				
Nickel Ni				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.028	0.027	0.031	0.026	0.026				
Potassium K				4.0	3.3	3.2	3.0	3.0				
Selenium Se				0.00088	0.00057	0.00062	0.00055	0.00056				
Silicon SiO2				0.64	0.61	0.60	0.59	0.59				
Silver Ag				0.0000087	0.0000086	0.0000084	0.0000076	0.0000076				
Sodium Na				57	47	46	42	42				
Strontium Sr				0.042	0.043	0.037	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000040	0.0000040	0.0000041	0.0000039	0.0000040				
Tin Sn				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000029	0.000034	0.000042	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0002	0.0002				
Zinc Zn				0.0017	0.0036	0.0033	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-b-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				177	150	150	170	167				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.4	3.9	3.9	4.1	4.0				
Chloride				86	79	75	80	78				
Total Ammonia				0.005	0.010	0.015	0.013	0.013				
Nitrate				0.13	0.12	0.12	0.13	0.13				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P				0.0200	0.0203	0.0258	0.0216	0.0213				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00039	0.00030	0.00028	0.00028	0.00026				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000042	0.0000040	0.0000035	0.0000037	0.0000036				
Calcium Ca				14	12	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00030	0.00026	0.00027	0.00026	0.00025				
Nickel Ni				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.022	0.022	0.027	0.023	0.023				
Potassium K				3.4	2.8	2.8	2.7	2.7				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.57	0.56	0.56	0.56	0.56				
Silver Ag				0.0000062	0.0000064	0.0000063	0.0000066	0.0000061				
Sodium Na				48	40	40	38	37				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000023	0.0000023	0.0000024	0.0000026	0.0000026				
Tin Sn				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0034	0.0030	0.0020	0.0019				
Zirconium Zr				0.0049	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-b-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				158	135	137	154	154				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.000				
Sulphate				3.6	3.3	3.4	3.4	3.4				
Chloride				74	70	67	69	69				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.07	0.06	0.05	0.05	0.04				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P				0.0181	0.0189	0.0245	0.0201	0.0200				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000039	0.0000035	0.0000029	0.0000028	0.0000028				
Calcium Ca				11	10	9	9	9				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.3	6.3				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000007	0.0000007				
Molybdenum Mo				0.00023	0.00021	0.00023	0.00020	0.00020				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.020	0.025	0.021	0.021				
Potassium K				3.1	2.6	2.6	2.5	2.5				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.55	0.54	0.54	0.53	0.53				
Silver Ag				0.0000056	0.0000057	0.0000054	0.0000048	0.0000047				
Sodium Na				43	36	37	34	34				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000023	0.0000018	0.0000017	0.0000015	0.0000015				
Tin Sn				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000027	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-b-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				148	128	131	148	148				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.2	3.0	3.1	3.2	3.2				
Chloride				67	65	62	65	65				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P				0.0171	0.0182	0.0238	0.0195	0.0194				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000032	0.0000030	0.0000025	0.0000024	0.0000024				
Calcium Ca				10	9	9	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00020	0.00018	0.00021	0.00018	0.00018				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.024	0.020	0.020				
Potassium K				2.9	2.5	2.5	2.4	2.4				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.53	0.53	0.53	0.52	0.52				
Silver Ag				0.0000047	0.0000051	0.0000049	0.0000043	0.0000042				
Sodium Na				41	34	35	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000014	0.0000012	0.0000011	0.0000010	0.0000010				
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0031	0.0028	0.0017	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-b-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				142	123	127	146	145				
TSS				3.9	5.7	5.8	6.8	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.0	2.8	2.9	3.1	3.1				
Chloride				63	62	60	64	63				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P				0.0165	0.0177	0.0234	0.0192	0.0192				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000029	0.0000028	0.0000023	0.0000023	0.0000023				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.4	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00017	0.00017	0.00019	0.00017	0.00017				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.019	0.019				
Potassium K				2.8	2.4	2.4	2.4	2.3				
Selenium Se				0.00087	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2				0.52	0.52	0.52	0.52	0.52				
Silver Ag				0.0000041	0.0000045	0.0000044	0.0000045	0.0000041				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.039	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000009	0.0000008	0.0000007	0.0000008	0.0000007				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

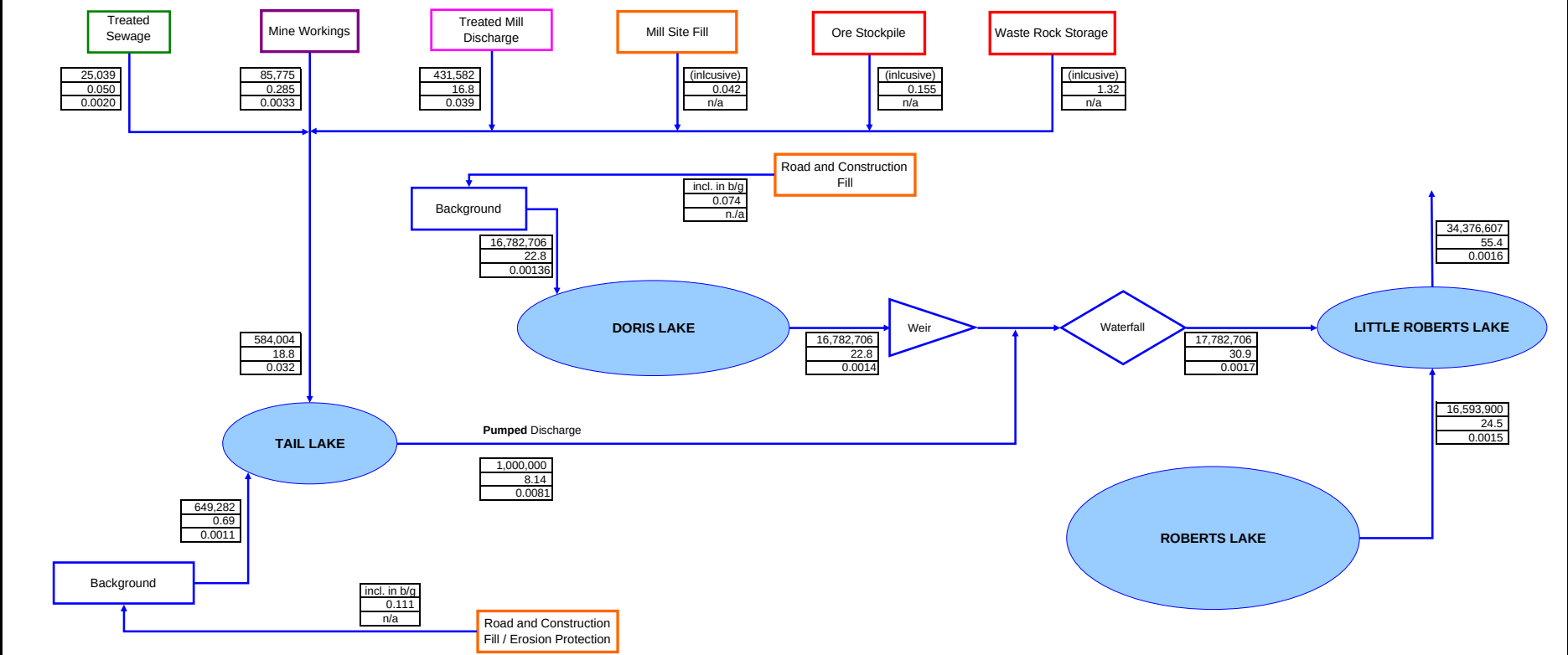
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Table I-4-b-C.3
Scenario 3 - Sediment Co

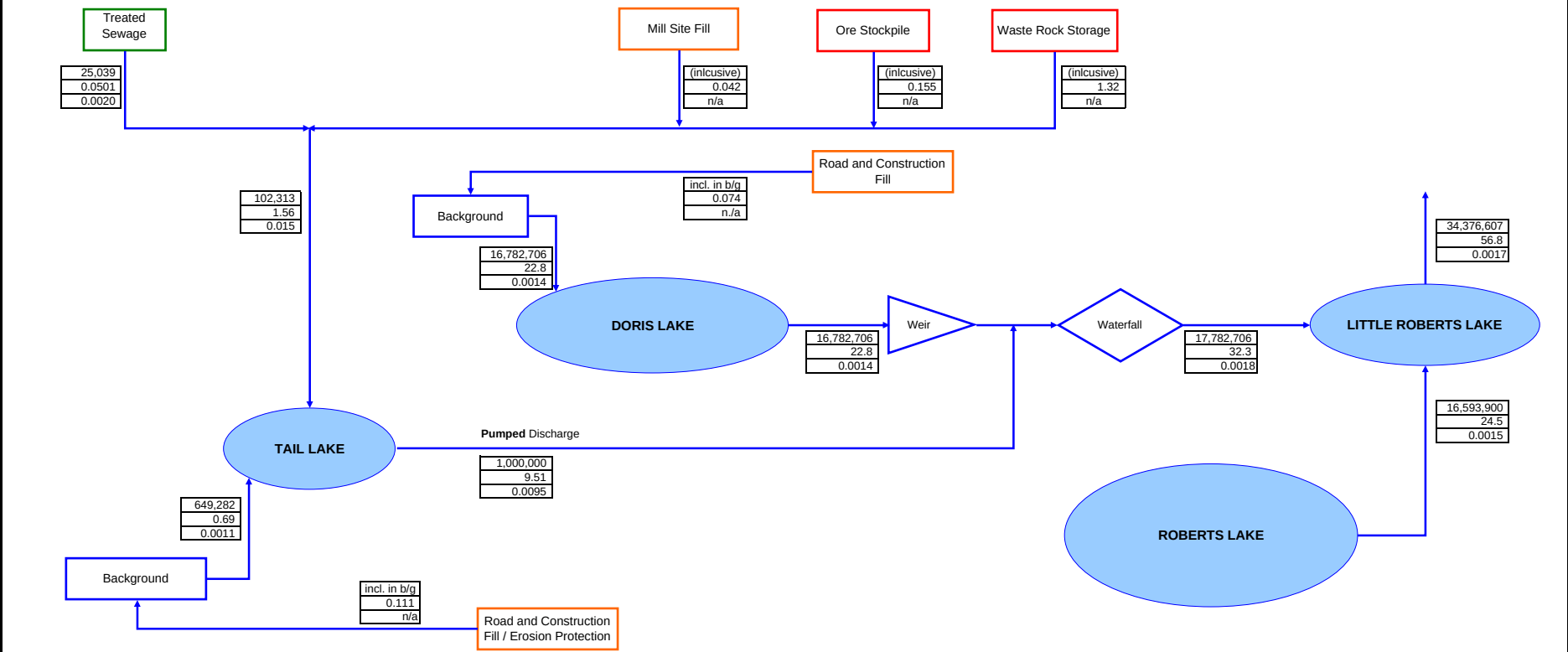
Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				140	121	125	143	143				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				2.9	2.7	2.9	3.0	3.0				
Chloride				61	60	58	62	62				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0011	0.0010	0.0010	0.0010	0.0010				
Phosphate-P				0.0162	0.0175	0.0233	0.0189	0.0189				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00006	0.00005	0.00005	0.00005	0.00005				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000027	0.0000026	0.0000022	0.0000021	0.0000021				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.4	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00016	0.00019	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.016	0.018	0.023	0.019	0.019				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00087	0.00056	0.00060	0.00054	0.00054				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000039	0.0000044	0.0000043	0.0000038	0.0000038				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.039	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000029	0.000030	0.000030	0.000029	0.000030				
Thorium Th				0.0000006	0.0000006	0.0000006	0.0000005	0.0000005				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0059	0.0060	0.0060	0.0059	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0005	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

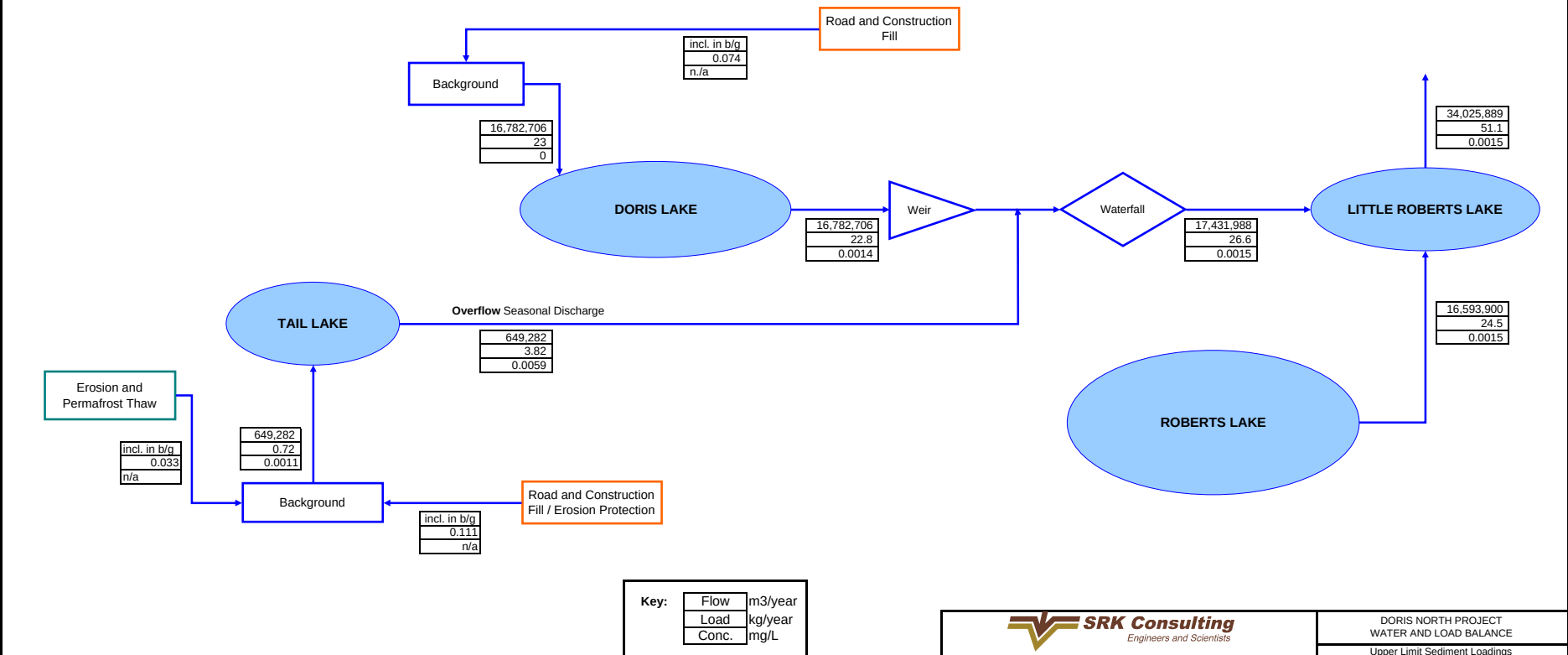
Sediment Control Option 3 -OPERATIONAL CONDITIONS
Year 2



POST MILLING OPERATIONAL CONDITIONS
Year 3



POST CLOSURE CONDITIONS
Year 5



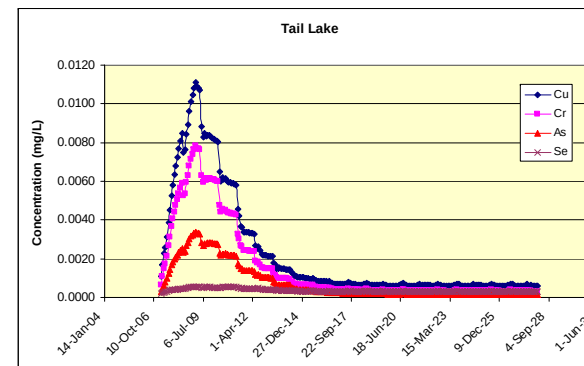
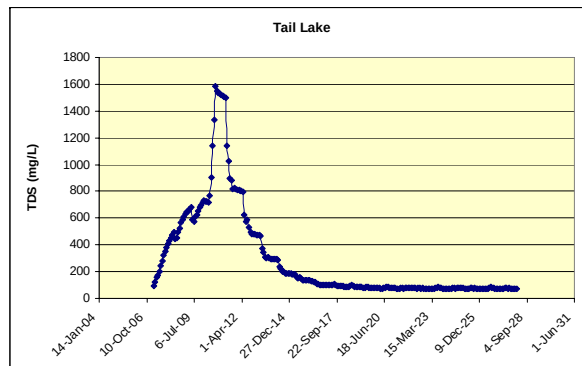
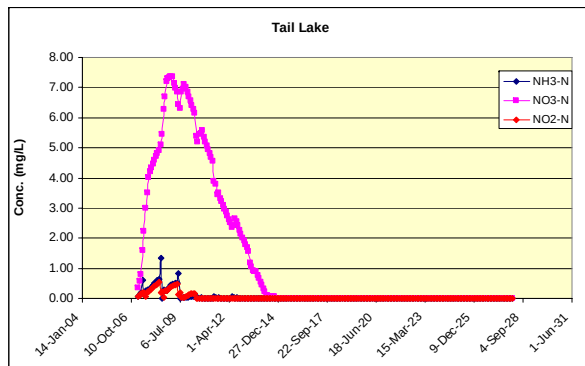
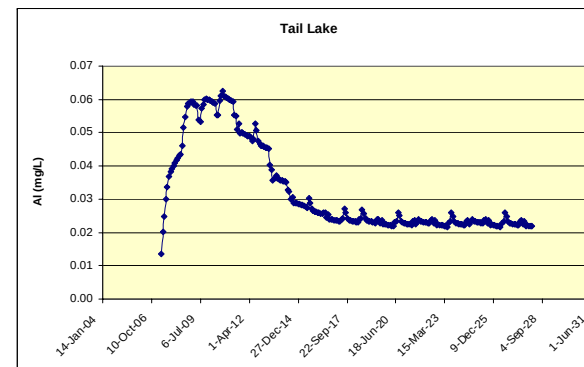
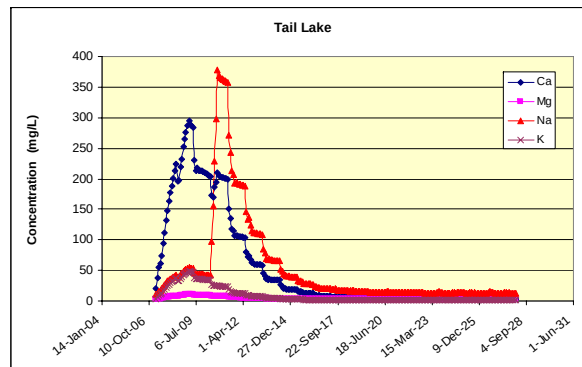
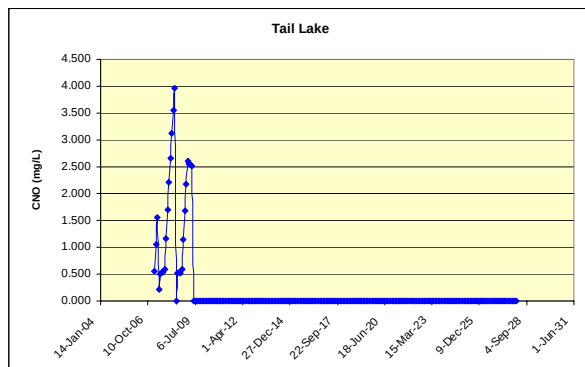
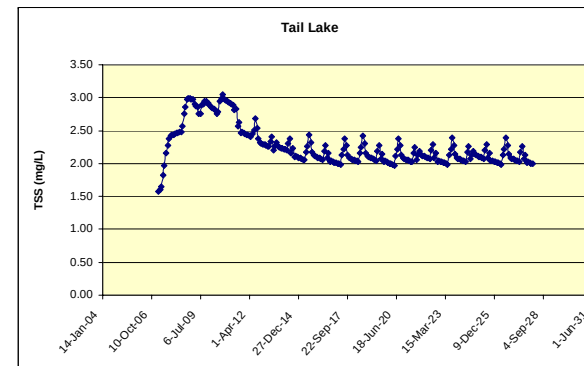
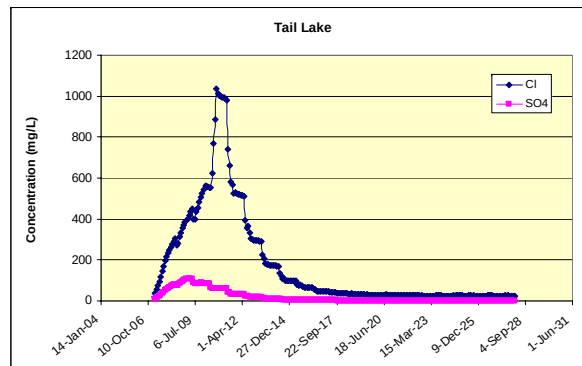
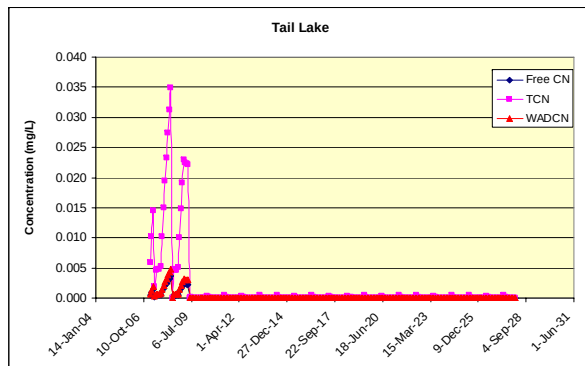
Key:

Flow	m3/year
Load	kg/year
Conc.	mg/L

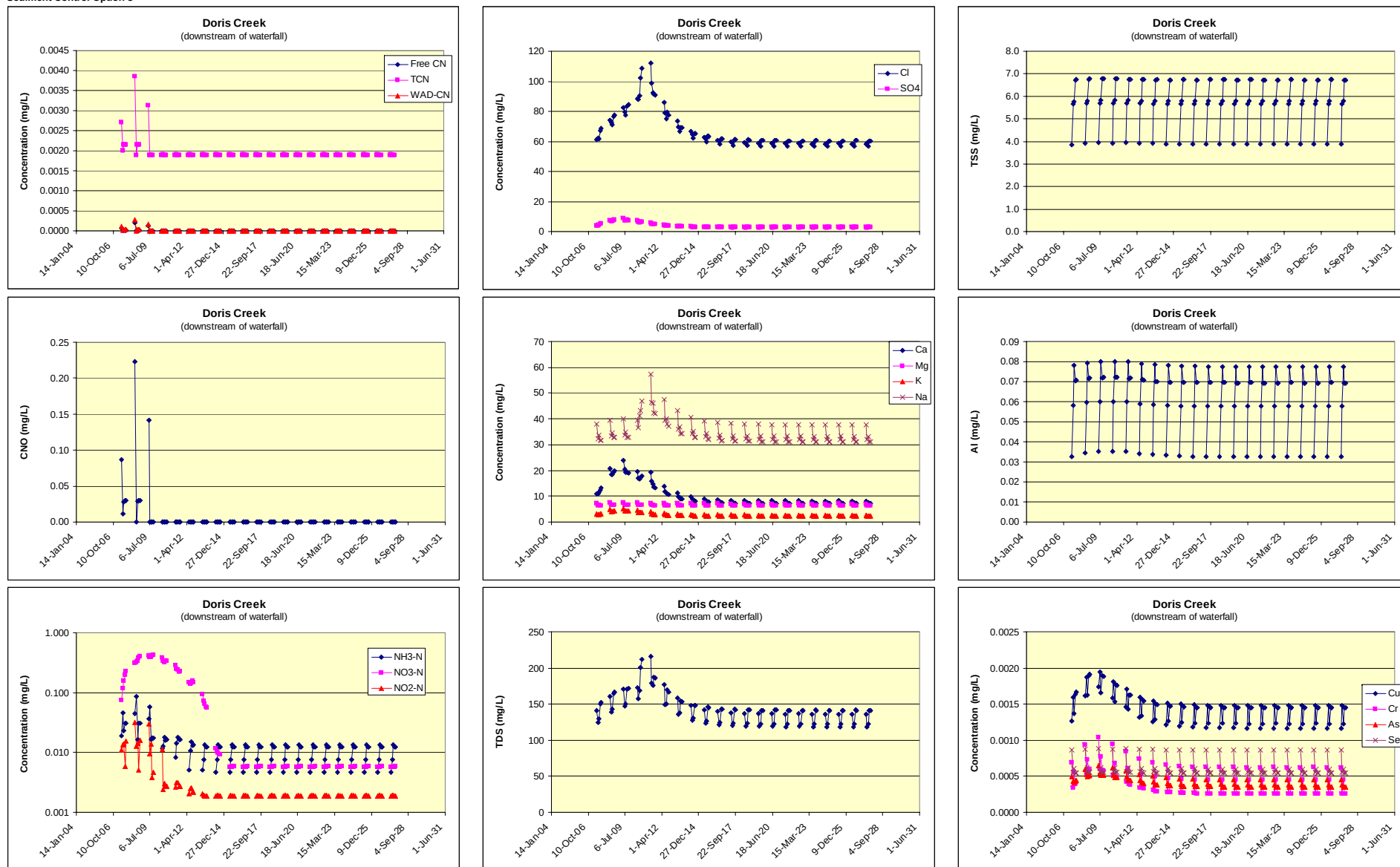
SRK Consulting Engineers and Scientists MIRAMAR HOPE BAY LIMITED		DORIS NORTH PROJECT WATER AND LOAD BALANCE			
		Upper Limit Sediment Loadings 100 % to 29.4 m Erosion Control			
PROJECT:	Date:	Approved:	FIGURE		
1CM014.06	Oct-05	JTC	I-4-c-1		

Appendix I

Sediment Control Option 3



Sediment Control Option 3



Appendix I

Table I-4-c-A.1
Scenario 3 - Sediment Control Option 3

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate 1000000 m3/year		Degradation Field(age) Tail Lk Cu < CME Year 8					
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3		L'Roberts L Year 3
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.1	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1036	112	91	
Total Ammonia	mg/L		0.97	1.33	0.085	0.045	9%
Nitrate	mg/L		2.9	7.4	0.42	0.22	14%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.06	0.08	0.25	80%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00074	0.00005	0.00003	
Bismuth Bi	mg/L			0.01880	0.00107	0.00064	
Boron B	mg/L			0.033	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000072	0.0000070	0.0000166	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	104%
Cobalt Co	mg/L			0.0123	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.00195	0.0021	97%
Iron Fe	mg/L		0.3	0.06	0.12	0.28	40%
Lead Pb	mg/L	0.2	0.002	0.00049	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.7	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000072	0.00000102	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.309	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00055	0.0009	0.00084	88%
Silicon SiO2	mg/L			4.7	0.73	0.64	
Silver Ag	mg/L		0.0001	0.00014	0.0000093	0.0000076	9%
Sodium Na	mg/L			378	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000050	0.000031	0.0020	4%
Thorium Th	mg/L			0.000052	0.0000044	0.0000023	
Tin Sn	mg/L			0.00299	0.00055	0.00009	
Titanium Ti	mg/L			0.0059	0.0060	0.0062	
Uranium U	mg/L			0.000087	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0049	0.0050	0.0052	

Table I-4-c-A.2
Scenario 3 - Sediment Control Option 3

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	173	202	245	280	321	353	381	407	429
TSS	mg/L	1.6	1.6	1.6	1.8	2.0	2.2	2.3	2.4	2.4	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00141	0.00019	0.00046	0.00049	0.00048	0.00054	0.00105	0.00155	0.00201	0.00241
Total CN	mg/L	0.006	0.010	0.015	0.002	0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0003	0.0006	0.0007	0.0006	0.0007	0.0014	0.0021	0.0027	0.0032
CNO	mg/L	0.55	1.06	1.55	0.21	0.50	0.54	0.53	0.59	1.16	1.70	2.22	2.65
SCN	mg/L	0.008	0.014	0.021	0.023	0.029	0.037	0.043	0.052	0.058	0.064	0.070	0.075
Sulphate	mg/L	7.5	13.4	19.3	23.0	28.5	36.2	42.5	49.9	55.6	60.7	65.6	69.6
Chloride	mg/L	37	57	77	95	118	147	171	197	216	233	248	262
Total Ammonia	mg/L	0.070	0.133	0.194	0.618	0.115	0.270	0.272	0.264	0.329	0.390	0.448	0.497
Nitrate	mg/L	0.35	0.58	0.80	1.58	2.22	2.99	3.50	4.03	4.21	4.35	4.48	4.57
Nitrite	mg/L	0.054	0.102	0.150	0.198	0.204	0.059	0.234	0.235	0.285	0.332	0.376	0.413
Alkalinity	mg/L	16	18	21	23	26	30	34	37	40	42	44	45
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0313	0.0381	0.0486	0.0572	0.0678	0.0765	0.0842	0.0916	0.0978
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0349	0.0416	0.0522	0.0608	0.0714	0.0800	0.0877	0.0949	0.1010
Org. Carbon	mg/L	3.0	2.9	2.8	3.1	3.4	3.6	3.6	3.6	3.6	3.5	3.3	3.3
Hardness CaCO3	mg/L	23	29	35	38	45	53	60	68	74	78	83	87
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0034	0.0046	0.0057	0.0067	0.0076	0.0080	0.0084	0.0088	0.0091
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0013	0.0015	0.0017	0.0018	0.0020	0.0021	0.0022
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0032	0.0038	0.0047	0.0054	0.0062	0.0068	0.0073	0.0078	0.0082
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00023	0.00028	0.00032	0.00036	0.00039	0.00040	0.00042	0.00042	0.00043
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00318	0.00437	0.00541	0.00637	0.00718	0.00761	0.00795	0.00828	0.00856
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.017	0.019	0.020	0.021	0.022	0.023	0.023
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000168	0.0000222	0.0000275	0.0000323	0.0000367	0.0000395	0.0000418	0.0000440	0.0000458
Calcium Ca	mg/L	21	38	54	61	74	94	111	131	148	163	177	188
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0025	0.0031	0.0040	0.0047	0.0055	0.0062	0.0068	0.0074	0.0079
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0026	0.0031	0.0039	0.0045	0.0052	0.0058	0.0063	0.0068	0.0072
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00013	0.00017	0.00020	0.00023	0.00026	0.00028	0.00030	0.00031	0.00032
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0028	0.0032	0.0034	0.0037	0.0038	0.0039	0.0040	0.0041
Magnesium Mg	mg/L	2.5	2.9	3.3	3.8	4.4	5.2	5.7	6.3	6.7	7.0	7.3	7.5
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.020	0.022
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000018	0.0000023	0.0000029	0.0000033	0.0000038	0.0000041	0.0000043	0.0000045	0.0000047
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00217	0.00265	0.00338	0.00398	0.00472	0.00532	0.00586	0.00638	0.00681
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0022	0.0027	0.0034	0.0040	0.0046	0.0051	0.0056	0.0060	0.0063
Phosphorus P	mg/L	0.020	0.033	0.047	0.057	0.071	0.089	0.104	0.121	0.135	0.146	0.158	0.167
Potassium K	mg/L	3.8	6.6	9.3	10.4	12.6	15.9	18.7	22.0	24.7	27.2	29.5	31.4
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00028	0.00032	0.00035	0.00038	0.00040	0.00041	0.00041	0.00042	0.00042
Silicon SiO2	mg/L	0.70	0.92	1.14	1.32	1.56	1.88	2.13	2.43	2.64	2.82	2.99	3.14
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000705	0.0000808	0.0000875	0.0000916	0.0000959	0.0000967	0.0000965	0.0000964	0.0000962
Sodium Na	mg/L	11	13	16	17	20	24	26	30	32	34	36	38
Strontium Sr	mg/L	0.017	0.021	0.026	0.030	0.035	0.042	0.047	0.054	0.059	0.063	0.067	0.070
Tellurium Te	mg/L	0.025	0.024	0.024	0.026	0.028	0.029	0.030	0.030	0.030	0.029	0.028	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000023	0.000026	0.000030	0.000032	0.000035	0.000036	0.000036	0.000037	0.000037
Thorium Th	mg/L				0.000011	0.000016	0.000020	0.000023	0.000025	0.000024	0.000023	0.000023	0.000022
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00054	0.00074	0.00091	0.00107	0.00119	0.00125	0.00130	0.00135	0.00138
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0034	0.0036	0.0039	0.0040	0.0041	0.0041	0.0040	0.0039	0.0039
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000037	0.000045	0.000049	0.000052	0.000053	0.000052	0.000051	0.000049	0.000048
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0016	0.0018	0.0020	0.0021	0.0022	0.0023	0.0024
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0058	0.0071	0.0090	0.0108	0.0126	0.0140	0.0153	0.0164	0.0174
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0028	0.0031	0.0033	0.0034	0.0035	0.0034	0.0033	0.0032	0.0031

Table I-4-c-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	454	475	497	443	450	496	523	564	589	609	628	643
TSS	mg/L	2.5	2.5	2.5	2.5	2.6	2.8	2.9	3.0	3.0	3.0	3.0	3.0
Free CN	mg/L	0.00284	0.00322	0.00360		0.00047	0.00048	0.00048	0.00053	0.00104	0.00152	0.00198	0.00238
Total CN	mg/L	0.027	0.031	0.035		0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0038	0.0043	0.0048		0.0006	0.0006	0.0006	0.0007	0.0014	0.0020	0.0026	0.0032
CNO	mg/L	3.12	3.55	3.96		0.52	0.53	0.52	0.58	1.14	1.68	2.18	2.61
SCN	mg/L	0.080	0.085	0.090	0.078	0.079	0.087	0.092	0.100	0.106	0.110	0.115	0.118
Sulphate	mg/L	74.2	78.1	82.0	72.7	74.1	82.4	87.3	94.5	99.1	102.8	106.2	109.1
Chloride	mg/L	277	290	302	274	282	313	332	357	372	384	395	404
Total Ammonia	mg/L	0.551	0.598	0.645	1.330		0.281	0.267	0.260	0.324	0.385	0.442	0.490
Nitrate	mg/L	4.70	4.80	4.91	5.11	5.44	6.27	6.68	7.19	7.30	7.33	7.36	7.37
Nitrite	mg/L	0.454	0.490	0.526	0.182	0.210	0.046	0.241	0.241	0.290	0.336	0.379	0.416
Alkalinity	mg/L	47	49	50	46	48	52	55	58	60	62	63	64
OrthoPhosphate-P	mg/L	0.1047	0.1107	0.1167	0.1014	0.1024	0.1138	0.1204	0.1308	0.1379	0.1436	0.1490	0.1535
Phosphate-P	mg/L	0.1079	0.1138	0.1197	0.1048	0.1057	0.1172	0.1237	0.1341	0.1412	0.1467	0.1521	0.1565
Org. Carbon	mg/L	3.2	3.1	3.0	3.2	3.5	3.7	3.7	3.8	3.7	3.6	3.4	3.4
Hardness CaCO3	mg/L	91	95	99	89	91	101	106	113	118	121	124	127
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06
Antimony Sb	mg/L	0.0094	0.0097	0.0100	0.0099	0.0106	0.0117	0.0126	0.0134	0.0137	0.0139	0.0141	0.0142
Arsenic As	mg/L	0.0023	0.0024	0.0025	0.0023	0.0024	0.0027	0.0028	0.0030	0.0031	0.0032	0.0033	0.0034
Barium Ba	mg/L	0.0087	0.0091	0.0095	0.0085	0.0087	0.0096	0.0102	0.0110	0.0115	0.0118	0.0122	0.0125
Beryllium Be	mg/L	0.00044	0.00045	0.00046	0.00047	0.00050	0.00055	0.00057	0.00060	0.00061	0.00062	0.00062	0.00062
Bismuth Bi	mg/L	0.00888	0.00914	0.00941	0.00936	0.01002	0.01115	0.01193	0.01272	0.01301	0.01318	0.01334	0.01347
Boron B	mg/L	0.024	0.024	0.025	0.024	0.026	0.028	0.030	0.032	0.032	0.032	0.033	0.033
Cadmium Cd	mg/L	0.0000479	0.0000497	0.0000515	0.0000493	0.0000519	0.0000576	0.0000614	0.0000658	0.0000678	0.0000692	0.0000705	0.0000716
Calcium Ca	mg/L	201	213	224	195	198	220	232	252	266	276	287	295
Chromium Cr	mg/L	0.005	0.006	0.006	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.008	0.008
Cobalt Co	mg/L	0.0084	0.0089	0.0093	0.0082	0.0083	0.0092	0.0098	0.0106	0.0111	0.0116	0.0120	0.0123
Copper Cu	mg/L	0.0077	0.0081	0.0085	0.0075	0.0076	0.0084	0.0089	0.0096	0.0101	0.0105	0.0108	0.0111
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00033	0.00034	0.00036	0.00034	0.00036	0.00040	0.00043	0.00045	0.00047	0.00048	0.00048	0.00049
Lithium Li	mg/L	0.0042	0.0043	0.0044	0.0042	0.0044	0.0048	0.0050	0.0052	0.0053	0.0054	0.0054	0.0055
Magnesium Mg	mg/L	7.8	8.1	8.3	7.8	8.0	8.8	9.3	9.9	10.2	10.3	10.5	10.7
Manganese Mn	mg/L	0.023	0.024	0.026	0.023	0.023	0.025	0.027	0.029	0.031	0.032	0.033	0.034
Mercury Hg	mg/L	0.0000049	0.0000051	0.0000053	0.0000050	0.0000053	0.0000058	0.0000062	0.0000066	0.0000068	0.0000070	0.0000071	0.0000072
Molybdenum Mo	mg/L	0.00729	0.00771	0.00812	0.00706	0.00714	0.00793	0.00839	0.00912	0.00961	0.01001	0.01038	0.01069
Nickel Ni	mg/L	0.0067	0.0071	0.0074	0.0066	0.0068	0.0075	0.0079	0.0086	0.0090	0.0093	0.0096	0.0098
Phosphorus P	mg/L	0.177	0.186	0.195	0.175	0.179	0.198	0.210	0.227	0.238	0.246	0.254	0.260
Potassium K	mg/L	33.6	35.4	37.3	32.5	32.9	36.5	38.6	41.9	44.1	45.9	47.6	49.0
Selenium Se	mg/L	0.00043	0.00043	0.00043	0.00044	0.00046	0.00050	0.00052	0.00054	0.00055	0.00055	0.00055	0.00055
Silicon SiO2	mg/L	3.31	3.45	3.59	3.26	3.34	3.68	3.88	4.17	4.34	4.46	4.58	4.68
Silver Ag	mg/L	0.0000964	0.0000962	0.0000961	0.0001028	0.0001103	0.0001176	0.0001208	0.0001250	0.0001251	0.0001240	0.0001230	0.0001221
Sodium Na	mg/L	40	41	43	39	40	44	46	49	51	52	54	55
Strontium Sr	mg/L	0.074	0.077	0.080	0.072	0.074	0.081	0.086	0.092	0.096	0.099	0.102	0.104
Tellurium Te	mg/L	0.026	0.026	0.025	0.027	0.028	0.030	0.031	0.031	0.030	0.029	0.029	0.028
Thallium Tl	mg/L	0.000038	0.000038	0.000039	0.000039	0.000041	0.000044	0.000046	0.000049	0.000049	0.000050	0.000050	0.000050
Thorium Th	mg/L	0.000021	0.000021	0.000020	0.000026	0.000031	0.000034	0.000037	0.000039	0.000038	0.000037	0.000035	0.000035
Tin Sn	mg/L	0.00143	0.00146	0.00150	0.00150	0.00163	0.00181	0.00194	0.00206	0.00210	0.00212	0.00214	0.00215
Titanium Ti	mg/L	0.0038	0.0037	0.0037	0.0039	0.0041	0.0044	0.0045	0.0046	0.0046	0.0045	0.0044	0.0043
Uranium U	mg/L	0.000047	0.000046	0.000045	0.000053	0.000059	0.000064	0.000066	0.000068	0.000066	0.000065	0.000063	0.000061
Vanadium V	mg/L	0.0025	0.0026	0.0027	0.0026	0.0027	0.0030	0.0032	0.0034	0.0035	0.0036	0.0036	0.0037
Zinc Zn	mg/L	0.0185	0.0195	0.0204	0.0181	0.0184	0.0204	0.0219	0.0237	0.0248	0.0257	0.0265	0.0272
Zirconium Zr	mg/L	0.0030	0.0030	0.0029	0.0032	0.0034	0.0037	0.0038	0.0039	0.0038	0.0036	0.0035	0.0034

Table I-4-c-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	652	668	684	589	573	612	624	654	679	698	716	733
TSS	mg/L	2.9	2.9	2.9	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L	0.00232	0.00230	0.00228									
Total CN	mg/L	0.022	0.022	0.022		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0031	0.0031	0.0030									
CNO	mg/L	2.56	2.54	2.51									
SCN	mg/L	0.116	0.115	0.114	0.092	0.084	0.086	0.084	0.084	0.084	0.083	0.082	0.082
Sulphate	mg/L	107.3	106.9	106.5	88.4	83.1	86.0	85.1	86.4	87.0	86.7	86.5	86.4
Chloride	mg/L	416	434	451	399	399	435	452	481	506	525	545	563
Total Ammonia	mg/L	0.490	0.497	0.503	0.836		0.034	0.040	0.022	0.035	0.047	0.059	0.070
Nitrate	mg/L	7.13	7.00	6.86	6.44	6.32	6.85	6.94	7.10	7.02	6.86	6.71	6.57
Nitrite	mg/L	0.435	0.459	0.483	0.128	0.202	0.024	0.038	0.038	0.070	0.102	0.134	0.162
Alkalinity	mg/L	63	62	62	53	51	53	53	53	53	52	52	52
OrthoPhosphate-P	mg/L	0.1595	0.1671	0.1749	0.1501	0.1478	0.1611	0.1673	0.1789	0.1895	0.1982	0.2070	0.2149
Phosphate-P	mg/L	0.1624	0.1700	0.1778	0.1535	0.1511	0.1645	0.1707	0.1823	0.1929	0.2016	0.2104	0.2183
Org. Carbon	mg/L	3.3	3.3	3.2	3.5	3.7	4.0	4.0	4.1	4.1	4.0	4.0	4.0
Hardness CaCO3	mg/L	124	123	122	103	98	101	100	101	101	100	99	98
Total Metals													
Aluminum Al	mg/L	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Antimony Sb	mg/L	0.0145	0.0149	0.0152	0.0142	0.0146	0.0159	0.0167	0.0176	0.0182	0.0186	0.0190	0.0194
Arsenic As	mg/L	0.0033	0.0033	0.0033	0.0028	0.0027	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028
Barium Ba	mg/L	0.0122	0.0122	0.0121	0.0101	0.0095	0.0098	0.0097	0.0098	0.0098	0.0098	0.0097	0.0097
Beryllium Be	mg/L	0.00062	0.00063	0.00064	0.00061	0.00062	0.00066	0.00068	0.00071	0.00072	0.00073	0.00074	0.00074
Bismuth Bi	mg/L	0.01371	0.01410	0.01451	0.01363	0.01402	0.01531	0.01606	0.01694	0.01755	0.01797	0.01840	0.01880
Boron B	mg/L	0.033	0.033	0.032	0.030	0.030	0.031	0.032	0.033	0.033	0.033	0.033	0.033
Cadmium Cd	mg/L	0.0000701	0.0000695	0.0000690	0.0000598	0.0000577	0.0000601	0.0000602	0.0000610	0.0000611	0.0000605	0.0000600	0.0000595
Calcium Ca	mg/L	289	286	284	230	213	218	213	214	214	212	210	208
Chromium Cr	mg/L	0.008	0.008	0.008	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0121	0.0120	0.0119	0.0098	0.0091	0.0093	0.0091	0.0092	0.0092	0.0092	0.0091	0.0091
Copper Cu	mg/L	0.0109	0.0108	0.0107	0.0088	0.0083	0.0085	0.0083	0.0084	0.0084	0.0083	0.0082	0.0082
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00048	0.00049	0.00049	0.00043	0.00043	0.00045	0.00046	0.00047	0.00048	0.00048	0.00048	0.00048
Lithium Li	mg/L	0.0054	0.0054	0.0053	0.0049	0.0049	0.0051	0.0051	0.0052	0.0053	0.0052	0.0052	0.0052
Magnesium Mg	mg/L	10.5	10.5	10.4	9.2	9.0	9.4	9.4	9.6	9.7	9.6	9.6	9.6
Manganese Mn	mg/L	0.033	0.033	0.033	0.027	0.025	0.026	0.025	0.026	0.026	0.025	0.025	0.025
Mercury Hg	mg/L	0.0000071	0.0000070	0.0000070	0.0000061	0.0000058	0.0000061	0.0000061	0.0000062	0.0000062	0.0000061	0.0000061	0.0000061
Molybdenum Mo	mg/L	0.01047	0.01038	0.01030	0.00834	0.00770	0.00787	0.00768	0.00772	0.00772	0.00765	0.00758	0.00752
Nickel Ni	mg/L	0.0097	0.0096	0.0096	0.0080	0.0076	0.0079	0.0078	0.0079	0.0080	0.0079	0.0079	0.0079
Phosphorus P	mg/L	0.265	0.272	0.280	0.241	0.235	0.253	0.259	0.273	0.284	0.293	0.302	0.309
Potassium K	mg/L	47.9	47.6	47.2	38.3	35.4	36.2	35.4	35.5	35.5	35.2	34.8	34.6
Selenium Se	mg/L	0.00053	0.00053	0.00053	0.00050	0.00050	0.00052	0.00052	0.00053	0.00053	0.00053	0.00052	0.00052
Silicon SiO2	mg/L	4.58	4.55	4.51	3.83	3.62	3.74	3.69	3.73	3.73	3.70	3.67	3.64
Silver Ag	mg/L	0.0001205	0.0001205	0.0001205	0.0001210	0.0001250	0.0001311	0.0001321	0.0001350	0.0001362	0.0001359	0.0001358	0.0001358
Sodium Na	mg/L	54	53	53	45	43	44	43	44	44	43	43	43
Strontium Sr	mg/L	0.102	0.101	0.100	0.085	0.080	0.083	0.082	0.083	0.083	0.082	0.082	0.081
Tellurium Te	mg/L	0.027	0.027	0.027	0.029	0.030	0.032	0.033	0.034	0.034	0.033	0.033	0.033
Thallium Tl	mg/L	0.000049	0.000048	0.000048	0.000045	0.000044	0.000047	0.000047	0.000048	0.000048	0.000047	0.000047	0.000046
Thorium Th	mg/L	0.000034	0.000033	0.000033	0.000034	0.000037	0.000040	0.000042	0.000043	0.000043	0.000043	0.000042	0.000042
Tin Sn	mg/L	0.00218	0.00224	0.00230	0.00217	0.00225	0.00246	0.00258	0.00272	0.00281	0.00287	0.00293	0.00299
Titanium Ti	mg/L	0.0042	0.0042	0.0042	0.0044	0.0046	0.0049	0.0050	0.0051	0.0052	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000060	0.000060	0.000059	0.000063	0.000067	0.000071	0.000073	0.000074	0.000075	0.000074	0.000073	0.000073
Vanadium V	mg/L	0.0037	0.0037	0.0038	0.0034	0.0034	0.0037	0.0037	0.0039	0.0040	0.0040	0.0041	0.0041
Zinc Zn	mg/L	0.0267	0.0266	0.0264	0.0218	0.0205	0.0211	0.0211	0.0214	0.0215	0.0214	0.0213	0.0212
Zirconium Zr	mg/L	0.0034	0.0033	0.0033	0.0036	0.0037	0.0040	0.0041	0.0042	0.0042	0.0041	0.0041	0.0041

Table I-4-c-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	728	724	721	769	903	1140	1337	1583	1546	1535	1527	1521
TSS	mg/L	2.8	2.8	2.8	2.8	2.8	2.9	3.0	3.1	3.0	3.0	2.9	2.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.081	0.081	0.080	0.063	0.057	0.059	0.057	0.058	0.057	0.056	0.056	0.056
Sulphate	mg/L	85.7	85.3	84.9	67.0	61.4	63.1	61.5	62.2	60.8	60.3	60.0	59.8
Chloride	mg/L	558	556	553	552	624	770	886	1036	1012	1005	1000	996
Total Ammonia	mg/L	0.069	0.069	0.068	0.039	0.029	0.014	0.021	0.007	0.007	0.007	0.007	0.007
Nitrate	mg/L	6.42	6.29	6.16	5.39	5.18	5.45	5.47	5.59	5.35	5.21	5.07	4.94
Nitrite	mg/L	0.161	0.160	0.159		0.010	0.005	0.005	0.003	0.003	0.003	0.003	0.003
Alkalinity	mg/L	51	51	51	44	43	45	44	45	44	44	44	43
OrthoPhosphate-P	mg/L	0.2133	0.2123	0.2112	0.1659	0.1513	0.1553	0.1512	0.1528	0.1492	0.1482	0.1474	0.1468
Phosphate-P	mg/L	0.2166	0.2156	0.2144	0.1699	0.1553	0.1595	0.1554	0.1570	0.1533	0.1523	0.1514	0.1509
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.3	4.6	4.7	4.8	4.7	4.6	4.6	4.6
Hardness CaCO3	mg/L	97	97	96	81	77	81	80	81	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Antimony Sb	mg/L	0.0192	0.0192	0.0191	0.0150	0.0137	0.0141	0.0137	0.0139	0.0135	0.0134	0.0134	0.0133
Arsenic As	mg/L	0.0028	0.0028	0.0027	0.0023	0.0022	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022
Barium Ba	mg/L	0.0096	0.0095	0.0095	0.0077	0.0072	0.0075	0.0074	0.0075	0.0073	0.0073	0.0072	0.0072
Beryllium Be	mg/L	0.00074	0.00073	0.00073	0.00062	0.00060	0.00062	0.00061	0.00062	0.00060	0.00060	0.00060	0.00059
Bismuth Bi	mg/L	0.01865	0.01856	0.01847	0.01450	0.01322	0.01358	0.01322	0.01335	0.01304	0.01295	0.01288	0.01283
Boron B	mg/L	0.033	0.033	0.032	0.029	0.028	0.030	0.030	0.030	0.030	0.029	0.029	0.029
Cadmium Cd	mg/L	0.0000591	0.0000588	0.0000585	0.0000507	0.0000492	0.0000519	0.0000523	0.0000535	0.0000523	0.0000519	0.0000516	0.0000514
Calcium Ca	mg/L	207	206	205	172	169	186	195	210	205	204	203	202
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.004	0.005	0.004	0.005	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0090	0.0090	0.0089	0.0070	0.0064	0.0066	0.0064	0.0065	0.0063	0.0063	0.0063	0.0062
Copper Cu	mg/L	0.0081	0.0081	0.0080	0.0065	0.0060	0.0062	0.0061	0.0062	0.0060	0.0060	0.0059	0.0059
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00048	0.00048	0.00047	0.00040	0.00038	0.00040	0.00039	0.00040	0.00039	0.00039	0.00038	0.00038
Lithium Li	mg/L	0.0052	0.0051	0.0051	0.0046	0.0045	0.0048	0.0048	0.0049	0.0047	0.0047	0.0047	0.0047
Magnesium Mg	mg/L	9.5	9.4	9.4	8.1	7.8	8.2	8.2	8.3	8.1	8.1	8.0	8.0
Manganese Mn	mg/L	0.025	0.025	0.025	0.020	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Mercury Hg	mg/L	0.0000060	0.0000060	0.0000059	0.0000053	0.0000053	0.0000056	0.0000056	0.0000057	0.0000056	0.0000056	0.0000055	0.0000055
Molybdenum Mo	mg/L	0.00746	0.00743	0.00739	0.00581	0.00531	0.00545	0.00531	0.00536	0.00523	0.00520	0.00517	0.00515
Nickel Ni	mg/L	0.0079	0.0078	0.0078	0.0062	0.0057	0.0059	0.0058	0.0058	0.0057	0.0056	0.0056	0.0056
Phosphorus P	mg/L	0.307	0.306	0.304	0.243	0.223	0.230	0.225	0.227	0.222	0.221	0.219	0.219
Potassium K	mg/L	34.3	34.1	34.0	26.9	24.7	25.4	24.8	25.1	24.5	24.3	24.2	24.1
Selenium Se	mg/L	0.00051	0.00051	0.00051	0.00050	0.00050	0.00053	0.00054	0.00055	0.00054	0.00054	0.00053	0.00053
Silicon SiO2	mg/L	3.61	3.60	3.58	3.01	2.85	2.96	2.94	2.98	2.91	2.89	2.88	2.86
Silver Ag	mg/L	0.0001348	0.0001341	0.0001334	0.0001278	0.0001288	0.0001340	0.0001329	0.0001351	0.0001320	0.0001311	0.0001303	0.0001298
Sodium Na	mg/L	42	42	42	97	155	229	298	378	369	366	364	363
Strontium Sr	mg/L	0.080	0.080	0.080	0.067	0.063	0.066	0.065	0.066	0.064	0.064	0.064	0.063
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.037	0.038	0.039	0.038	0.038	0.038	0.038
Thallium Tl	mg/L	0.000046	0.000046	0.000045	0.000043	0.000042	0.000045	0.000046	0.000047	0.000046	0.000045	0.000045	0.000045
Thorium Th	mg/L	0.000041	0.000041	0.000041	0.000042	0.000044	0.000048	0.000051	0.000052	0.000051	0.000051	0.000050	0.000050
Tin Sn	mg/L	0.00297	0.00295	0.00294	0.00234	0.00217	0.00224	0.00220	0.00222	0.00217	0.00216	0.00215	0.00214
Titanium Ti	mg/L	0.0051	0.0050	0.0050	0.0051	0.0053	0.0056	0.0057	0.0059	0.0057	0.0057	0.0057	0.0057
Uranium U	mg/L	0.000072	0.000072	0.000072	0.000074	0.000078	0.000083	0.000084	0.000087	0.000085	0.000084	0.000084	0.000083
Vanadium V	mg/L	0.0041	0.0041	0.0041	0.0033	0.0031	0.0032	0.0031	0.0032	0.0031	0.0031	0.0031	0.0030
Zinc Zn	mg/L	0.0210	0.0209	0.0208	0.0166	0.0152	0.0157	0.0157	0.0159	0.0155	0.0154	0.0153	0.0153
Zirconium Zr	mg/L	0.0040	0.0040	0.0040	0.0042	0.0043	0.0047	0.0048	0.0049	0.0048	0.0048	0.0047	0.0047

Table I-4-c-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1515	1507	1499	1141	1028	900	880	817	822	816	812	809
TSS	mg/L	2.9	2.9	2.9	2.8	2.8	2.6	2.6	2.5	2.5	2.5	2.4	2.4
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.055	0.055	0.055	0.041	0.036	0.032	0.031	0.029	0.029	0.029	0.028	0.028
Sulphate	mg/L	59.5	59.2	58.9	44.5	40.0	35.0	34.2	31.7	31.9	31.7	31.5	31.4
Chloride	mg/L	992	987	981	739	663	579	565	524	527	524	521	519
Total Ammonia	mg/L	0.007	0.007	0.007	0.061	0.031	0.014	0.021	0.007	0.007	0.007	0.007	0.007
Nitrate	mg/L	4.82	4.68	4.55	3.88	3.78	3.43	3.51	3.31	3.23	3.10	2.98	2.86
Nitrite	mg/L	0.003	0.003	0.003	0.011	0.012	0.005	0.005	0.003	0.003	0.003	0.003	0.003
Alkalinity	mg/L	43	43	43	37	36	32	32	30	31	30	30	30
OrthoPhosphate-P	mg/L	0.1462	0.1455	0.1446	0.1083	0.0966	0.0844	0.0821	0.0762	0.0766	0.0761	0.0757	0.0754
Phosphate-P	mg/L	0.1503	0.1495	0.1487	0.1130	0.1013	0.0885	0.0863	0.0800	0.0805	0.0800	0.0795	0.0792
Org. Carbon	mg/L	4.6	4.6	4.5	4.6	4.8	4.4	4.5	4.2	4.2	4.2	4.2	4.2
Hardness CaCO3	mg/L	78	77	77	64	61	55	55	51	51	51	51	51
Total Metals													
Aluminum Al	mg/L	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0133	0.0132	0.0131	0.0098	0.0088	0.0077	0.0075	0.0070	0.0070	0.0070	0.0069	0.0069
Arsenic As	mg/L	0.0022	0.0022	0.0021	0.0018	0.0017	0.0015	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014
Barium Ba	mg/L	0.0072	0.0071	0.0071	0.0056	0.0052	0.0046	0.0046	0.0043	0.0043	0.0043	0.0043	0.0043
Beryllium Be	mg/L	0.00059	0.00059	0.00058	0.00050	0.00048	0.00042	0.00042	0.00039	0.00039	0.00039	0.00039	0.00039
Bismuth Bi	mg/L	0.01278	0.01272	0.01265	0.00946	0.00844	0.00737	0.00717	0.00666	0.00670	0.00665	0.00661	0.00659
Boron B	mg/L	0.029	0.029	0.029	0.025	0.025	0.023	0.023	0.022	0.022	0.022	0.021	0.021
Cadmium Cd	mg/L	0.0000512	0.0000510	0.0000507	0.0000435	0.0000423	0.0000383	0.0000392	0.0000369	0.0000372	0.0000369	0.0000367	0.0000366
Calcium Ca	mg/L	201	200	199	150	134	117	115	106	107	106	106	105
Chromium Cr	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0062	0.0062	0.0062	0.0046	0.0041	0.0036	0.0035	0.0033	0.0033	0.0033	0.0033	0.0033
Copper Cu	mg/L	0.0059	0.0059	0.0058	0.0046	0.0042	0.0037	0.0036	0.0034	0.0034	0.0034	0.0034	0.0033
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00038	0.00038	0.00038	0.00031	0.00030	0.00027	0.00027	0.00025	0.00025	0.00025	0.00025	0.00025
Lithium Li	mg/L	0.0047	0.0046	0.0046	0.0042	0.0041	0.0037	0.0037	0.0035	0.0035	0.0035	0.0035	0.0035
Magnesium Mg	mg/L	8.0	7.9	7.9	6.8	6.6	5.9	5.9	5.5	5.6	5.5	5.5	5.5
Manganese Mn	mg/L	0.018	0.017	0.017	0.013	0.012	0.010	0.010	0.010	0.010	0.010	0.010	0.009
Mercury Hg	mg/L	0.0000055	0.0000055	0.0000054	0.0000049	0.0000048	0.0000043	0.0000044	0.0000042	0.0000042	0.0000042	0.0000042	0.0000041
Molybdenum Mo	mg/L	0.00513	0.00510	0.00508	0.00381	0.00341	0.00297	0.00290	0.00269	0.00270	0.00268	0.00267	0.00266
Nickel Ni	mg/L	0.0056	0.0055	0.0055	0.0042	0.0039	0.0034	0.0033	0.0031	0.0031	0.0031	0.0031	0.0030
Phosphorus P	mg/L	0.218	0.217	0.215	0.166	0.150	0.132	0.129	0.120	0.121	0.120	0.120	0.119
Potassium K	mg/L	24.0	23.9	23.7	18.1	16.3	14.3	13.9	13.0	13.0	12.9	12.9	12.8
Selenium Se	mg/L	0.00053	0.00053	0.00052	0.00051	0.00051	0.00046	0.00047	0.00045	0.00045	0.00044	0.00044	0.00044
Silicon SiO2	mg/L	2.85	2.84	2.82	2.35	2.22	1.98	1.98	1.85	1.86	1.85	1.84	1.83
Silver Ag	mg/L	0.0001293	0.0001287	0.0001279	0.0001231	0.0001244	0.0001104	0.0001099	0.0001027	0.0001034	0.0001027	0.0001021	0.0001017
Sodium Na	mg/L	361	360	358	271	243	213	208	193	194	193	192	191
Strontium Sr	mg/L	0.063	0.063	0.062	0.051	0.049	0.043	0.043	0.041	0.041	0.041	0.040	0.040
Tellurium Te	mg/L	0.038	0.037	0.037	0.038	0.039	0.036	0.037	0.034	0.035	0.034	0.034	0.034
Thallium Tl	mg/L	0.000045	0.000044	0.000044	0.000041	0.000041	0.000037	0.000038	0.000036	0.000036	0.000036	0.000036	0.000036
Thorium Th	mg/L	0.000050	0.000050	0.000050	0.000048	0.000050	0.000047	0.000049	0.000047	0.000047	0.000047	0.000047	0.000046
Tin Sn	mg/L	0.00213	0.00212	0.00211	0.00161	0.00148	0.00131	0.00129	0.00120	0.00121	0.00120	0.00119	0.00119
Titanium Ti	mg/L	0.0056	0.0056	0.0056	0.0056	0.0057	0.0052	0.0053	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium U	mg/L	0.000083	0.000082	0.000082	0.000083	0.000086	0.000078	0.000080	0.000075	0.000075	0.000075	0.000075	0.000074
Vanadium V	mg/L	0.0030	0.0030	0.0030	0.0024	0.0022	0.0020	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018
Zinc Zn	mg/L	0.0152	0.0152	0.0151	0.0115	0.0104	0.0092	0.0093	0.0087	0.0088	0.0087	0.0087	0.0086
Zirconium Zr	mg/L	0.0047	0.0047	0.0047	0.0047	0.0048	0.0044	0.0046	0.0043	0.0043	0.0043	0.0043	0.0043

Table I-4-c-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	806	802	797	624	570	589	534	494	483	480	477	475
TSS	mg/L	2.4	2.4	2.4	2.4	2.5	2.7	2.5	2.4	2.3	2.3	2.3	2.3
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.028	0.028	0.028	0.021	0.019	0.019	0.017	0.016	0.016	0.016	0.016	0.015
Sulphate	mg/L	31.3	31.2	31.0	23.9	21.8	22.5	20.4	18.8	18.4	18.3	18.2	18.1
Chloride	mg/L	517	514	512	393	356	367	332	307	300	298	296	295
Total Ammonia	mg/L	0.007	0.007	0.007	0.059	0.030	0.016	0.022	0.007	0.007	0.007	0.007	0.007
Nitrate	mg/L	2.74	2.63	2.51	2.36	2.43	2.64	2.56	2.42	2.26	2.14	2.02	1.90
Nitrite	mg/L	0.003	0.003	0.003	0.011	0.012	0.006	0.005	0.003	0.003	0.003	0.003	0.003
Alkalinity	mg/L	30	30	30	27	28	29	27	25	25	25	25	24
OrthoPhosphate-P	mg/L	0.0751	0.0748	0.0743	0.0565	0.0508	0.0522	0.0470	0.0434	0.0424	0.0421	0.0419	0.0418
Phosphate-P	mg/L	0.0789	0.0785	0.0781	0.0610	0.0552	0.0569	0.0513	0.0474	0.0463	0.0460	0.0458	0.0456
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.8	4.6	4.3	4.2	4.1	4.1	4.1
Hardness CaCO3	mg/L	50	50	50	44	44	46	43	40	39	39	39	39
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0069	0.0069	0.0068	0.0052	0.0047	0.0048	0.0044	0.0041	0.0040	0.0039	0.0039	0.0039
Arsenic As	mg/L	0.0014	0.0014	0.0014	0.0012	0.0011	0.0012	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010
Barium Ba	mg/L	0.0042	0.0042	0.0042	0.0035	0.0033	0.0035	0.0033	0.0030	0.0030	0.0030	0.0029	0.0029
Beryllium Be	mg/L	0.00038	0.00038	0.00038	0.00035	0.00034	0.00036	0.00033	0.00031	0.00030	0.00030	0.00030	0.00029
Bismuth Bi	mg/L	0.00656	0.00653	0.00650	0.00493	0.00443	0.00456	0.00410	0.00379	0.00370	0.00368	0.00366	0.00364
Boron B	mg/L	0.021	0.021	0.021	0.020	0.020	0.021	0.020	0.019	0.019	0.018	0.018	0.018
Cadmium Cd	mg/L	0.0000364	0.0000362	0.0000360	0.0000327	0.0000327	0.0000352	0.0000336	0.0000317	0.0000310	0.0000308	0.0000306	0.0000305
Calcium Ca	mg/L	105	104	104	80	72	74	67	62	61	60	60	60
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
Cobalt Co	mg/L	0.0032	0.0032	0.0032	0.0025	0.0022	0.0023	0.0021	0.0019	0.0019	0.0019	0.0019	0.0018
Copper Cu	mg/L	0.0033	0.0033	0.0033	0.0027	0.0025	0.0026	0.0024	0.0022	0.0022	0.0022	0.0022	0.0022
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00025	0.00025	0.00024	0.00021	0.00021	0.00022	0.00021	0.00020	0.00019	0.00019	0.00019	0.00019
Lithium Li	mg/L	0.0034	0.0034	0.0034	0.0033	0.0033	0.0035	0.0033	0.0031	0.0030	0.0030	0.0030	0.0030
Magnesium Mg	mg/L	5.5	5.4	5.4	5.0	4.9	5.3	4.9	4.6	4.5	4.5	4.4	4.4
Manganese Mn	mg/L	0.009	0.009	0.009	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006
Mercury Hg	mg/L	0.0000041	0.0000041	0.0000041	0.0000039	0.0000039	0.0000042	0.0000040	0.0000038	0.0000037	0.0000036	0.0000036	0.0000036
Molybdenum Mo	mg/L	0.00265	0.00264	0.00262	0.00200	0.00181	0.00186	0.00167	0.00155	0.00151	0.00150	0.00149	0.00149
Nickel Ni	mg/L	0.0030	0.0030	0.0030	0.0024	0.0022	0.0023	0.0021	0.0019	0.0019	0.0019	0.0019	0.0019
Phosphorus P	mg/L	0.119	0.118	0.117	0.093	0.086	0.089	0.082	0.076	0.074	0.074	0.073	0.073
Potassium K	mg/L	12.8	12.7	12.6	9.9	9.1	9.4	8.5	7.9	7.7	7.6	7.6	7.6
Selenium Se	mg/L	0.00044	0.00044	0.00043	0.00044	0.00045	0.00048	0.00046	0.00043	0.00042	0.00042	0.00042	0.00041
Silicon SiO2	mg/L	1.82	1.81	1.80	1.60	1.55	1.64	1.53	1.43	1.40	1.39	1.38	1.37
Silver Ag	mg/L	0.0001013	0.0001008	0.0001003	0.0001023	0.0001058	0.0001107	0.0001022	0.0000952	0.0000930	0.0000924	0.0000919	0.0000916
Sodium Na	mg/L	190	189	188	146	133	137	124	115	112	111	111	110
Strontium Sr	mg/L	0.040	0.040	0.040	0.035	0.034	0.036	0.033	0.031	0.030	0.030	0.030	0.030
Tellurium Te	mg/L	0.034	0.034	0.034	0.035	0.037	0.039	0.037	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000035	0.000035	0.000035	0.000034	0.000035	0.000038	0.000036	0.000034	0.000033	0.000033	0.000032	0.000032
Thorium Th	mg/L	0.000046	0.000046	0.000046	0.000045	0.000048	0.000052	0.000051	0.000048	0.000047	0.000047	0.000047	0.000046
Tin Sn	mg/L	0.00118	0.00118	0.00117	0.00093	0.00087	0.00091	0.00084	0.00078	0.00076	0.00076	0.00075	0.00075
Titanium Ti	mg/L	0.0049	0.0049	0.0049	0.0051	0.0052	0.0056	0.0054	0.0050	0.0049	0.0049	0.0048	0.0048
Uranium U	mg/L	0.000074	0.000074	0.000073	0.000076	0.000080	0.000085	0.000081	0.000076	0.000074	0.000074	0.000073	0.000073
Vanadium V	mg/L	0.0018	0.0018	0.0018	0.0015	0.0014	0.0015	0.0014	0.0013	0.0012	0.0012	0.0012	0.0012
Zinc Zn	mg/L	0.0086	0.0086	0.0085	0.0067	0.0062	0.0064	0.0062	0.0058	0.0057	0.0056	0.0056	0.0056
Zirconium Zr	mg/L	0.0043	0.0042	0.0042	0.0044	0.0045	0.0049	0.0047	0.0044	0.0043	0.0043	0.0042	0.0042

Table I-4-c-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	473	471	468	374	345	305	301	306	299	297	295	294
TSS	mg/L	2.3	2.3	2.3	2.3	2.4	2.2	2.3	2.3	2.3	2.3	2.2	2.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.015	0.015	0.015	0.011	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008
Sulphate	mg/L	18.0	18.0	17.9	13.8	12.6	11.0	10.9	11.0	10.7	10.7	10.6	10.6
Chloride	mg/L	294	292	291	225	205	180	177	179	175	174	173	172
Total Ammonia	mg/L	0.007	0.007	0.007		0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.79	1.67	1.56	1.17	1.05	0.92	0.89	0.90	0.77	0.66	0.54	0.44
Nitrite	mg/L	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	24	24	24	23	24	22	22	22	22	22	22	22
OrthoPhosphate-P	mg/L	0.0416	0.0414	0.0411	0.0313	0.0281	0.0246	0.0240	0.0243	0.0237	0.0236	0.0234	0.0233
Phosphate-P	mg/L	0.0454	0.0452	0.0449	0.0358	0.0325	0.0286	0.0280	0.0283	0.0277	0.0275	0.0273	0.0272
Org. Carbon	mg/L	4.1	4.1	4.0	4.2	4.5	4.1	4.2	4.3	4.2	4.2	4.1	4.1
Hardness CaCO3	mg/L	39	38	38	35	36	32	33	34	33	33	33	32
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0039	0.0039	0.0038	0.0029	0.0026	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022	0.0022
Arsenic As	mg/L	0.0010	0.0010	0.0010	0.0008	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006
Barium Ba	mg/L	0.0029	0.0029	0.0029	0.0025	0.0024	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022
Beryllium Be	mg/L	0.00029	0.00029	0.00029	0.00026	0.00025	0.00022	0.00021	0.00022	0.00021	0.00021	0.00021	0.00021
Bismuth Bi	mg/L	0.00363	0.00361	0.00359	0.00270	0.00241	0.00211	0.00205	0.00207	0.00203	0.00201	0.00200	0.00199
Boron B	mg/L	0.018	0.018	0.018	0.016	0.016	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Cadmium Cd	mg/L	0.0000303	0.0000302	0.0000300	0.0000230	0.0000208	0.0000183	0.0000179	0.0000181	0.0000177	0.0000176	0.0000175	0.0000174
Calcium Ca	mg/L	59	59	59	45	41	36	35	36	35	35	34	34
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0018	0.0018	0.0018	0.0014	0.0012	0.0011	0.0011	0.0011	0.0011	0.0010	0.0010	0.0010
Copper Cu	mg/L	0.0021	0.0021	0.0021	0.0018	0.0017	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00019	0.00019	0.00019	0.00015	0.00014	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012
Lithium Li	mg/L	0.0030	0.0030	0.0029	0.0029	0.0030	0.0027	0.0028	0.0028	0.0028	0.0027	0.0027	0.0027
Magnesium Mg	mg/L	4.4	4.4	4.4	4.1	4.2	3.8	3.9	4.0	3.9	3.9	3.9	3.8
Manganese Mn	mg/L	0.006	0.006	0.006	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Mercury Hg	mg/L	0.0000036	0.0000036	0.0000036	0.0000031	0.0000029	0.0000026	0.0000026	0.0000027	0.0000026	0.0000026	0.0000026	0.0000026
Molybdenum Mo	mg/L	0.00148	0.00147	0.00147	0.00112	0.00102	0.00089	0.00087	0.00088	0.00086	0.00085	0.00085	0.00085
Nickel Ni	mg/L	0.0019	0.0018	0.0018	0.0015	0.0014	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Phosphorus P	mg/L	0.073	0.072	0.072	0.056	0.050	0.044	0.043	0.043	0.042	0.042	0.042	0.042
Potassium K	mg/L	7.5	7.5	7.4	5.9	5.5	4.8	4.8	4.9	4.8	4.7	4.7	4.7
Selenium Se	mg/L	0.00041	0.00041	0.00041	0.00040	0.00040	0.00037	0.00037	0.00038	0.00037	0.00037	0.00036	0.00036
Silicon SiO2	mg/L	1.37	1.36	1.35	1.21	1.17	1.05	1.06	1.08	1.06	1.05	1.04	1.04
Silver Ag	mg/L	0.0000912	0.0000907	0.0000902	0.0000881	0.0000888	0.0000777	0.0000758	0.0000766	0.0000748	0.0000743	0.0000739	0.0000736
Sodium Na	mg/L	110	109	109	85	78	69	68	69	67	67	66	66
Strontium Sr	mg/L	0.030	0.030	0.029	0.027	0.027	0.024	0.025	0.025	0.025	0.024	0.024	0.024
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000032	0.000032	0.000032	0.000030	0.000030	0.000027	0.000027	0.000028	0.000027	0.000027	0.000027	0.000027
Thorium Th	mg/L	0.000046	0.000046	0.000046	0.000035	0.000032	0.000028	0.000027	0.000028	0.000027	0.000027	0.000027	0.000027
Tin Sn	mg/L	0.00075	0.00074	0.00074	0.00057	0.00054	0.00048	0.00048	0.00049	0.00048	0.00048	0.00047	0.00047
Titanium Ti	mg/L	0.0048	0.0048	0.0048	0.0050	0.0051	0.0047	0.0048	0.0050	0.0048	0.0048	0.0048	0.0048
Uranium U	mg/L	0.000073	0.000072	0.000072	0.000065	0.000063	0.000055	0.000054	0.000055	0.000054	0.000053	0.000053	0.000053
Vanadium V	mg/L	0.0012	0.0012	0.0012	0.0010	0.0010	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Zinc Zn	mg/L	0.0055	0.0055	0.0055	0.0043	0.0039	0.0035	0.0037	0.0039	0.0038	0.0037	0.0037	0.0037
Zirconium Zr	mg/L	0.0042	0.0042	0.0042	0.0041	0.0042	0.0038	0.0039	0.0040	0.0039	0.0039	0.0039	0.0038

Table I-4-c-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	293	291	289	239	225	199	198	185	186	185	184	183
TSS	mg/L	2.2	2.2	2.2	2.3	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.008	0.008	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Sulphate	mg/L	10.5	10.5	10.4	8.2	7.5	6.6	6.6	6.1	6.1	6.1	6.1	6.0
Chloride	mg/L	172	171	170	134	124	109	108	100	101	100	100	99
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	0.33	0.22	0.11	0.08	0.07	0.06	0.06	0.06				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	21	21	21	21	22	20	20	19	19	19	19	19
OrthoPhosphate-P	mg/L	0.0233	0.0231	0.0230	0.0176	0.0158	0.0139	0.0136	0.0126	0.0127	0.0126	0.0125	0.0125
Phosphate-P	mg/L	0.0271	0.0270	0.0268	0.0221	0.0203	0.0179	0.0176	0.0163	0.0164	0.0163	0.0162	0.0162
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.1	4.2	3.9	4.0	3.9	3.9	3.9
Hardness CaCO3	mg/L	32	32	32	31	32	29	29	28	28	28	28	27
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0022	0.0022	0.0022	0.0017	0.0015	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012
Arsenic As	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Barium Ba	mg/L	0.0022	0.0022	0.0022	0.0020	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017
Beryllium Be	mg/L	0.00021	0.00021	0.00020	0.00019	0.00019	0.00017	0.00016	0.00015	0.00015	0.00015	0.00015	0.00015
Bismuth Bi	mg/L	0.00198	0.00197	0.00196	0.00147	0.00131	0.00114	0.00111	0.00103	0.00104	0.00103	0.00103	0.00102
Boron B	mg/L	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.012	0.012	0.012	0.012
Cadmium Cd	mg/L	0.0000173	0.0000172	0.0000171	0.0000133	0.0000121	0.0000107	0.0000105	0.0000097	0.0000098	0.0000097	0.0000097	0.0000096
Calcium Ca	mg/L	34	34	34	26	24	21	21	19	20	19	19	19
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0010	0.0010	0.0010	0.0008	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Copper Cu	mg/L	0.0015	0.0014	0.0014	0.0013	0.0012	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00012	0.00012	0.00012	0.00010	0.00009	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00007
Lithium Li	mg/L	0.0027	0.0027	0.0027	0.0027	0.0028	0.0025	0.0026	0.0024	0.0025	0.0024	0.0024	0.0024
Magnesium Mg	mg/L	3.8	3.8	3.8	3.7	3.8	3.5	3.6	3.4	3.4	3.4	3.3	3.3
Manganese Mn	mg/L	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Mercury Hg	mg/L	0.0000025	0.0000025	0.0000025	0.0000023	0.0000022	0.0000020	0.0000020	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019
Molybdenum Mo	mg/L	0.00084	0.00084	0.00083	0.00065	0.00059	0.00052	0.00051	0.00047	0.00047	0.00047	0.00047	0.00046
Nickel Ni	mg/L	0.0012	0.0012	0.0012	0.0010	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007
Phosphorus P	mg/L	0.042	0.041	0.041	0.032	0.029	0.026	0.025	0.023	0.024	0.023	0.023	0.023
Potassium K	mg/L	4.7	4.6	4.6	3.8	3.6	3.2	3.2	2.9	3.0	2.9	2.9	2.9
Selenium Se	mg/L	0.00036	0.00036	0.00036	0.00036	0.00037	0.00034	0.00034	0.00032	0.00032	0.00032	0.00032	0.00032
Silicon SiO2	mg/L	1.03	1.03	1.02	0.96	0.95	0.85	0.87	0.81	0.82	0.81	0.81	0.81
Silver Ag	mg/L	0.0000733	0.0000729	0.0000725	0.0000749	0.0000770	0.0000672	0.0000655	0.0000608	0.0000611	0.0000607	0.0000604	0.0000602
Sodium Na	mg/L	66	66	65	53	49	43	43	40	40	40	40	40
Strontium Sr	mg/L	0.024	0.024	0.024	0.023	0.023	0.021	0.021	0.020	0.020	0.020	0.020	0.020
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.032	0.033	0.032	0.032	0.032
Thallium Tl	mg/L	0.000027	0.000027	0.000027	0.000026	0.000026	0.000024	0.000024	0.000023	0.000023	0.000023	0.000023	0.000023
Thorium Th	mg/L	0.000027	0.000026	0.000026	0.000021	0.000019	0.000017	0.000016	0.000015	0.000015	0.000015	0.000015	0.000015
Tin Sn	mg/L	0.00047	0.00047	0.00046	0.00037	0.00036	0.00032	0.00032	0.00030	0.00031	0.00030	0.00030	0.00030
Titanium Ti	mg/L	0.0047	0.0047	0.0047	0.0049	0.0051	0.0047	0.0048	0.0045	0.0045	0.0045	0.0045	0.0045
Uranium U	mg/L	0.000053	0.000052	0.000052	0.000050	0.000050	0.000044	0.000043	0.000040	0.000040	0.000040	0.000039	0.000039
Vanadium V	mg/L	0.0008	0.0008	0.0008	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Zinc Zn	mg/L	0.0037	0.0037	0.0036	0.0029	0.0027	0.0024	0.0027	0.0026	0.0026	0.0026	0.0025	0.0025
Zirconium Zr	mg/L	0.0038	0.0038	0.0038	0.0039	0.0040	0.0036	0.0037	0.0035	0.0035	0.0035	0.0035	0.0034

Table I-4-c-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	182	181	180	158	153	161	149	139	136	135	134	134
TSS	mg/L	2.1	2.1	2.0	2.2	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.1
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Sulphate	mg/L	6.0	6.0	6.0	4.9	4.6	4.8	4.5	4.1	4.0	4.0	4.0	4.0
Chloride	mg/L	99	98	98	81	76	80	74	68	67	66	66	66
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	19	19	19	19	20	22	20	19	19	19	18	18
OrthoPhosphate-P	mg/L	0.0124	0.0124	0.0123	0.0097	0.0088	0.0091	0.0083	0.0077	0.0075	0.0075	0.0074	0.0074
Phosphate-P	mg/L	0.0161	0.0160	0.0159	0.0141	0.0132	0.0138	0.0125	0.0116	0.0113	0.0113	0.0112	0.0112
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.4	4.7	4.4	4.1	4.0	4.0	4.0	4.0
Hardness CaCO3	mg/L	27	27	27	27	28	30	29	27	26	26	26	26
Total Metals													
Aluminum Al	mg/L	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0012	0.0012	0.0012	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007
Arsenic As	mg/L	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Barium Ba	mg/L	0.0017	0.0017	0.0017	0.0016	0.0016	0.0017	0.0017	0.0016	0.0015	0.0015	0.0015	0.0015
Beryllium Be	mg/L	0.00015	0.00015	0.00015	0.00015	0.00016	0.00016	0.00014	0.00013	0.00013	0.00013	0.00013	0.00013
Bismuth Bi	mg/L	0.00102	0.00101	0.00101	0.00077	0.00069	0.00071	0.00064	0.00059	0.00057	0.00057	0.00057	0.00057
Boron B	mg/L	0.012	0.012	0.012	0.012	0.012	0.013	0.012	0.012	0.011	0.011	0.011	0.011
Cadmium Cd	mg/L	0.0000096	0.0000095	0.0000095	0.0000077	0.0000071	0.0000074	0.0000068	0.0000063	0.0000061	0.0000061	0.0000061	0.0000060
Calcium Ca	mg/L	19	19	19	15	14	15	14	13	12	12	12	12
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0006	0.0006	0.0005	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003
Copper Cu	mg/L	0.0010	0.0010	0.0010	0.0009	0.0010	0.0010	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008
Iron Fe	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00007	0.00007	0.00007	0.00007	0.00006	0.00007	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Lithium Li	mg/L	0.0024	0.0024	0.0024	0.0025	0.0026	0.0028	0.0026	0.0025	0.0024	0.0024	0.0024	0.0024
Magnesium Mg	mg/L	3.3	3.3	3.3	3.3	3.5	3.7	3.6	3.3	3.3	3.2	3.2	3.2
Manganese Mn	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Mercury Hg	mg/L	0.0000019	0.0000018	0.0000018	0.0000018	0.0000018	0.0000019	0.0000018	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016
Molybdenum Mo	mg/L	0.00046	0.00046	0.00046	0.00037	0.00034	0.00036	0.00032	0.00030	0.00029	0.00029	0.00029	0.00029
Nickel Ni	mg/L	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Phosphorus P	mg/L	0.023	0.023	0.023	0.019	0.018	0.018	0.016	0.015	0.015	0.015	0.015	0.015
Potassium K	mg/L	2.9	2.9	2.9	2.5	2.4	2.6	2.4	2.2	2.2	2.2	2.1	2.1
Selenium Se	mg/L	0.00032	0.00031	0.00031	0.00033	0.00034	0.00036	0.00034	0.00032	0.00031	0.00031	0.00031	0.00031
Silicon SiO2	mg/L	0.80	0.80	0.79	0.79	0.80	0.85	0.80	0.75	0.73	0.73	0.72	0.72
Silver Ag	mg/L	0.0000599	0.0000596	0.0000593	0.0000648	0.0000679	0.0000698	0.0000629	0.0000581	0.0000567	0.0000563	0.0000560	0.0000558
Sodium Na	mg/L	39	39	39	33	32	33	31	29	28	28	28	28
Strontium Sr	mg/L	0.020	0.020	0.020	0.019	0.020	0.021	0.021	0.019	0.019	0.019	0.019	0.019
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.038	0.036	0.034	0.033	0.033	0.033	0.032
Thallium Tl	mg/L	0.000023	0.000022	0.000022	0.000023	0.000023	0.000025	0.000024	0.000022	0.000022	0.000022	0.000021	0.000021
Thorium Th	mg/L	0.000015	0.000015	0.000015	0.000012	0.000011	0.000012	0.000011	0.000010	0.000010	0.000010	0.000010	0.000010
Tin Sn	mg/L	0.00030	0.00030	0.00030	0.00024	0.00025	0.00027	0.00025	0.00023	0.00023	0.00023	0.00023	0.00023
Titanium Ti	mg/L	0.0045	0.0044	0.0044	0.0047	0.0049	0.0053	0.0050	0.0047	0.0046	0.0046	0.0045	0.0045
Uranium U	mg/L	0.000039	0.000039	0.000039	0.000040	0.000041	0.000042	0.000038	0.000035	0.000035	0.000034	0.000034	0.000034
Vanadium V	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Zinc Zn	mg/L	0.0025	0.0025	0.0025	0.0021	0.0019	0.0021	0.0022	0.0021	0.0021	0.0021	0.0020	0.0020
Zirconium Zr	mg/L	0.0034	0.0034	0.0034	0.0036	0.0037	0.0039	0.0038	0.0035	0.0034	0.0034	0.0034	0.0034

Table I-4-c-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	133	133	132	121	120	108	110	103	104	103	102
TSS	mg/L	2.1	2.1	2.1	2.2	2.3	2.1	2.2	2.0	2.0	2.0	2.0
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Sulphate	mg/L	4.0	3.9	3.9	3.3	3.2	2.9	2.9	2.7	2.8	2.7	2.7
Chloride	mg/L	65	65	65	55	54	48	49	46	46	46	45
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	18	18	18	19	20	18	19	17	18	17	17
OrthoPhosphate-P	mg/L	0.0074	0.0073	0.0073	0.0059	0.0054	0.0048	0.0048	0.0044	0.0045	0.0044	0.0044
Phosphate-P	mg/L	0.0111	0.0111	0.0110	0.0103	0.0098	0.0088	0.0087	0.0081	0.0082	0.0081	0.0081
Org. Carbon	mg/L	4.0	3.9	3.9	4.2	4.4	4.0	4.1	3.9	3.9	3.9	3.8
Hardness CaCO3	mg/L	26	26	26	26	27	25	26	24	25	24	24
Total Metals												
Aluminum Al	mg/L	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.02	0.02
Antimony Sb	mg/L	0.0007	0.0007	0.0007	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic As	mg/L	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Barium Ba	mg/L	0.0015	0.0015	0.0015	0.0014	0.0015	0.0014	0.0014	0.0014	0.0014	0.0013	0.0013
Beryllium Be	mg/L	0.00013	0.00013	0.00013	0.00013	0.00014	0.00012	0.00012	0.00011	0.00011	0.00011	0.00011
Bismuth Bi	mg/L	0.00056	0.00056	0.00056	0.00042	0.00038	0.00033	0.00033	0.00030	0.00030	0.00030	0.00030
Boron B	mg/L	0.011	0.011	0.011	0.011	0.012	0.011	0.011	0.010	0.010	0.010	0.010
Cadmium Cd	mg/L	0.0000060	0.0000060	0.0000060	0.0000050	0.0000047	0.0000042	0.0000042	0.0000039	0.0000039	0.0000039	0.0000039
Calcium Ca	mg/L	12	12	12	10	10	9	9	8	8	8	8
Chromium Cr	mg/L	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cobalt Co	mg/L	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Copper Cu	mg/L	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0008	0.0007	0.0007	0.0007	0.0007
Iron Fe	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00004	0.00004	0.00004	0.00004
Lithium Li	mg/L	0.0024	0.0024	0.0023	0.0025	0.0026	0.0023	0.0024	0.0023	0.0023	0.0023	0.0023
Magnesium Mg	mg/L	3.2	3.2	3.2	3.2	3.4	3.1	3.2	3.0	3.0	3.0	3.0
Manganese Mn	mg/L	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Mercury Hg	mg/L	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000014	0.0000015	0.0000014	0.0000014	0.0000014	0.0000014
Molybdenum Mo	mg/L	0.00029	0.00029	0.00028	0.00024	0.00022	0.00020	0.00020	0.00018	0.00019	0.00018	0.00018
Nickel Ni	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004
Phosphorus P	mg/L	0.015	0.014	0.014	0.013	0.012	0.010	0.010	0.010	0.010	0.010	0.009
Potassium K	mg/L	2.1	2.1	2.1	1.9	1.9	1.7	1.8	1.7	1.7	1.6	1.6
Selenium Se	mg/L	0.00031	0.00030	0.00030	0.00032	0.00033	0.00030	0.00031	0.00029	0.00029	0.00029	0.00029
Silicon SiO2	mg/L	0.72	0.72	0.71	0.72	0.74	0.68	0.69	0.65	0.66	0.65	0.65
Silver Ag	mg/L	0.0000556	0.0000553	0.0000550	0.0000617	0.0000653	0.0000571	0.0000557	0.0000517	0.0000521	0.0000517	0.0000514
Sodium Na	mg/L	28	27	27	24	24	21	22	20	20	20	20
Strontium Sr	mg/L	0.018	0.018	0.018	0.018	0.019	0.018	0.018	0.017	0.017	0.017	0.017
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.036	0.033	0.034	0.032	0.032	0.032	0.031
Thallium Tl	mg/L	0.000021	0.000021	0.000021	0.000022	0.000023	0.000021	0.000021	0.000020	0.000020	0.000020	0.000020
Thorium Th	mg/L	0.000010	0.000009	0.000009	0.000008	0.000008	0.000007	0.000007	0.000006	0.000006	0.000006	0.000006
Tin Sn	mg/L	0.00022	0.00022	0.00022	0.00019	0.00020	0.00018	0.00019	0.00018	0.00018	0.00018	0.00018
Titanium Ti	mg/L	0.0045	0.0045	0.0045	0.0047	0.0049	0.0045	0.0047	0.0044	0.0044	0.0044	0.0044
Uranium U	mg/L	0.000034	0.000034	0.000034	0.000036	0.000037	0.000033	0.000032	0.000030	0.000030	0.000030	0.000030
Vanadium V	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Zinc Zn	mg/L	0.0020	0.0020	0.0020	0.0017	0.0016	0.0015	0.0017	0.0017	0.0017	0.0017	0.0017
Zirconium Zr	mg/L	0.0034	0.0033	0.0033	0.0035	0.0036	0.0033	0.0034	0.0032	0.0033	0.0032	0.0032

Appendix I

Table I-4-c-A.3
Scenario 3 - Sediment Control Option 3

Date	Loadings to Tail Lake (kg/month)											
	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1
Parameter	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08
TDS	81148	78530	81148	117442	101234	86389	86424	83234	78530	81148	81148	73295
TSS	183	177	183	1239	685	341	375	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18440	17147	15429	15337	14808	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	71048	57314	58180	52622	47526	49110	49110	44357
Total Ammonia	149	145	149	335	267	199	210	172	145	149	149	135
Nitrate	758	733	758	2231	1686	1149	1234	932	733	758	758	684
Nitrite	116	112	116	147	138	125	124	120	112	116	116	105
Alkalinity	6928	6704	6928	15548	12117	8343	8349	7362	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1171.73	314.49	328.91	86.92				
Hardness CaCO3	14992	14508	14992	26182	22190	16931	17008	15652	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	22.75	14.22	10.16	9.99	6.33	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.69	3.45	2.23	2.45	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.77	0.64	0.49	0.50	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.30	2.01	1.76	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.25	0.16	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.56	3.32	2.11	2.32	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	11.11	7.89	4.72	5.00	3.53	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42359	42294	41212	40063	40756	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.33	1.28	1.12	1.06	1.05	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.87	1.82	1.73	1.70	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.86	1.71	1.53	1.50	1.49	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	22.33	12.18	9.53	9.70	6.10	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.15	0.11	0.07	0.08	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.86	1.16	0.70	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2886	2101	1467	1475	1206	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.19	4.98	4.81	4.76	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.79	1.59	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	48	42	37	37	35	32	33	33	30
Potassium K	6696	6480	6696	7124	7039	6795	6632	6739	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.23	0.13	0.07	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	1001	796	641	646	588	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11751	9530	7315	7362	6675	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.75	8.42	2.65	3.32	0.89	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.02	0.01	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.76	0.57	0.34	0.38	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.43	1.23	0.47	0.56	0.23	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.12	0.81	0.53	0.55	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.5	4.2	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.26	1.14	0.39	0.49	0.14				

Appendix I

Table I-4-c-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	117011	101009	86327	86328	83208	78530	81148	81148	73295
TSS	183	177	183	1227	680	339	372	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18433	17143	15428	15335	14807	13840	14302	14302	12918
Chloride	49110	47526	49110	82247	70972	57293	58150	52614	47526	49110	49110	44357
Total Ammonia	149	145	149	335	267	199	210	172	145	149	149	135
Nitrate	758	733	758	2231	1686	1149	1234	932	733	758	758	684
Nitrite	116	112	116	147	138	125	124	120	112	116	116	105
Alkalinity	6928	6704	6928	15450	12059	8326	8329	7357	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2098.99	1158.56	310.77	324.90	85.83				
Hardness CaCO3	14992	14508	14992	26053	22109	16908	16978	15644	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	22.69	14.20	10.13	9.97	6.32	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.69	3.45	2.23	2.45	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.77	0.64	0.49	0.50	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.01	1.76	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.25	0.16	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.56	3.32	2.11	2.32	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	11.06	7.86	4.71	4.99	3.52	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42338	42283	41208	40057	40755	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.33	1.27	1.12	1.06	1.05	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.87	1.82	1.73	1.70	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.86	1.71	1.53	1.50	1.49	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	22.17	12.11	9.49	9.65	6.08	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.15	0.11	0.07	0.08	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.84	1.15	0.69	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2870	2092	1463	1471	1205	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.19	4.98	4.81	4.76	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.78	1.59	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	48	42	37	37	35	32	33	33	30
Potassium K	6696	6480	6696	7118	7036	6794	6630	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.22	0.13	0.07	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	998	795	640	645	588	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11689	9495	7304	7347	6671	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.56	8.32	2.62	3.28	0.88	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.02	0.01	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.76	0.57	0.34	0.38	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.41	1.22	0.46	0.56	0.23	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.12	0.81	0.53	0.55	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.5	4.2	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.24	1.13	0.39	0.49	0.14				

Appendix I

Table I-4-c-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	87387	70473	55832	56817	52721	49028	50662	50662	45759
TSS				1046	495	155	195	51				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5737	4067	2389	2708	1783	1247	1289	1289	1164
Chloride	49110	47526	49110	82214	70956	57290	58148	52614	47526	49110	49110	44357
Total Ammonia	25	24	25	200	134	71	84	46	24	25	25	22
Nitrate	29	28	29	1412	887	391	491	191	28	29	29	26
Nitrite	64	62	64	95	84	73	73	68	62	64	64	58
Alkalinity				8718	5118	1396	1623	429				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2092.35	1155.64	310.19	324.55	85.81				
Hardness CaCO3				11508	7099	1913	2467	652				
Total Metals												
Aluminum Al	0.81	0.78	0.81	16.18	8.70	5.69	5.44	2.31	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.57	3.33	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.35	0.23	0.11	0.12	0.06	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.83	0.50	0.25	0.27	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.22	0.14	0.06	0.07	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.53	3.29	2.09	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	8.23	5.23	2.33	2.63	1.24	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	3236	1952	941	1075	513	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.39	0.31	0.16	0.14	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.29	0.20	0.12	0.13	0.09	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.46	0.26	0.10	0.11	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	17.18	7.28	4.90	5.16	1.60	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.10	0.06	0.03	0.04	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.44	0.74	0.29	0.34	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1919	1119	498	536	243	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.91	0.57	0.40	0.49	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.67	0.44	0.24	0.27	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	36	30	26	26	24	22	23	23	21
Potassium K	25	24	25	656	361	122	173	67	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.18	0.09	0.03	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	436	228	86	105	38	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.06	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5531	3143	959	1208	330	12	12	12	11
Strontium Sr	0	0	0	9	5	2	3	1	0	0	0	0
Tellurium Te				17.47	8.28	2.59	3.26	0.86				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.35	1.18	0.42	0.52	0.19	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.91	0.61	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.2	0.8	0.5	1.0	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				2.10	1.05	0.35	0.44	0.13				

Appendix I

Table I-4-c-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				417065	398294	383460	386128	380307				
TSS				1125	533	167	210	56				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				961	589	177	281	82				
Chloride				242419	237932	232442	233166	231127				
Total Ammonia				108	67	28	38	13				
Nitrate				846	524	221	283	99				
Nitrite				20	12	5	7	2				
Alkalinity				8830	5188	1417	1649	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2119.25	1171.42	314.86	329.81	87.29				
Hardness CaCO3				11656	7196	1942	2507	663				
Total Metals												
Aluminum Al				19.27	9.44	5.27	5.11	1.57				
Antimony Sb				0.08	0.07	0.04	0.06	0.02				
Arsenic As				0.26	0.16	0.06	0.07	0.02				
Barium Ba				0.61	0.34	0.15	0.16	0.04				
Beryllium Be				0.11	0.06	0.01	0.01	0.00				
Bismuth Bi				0.05	0.03	0.01	0.01	0.00				
Boron B				6.75	3.97	1.41	1.64	0.48				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				24612	23556	22778	22871	22446				
Chromium Cr				0.18	0.15	0.06	0.02	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.01				
Copper Cu				0.38	0.21	0.05	0.07	0.02				
Iron Fe				22.19	9.44	5.42	5.87	1.60				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.28	0.61	0.19	0.24	0.07				
Magnesium Mg				1562	837	305	326	87				
Manganese Mn				0.46	0.21	0.15	0.22	0.06				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.23	0.12	0.03	0.04	0.01				
Phosphorus P				9	4	2	2	1				
Potassium K				629	325	88	138	37				
Selenium Se				0.20	0.10	0.03	0.04	0.01				
Silicon SiO2				417	210	72	91	26				
Silver Ag				0.05	0.02	0.00	0.00	0.00				
Sodium Na				132160	129200	126655	126947	125916				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.70	8.39	2.63	3.31	0.88				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				0.07	0.07	0.03	0.03	0.01				
Titanium Ti				2.48	1.18	0.37	0.47	0.12				
Uranium U				0.04	0.02	0.01	0.01	0.00				
Vanadium V				0.29	0.15	0.04	0.03	0.01				
Zinc Zn				0.5	0.3	0.2	0.6	0.2				
Zirconium Zr				2.12	1.06	0.36	0.45	0.13				

Appendix I

Table I-4-c-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				39489	20419	5256	7929	2081				
TSS				1144	542	167	211	55				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				972	597	177	281	81				
Chloride				12224	7666	2053	2778	729				
Total Ammonia				108	67	28	38	13				
Nitrate				846	524	221	283	99				
Nitrite				20	12	5	7	2				
Alkalinity				8975	5275	1419	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2153.97	1191.12	315.39	330.38	86.71				
Hardness CaCO3				11847	7317	1945	2511	659				
Total Metals												
Aluminum Al				19.45	9.52	5.27	5.11	1.57				
Antimony Sb				0.08	0.07	0.04	0.06	0.02				
Arsenic As				0.26	0.16	0.06	0.07	0.02				
Barium Ba				0.62	0.34	0.15	0.16	0.04				
Beryllium Be				0.11	0.06	0.01	0.01	0.00				
Bismuth Bi				0.05	0.03	0.01	0.01	0.00				
Boron B				6.84	4.01	1.41	1.64	0.48				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				2368	1298	503	597	170				
Chromium Cr				0.18	0.15	0.06	0.02	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.01				
Copper Cu				0.39	0.21	0.05	0.07	0.02				
Iron Fe				22.52	9.58	5.43	5.88	1.59				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.30	0.62	0.19	0.24	0.07				
Magnesium Mg				1587	851	305	326	87				
Manganese Mn				0.46	0.21	0.15	0.22	0.06				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.23	0.12	0.03	0.04	0.01				
Phosphorus P				9	4	2	2	1				
Potassium K				639	330	89	139	37				
Selenium Se				0.20	0.10	0.03	0.04	0.01				
Silicon SiO2				423	213	72	91	26				
Silver Ag				0.05	0.02	0.00	0.00	0.00				
Sodium Na				6724	3716	1112	1404	369				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.99	8.53	2.64	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				0.07	0.07	0.03	0.03	0.01				
Titanium Ti				2.52	1.20	0.37	0.47	0.12				
Uranium U				0.04	0.02	0.01	0.01	0.00				
Vanadium V				0.29	0.15	0.04	0.03	0.01				
Zinc Zn				0.5	0.3	0.2	0.6	0.2				
Zirconium Zr				2.15	1.07	0.36	0.45	0.13				

Appendix I

Table I-4-c-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				39345	20343	5320	7972	2092				
TSS				1140	540	170	212	56				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				970	595	178	282	82				
Chloride				12179	7637	2078	2794	733				
Total Ammonia				108	67	28	38	13				
Nitrate				846	524	221	283	99				
Nitrite				20	12	5	7	2				
Alkalinity				8942	5255	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2146.11	1186.67	319.23	332.17	87.16				
Hardness CaCO3				11804	7290	1969	2525	662				
Total Metals												
Aluminum Al				19.41	9.50	5.31	5.13	1.57				
Antimony Sb				0.08	0.07	0.04	0.06	0.02				
Arsenic As				0.26	0.16	0.06	0.07	0.02				
Barium Ba				0.62	0.34	0.15	0.16	0.04				
Beryllium Be				0.11	0.06	0.01	0.01	0.00				
Bismuth Bi				0.05	0.03	0.01	0.01	0.00				
Boron B				6.82	4.00	1.42	1.65	0.48				
Cadmium Cd				0.01	0.01	0.00	0.00	0.00				
Calcium Ca				2361	1294	508	600	170				
Chromium Cr				0.18	0.15	0.06	0.02	0.01				
Cobalt Co				0.07	0.04	0.01	0.02	0.01				
Copper Cu				0.39	0.21	0.05	0.07	0.02				
Iron Fe				22.44	9.54	5.49	5.91	1.60				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.29	0.62	0.20	0.25	0.07				
Magnesium Mg				1582	848	309	328	87				
Manganese Mn				0.46	0.21	0.15	0.22	0.06				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.23	0.12	0.04	0.04	0.01				
Phosphorus P				9	4	2	2	1				
Potassium K				637	329	90	139	37				
Selenium Se				0.20	0.10	0.03	0.04	0.01				
Silicon SiO2				422	212	72	91	26				
Silver Ag				0.05	0.02	0.00	0.00	0.00				
Sodium Na				6699	3702	1125	1412	371				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.92	8.50	2.67	3.33	0.88				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				0.07	0.07	0.03	0.03	0.01				
Titanium Ti				2.51	1.19	0.38	0.47	0.12				
Uranium U				0.04	0.02	0.01	0.01	0.00				
Vanadium V				0.29	0.15	0.04	0.03	0.01				
Zinc Zn				0.5	0.3	0.2	0.6	0.2				
Zirconium Zr				2.15	1.07	0.36	0.45	0.13				

Appendix I

Table I-4-c-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				39433	20389	5249	7918	2096				
TSS				1142	541	167	210	56				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	51				
Chloride				12206	7654	2050	2775	734				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8962	5267	1417	1650	437				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2150.88	1189.37	314.97	329.92	87.32				
Hardness CaCO3				11830	7306	1942	2507	664				
Total Metals												
Aluminum Al				11.71	4.72	3.25	2.52	0.67				
Antimony Sb				0.05	0.04	0.03	0.04	0.01				
Arsenic As				0.08	0.05	0.01	0.02	0.00				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.02	2.89	0.94	1.04	0.27				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1912	1015	384	445	118				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.00	0.01	0.00				
Copper Cu				0.34	0.18	0.04	0.05	0.01				
Iron Fe				20.69	8.45	4.95	5.27	1.39				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.26	0.60	0.18	0.23	0.06				
Magnesium Mg				1539	821	293	310	82				
Manganese Mn				0.42	0.18	0.14	0.21	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.19	0.09	0.02	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				627	323	85	134	36				
Selenium Se				0.17	0.08	0.02	0.03	0.01				
Silicon SiO2				337	160	49	62	16				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				6703	3704	1108	1399	370				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.92	8.50	2.62	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.48	1.18	0.36	0.46	0.12				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.22	0.10	0.02	0.01	0.00				
Zinc Zn				0.3	0.2	0.1	0.5	0.1				
Zirconium Zr				1.79	0.85	0.26	0.33	0.09				

Appendix I

Table I-4-c-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				39503	20426	5258	7932	2082				
TSS				1144	542	168	211	55				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				707	432	108	192	50				
Chloride				12228	7668	2053	2779	729				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8978	5277	1420	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2154.72	1191.54	315.49	330.49	86.74				
Hardness CaCO3				11851	7319	1946	2512	659				
Total Metals												
Aluminum Al				11.73	4.72	3.25	2.53	0.66				
Antimony Sb				0.05	0.04	0.03	0.04	0.01				
Arsenic As				0.08	0.05	0.01	0.02	0.00				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.03	2.90	0.94	1.04	0.27				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1915	1017	385	446	117				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.00	0.01	0.00				
Copper Cu				0.34	0.18	0.04	0.05	0.01				
Iron Fe				20.72	8.46	4.96	5.27	1.38				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.26	0.60	0.19	0.23	0.06				
Magnesium Mg				1542	823	294	311	82				
Manganese Mn				0.42	0.18	0.14	0.21	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.19	0.09	0.02	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				628	323	86	135	35				
Selenium Se				0.17	0.08	0.02	0.03	0.01				
Silicon SiO2				337	160	49	62	16				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				6715	3710	1109	1401	368				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.96	8.51	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.48	1.18	0.36	0.46	0.12				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.22	0.10	0.02	0.01	0.00				
Zinc Zn				0.3	0.2	0.1	0.6	0.1				
Zirconium Zr				1.80	0.85	0.26	0.33	0.09				

Appendix I

Table I-4-c-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				39358	20350	5322	7975	2093				
TSS				1140	540	170	212	56				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				705	431	109	193	51				
Chloride				12183	7640	2078	2795	733				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8945	5257	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2146.79	1187.06	319.34	332.29	87.19				
Hardness CaCO3				11807	7292	1969	2525	663				
Total Metals												
Aluminum Al				11.68	4.71	3.29	2.54	0.67				
Antimony Sb				0.05	0.04	0.03	0.04	0.01				
Arsenic As				0.08	0.05	0.01	0.02	0.00				
Barium Ba				0.59	0.33	0.15	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.01	2.89	0.95	1.04	0.27				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1908	1013	390	448	118				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.00	0.01	0.00				
Copper Cu				0.34	0.18	0.04	0.05	0.01				
Iron Fe				20.65	8.43	5.02	5.30	1.39				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.26	0.60	0.19	0.23	0.06				
Magnesium Mg				1537	820	297	313	82				
Manganese Mn				0.42	0.18	0.14	0.21	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.19	0.09	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				626	322	87	135	36				
Selenium Se				0.17	0.08	0.02	0.03	0.01				
Silicon SiO2				336	159	50	62	16				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				6690	3696	1123	1409	370				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.89	8.48	2.66	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.47	1.17	0.37	0.46	0.12				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.22	0.10	0.02	0.01	0.00				
Zinc Zn				0.3	0.2	0.1	0.6	0.1				
Zirconium Zr				1.79	0.85	0.27	0.33	0.09				

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Table I-4-c-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				39445	20396	5251	7920	2079				
TSS				1143	542	167	210	55				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	50				
Chloride				12210	7657	2050	2775	728				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8965	5269	1418	1650	433				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2151.56	1189.76	315.06	330.02	86.62				
Hardness CaCO3				11834	7309	1943	2508	658				
Total Metals												
Aluminum Al				11.71	4.72	3.25	2.52	0.66				
Antimony Sb				0.05	0.04	0.03	0.04	0.01				
Arsenic As				0.08	0.05	0.01	0.02	0.00				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.03	2.89	0.94	1.04	0.27				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1912	1015	385	445	117				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.00	0.01	0.00				
Copper Cu				0.34	0.18	0.04	0.05	0.01				
Iron Fe				20.69	8.45	4.95	5.27	1.38				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.26	0.60	0.18	0.23	0.06				
Magnesium Mg				1540	822	293	311	81				
Manganese Mn				0.42	0.18	0.14	0.21	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.19	0.09	0.02	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				627	323	85	135	35				
Selenium Se				0.17	0.08	0.02	0.03	0.01				
Silicon SiO2				337	160	49	62	16				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				6705	3705	1108	1399	367				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.93	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.48	1.18	0.36	0.46	0.12				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.22	0.10	0.02	0.01	0.00				
Zinc Zn				0.3	0.2	0.1	0.5	0.1				
Zirconium Zr				1.79	0.85	0.26	0.33	0.09				

Appendix I

Table I-4-c-B.1
Scenario 3 - Sediment Control Option 1

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.1	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1036	112	91	
Total Ammonia	mg/L		0.97	1.33	0.085	0.045	9%
Nitrate	mg/L		2.9	7.4	0.42	0.22	14%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.06	0.08	0.25	80%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00074	0.00005	0.00003	
Bismuth Bi	mg/L			0.01880	0.00107	0.00064	
Boron B	mg/L			0.033	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000072	0.0000070	0.0000166	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.0007	104%
Cobalt Co	mg/L			0.0123	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.06	0.12	0.28	40%
Lead Pb	mg/L	0.2	0.002	0.00049	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.7	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000072	0.0000010	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.309	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00055	0.00088	0.00084	88%
Silicon SiO2	mg/L			4.7	0.73	0.64	
Silver Ag	mg/L		0.0001	0.00014	0.0000093	0.0000076	9%
Sodium Na	mg/L			378	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000050	0.000031	0.002002	4%
Thorium Th	mg/L			0.000052	0.0000044	0.0000023	
Tin Sn	mg/L			0.00299	0.00055	0.00009	
Titanium Ti	mg/L			0.0059	0.0060	0.0062	
Uranium U	mg/L			0.000087	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0049	0.0050	0.0052	

Appendix I

Table I-4-c-B.2
Scenario 3 - Sediment Control Option 3

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	151	153				
TSS	mg/L				3.9	5.6	5.8	6.7	6.7				
Free CN	mg/L				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.09	0.01	0.03	0.03	0.03				
SCN	mg/L				0.001	0.001	0.002	0.002	0.002				
Sulphate	mg/L				3.8	3.9	4.3	4.9	5.2				
Chloride	mg/L				61	62	62	67	69				
Total Ammonia	mg/L				0.019	0.045	0.023	0.031	0.031				
Nitrate	mg/L				0.08	0.12	0.16	0.20	0.23				
Nitrite	mg/L				0.011	0.014	0.014	0.006	0.016				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P	mg/L				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon	mg/L				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi	mg/L				0.00012	0.00021	0.00028	0.00034	0.00039				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000041	0.0000039	0.0000042	0.0000045				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.021	0.027	0.024	0.025				
Potassium K	mg/L				3.2	2.9	3.0	3.1	3.3				
Selenium Se	mg/L				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.55	0.57	0.58	0.60				
Silver Ag	mg/L				0.0000049	0.0000059	0.0000062	0.0000066	0.0000068				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

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Table I-4-c-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				160	139	143	165	166				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00020		0.00003	0.00003	0.00003				
Total CN	mg/L				0.004	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0003		0.0000	0.0000	0.0000				
CNO	mg/L				0.22		0.03	0.03	0.03				
SCN	mg/L				0.005	0.004	0.004	0.005	0.005				
Sulphate	mg/L				7.3	6.7	6.9	7.5	7.8				
Chloride	mg/L				74	73	71	77	78				
Total Ammonia	mg/L				0.044	0.085	0.016	0.031	0.030				
Nitrate	mg/L				0.31	0.32	0.34	0.38	0.41				
Nitrite	mg/L				0.032	0.013	0.014	0.005	0.016				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P	mg/L				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi	mg/L				0.00056	0.00056	0.00060	0.00066	0.00070				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000060	0.0000059	0.0000056	0.0000059	0.0000061				
Calcium Ca	mg/L				21	18	18	19	20				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P	mg/L				0.027	0.027	0.033	0.030	0.031				
Potassium K	mg/L				4.8	4.1	4.1	4.3	4.4				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.68	0.66	0.67	0.69	0.70				
Silver Ag	mg/L				0.0000072	0.0000078	0.0000079	0.0000083	0.0000085				
Sodium Na	mg/L				39	33	35	33	33				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.043				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000004	0.000004				
Tin Sn	mg/L				0.00046	0.00047	0.00047	0.00048	0.00049				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Appendix I

Table I-4-c-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS mg/L				171	148	150	171	172				
TSS mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN mg/L				0.00013								
Total CN mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0002								
CNO mg/L				0.14								
SCN mg/L				0.006	0.005	0.005	0.005	0.005				
Sulphate mg/L				8.7	7.6	7.4	7.7	7.6				
Chloride mg/L				82	80	78	83	84				
Total Ammonia mg/L				0.036	0.058	0.016	0.017	0.018				
Nitrate mg/L				0.42	0.39	0.39	0.42	0.42				
Nitrite mg/L				0.030	0.010	0.014	0.004	0.005				
Alkalinity mg/L				29	27	28	28	28				
OrthoPhosphate-P mg/L				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P mg/L				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3 mg/L				50	46	46	47	47				
Total Metals												
Aluminum Al mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba mg/L				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi mg/L				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd mg/L				0.0000070	0.0000065	0.0000059	0.0000061	0.0000061				
Calcium Ca mg/L				24	20	19	19	19				
Chromium Cr mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co mg/L				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu mg/L				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb mg/L				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.5	6.7	6.8	6.6	6.6				
Manganese Mn mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg mg/L				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo mg/L				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni mg/L				0.0009	0.0010	0.0009	0.0009	0.0009				
Phosphorus P mg/L				0.032	0.031	0.036	0.033	0.033				
Potassium K mg/L				5.3	4.4	4.3	4.2	4.2				
Selenium Se mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2 mg/L				0.73	0.69	0.68	0.69	0.69				
Silver Ag mg/L				0.0000086	0.0000088	0.0000087	0.0000090	0.0000091				
Sodium Na mg/L				40	34	35	33	33				
Strontium Sr mg/L				0.044	0.044	0.038	0.042	0.042				
Tellurium Te mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th mg/L				0.000003	0.000004	0.000004	0.000004	0.000004				
Tin Sn mg/L				0.00051	0.00050	0.00051	0.00052	0.00053				
Titanium Ti mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn mg/L				0.0024	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr mg/L				0.0049	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-c-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				173	158	169	201	212				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.005	0.004	0.003	0.003	0.003				
Sulphate	mg/L				7.4	6.4	6.2	6.4	6.3				
Chloride	mg/L				88	88	90	102	109				
Total Ammonia	mg/L				0.012	0.013	0.018	0.016	0.017				
Nitrate	mg/L				0.38	0.33	0.32	0.34	0.34				
Nitrite	mg/L				0.011	0.002	0.003	0.003	0.003				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P	mg/L				0.0276	0.0264	0.0314	0.0274	0.0271				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000064	0.0000060	0.0000054	0.0000056	0.0000056				
Calcium Ca	mg/L				20	17	17	17	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.031	0.036	0.032	0.032				
Potassium K	mg/L				4.6	3.8	3.7	3.6	3.6				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.68	0.65	0.64	0.65	0.64				
Silver Ag	mg/L				0.0000093	0.0000092	0.0000089	0.0000092	0.0000091				
Sodium Na	mg/L				39	37	41	43	47				
Strontium Sr	mg/L				0.043	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00055	0.00051	0.00050	0.00051	0.00050				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000029	0.000034	0.000042	0.000036	0.000036				
Vanadium V	mg/L				0.0008	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0020	0.0039	0.0036	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-4-c-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				216	179	176	187	186				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.1	5.0	4.8	4.8				
Chloride	mg/L				112	99	92	92	91				
Total Ammonia	mg/L				0.008	0.014	0.018	0.016	0.017				
Nitrate	mg/L				0.29	0.25	0.24	0.22	0.23				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P	mg/L				0.0239	0.0232	0.0283	0.0234	0.0233				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00074	0.00056	0.00051	0.00045	0.00043				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000060	0.0000056	0.0000050	0.0000048	0.0000049				
Calcium Ca	mg/L				19	16	15	14	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00043	0.00036	0.00036	0.00032	0.00031				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.028	0.027	0.032	0.026	0.026				
Potassium K	mg/L				4.0	3.3	3.2	3.0	3.0				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00055	0.00055				
Silicon SiO2	mg/L				0.64	0.61	0.60	0.59	0.59				
Silver Ag	mg/L				0.0000090	0.0000089	0.0000087	0.0000079	0.0000078				
Sodium Na	mg/L				57	46	46	42	42				
Strontium Sr	mg/L				0.042	0.043	0.037	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000030	0.000034	0.000042	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0002	0.0002				
Zinc Zn	mg/L				0.0017	0.0036	0.0033	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-4-c-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS mg/L				177	150	150	170	167				
TSS mg/L				3.9	5.7	5.8	6.8	6.7				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate mg/L				4.4	3.9	3.9	4.1	4.0				
Chloride mg/L				86	79	75	80	78				
Total Ammonia mg/L				0.005	0.011	0.015	0.013	0.014				
Nitrate mg/L				0.15	0.14	0.14	0.15	0.15				
Nitrite mg/L				0.002	0.003	0.003	0.002	0.002				
Alkalinity mg/L				28	25	27	27	27				
OrthoPhosphate-P mg/L				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P mg/L				0.0200	0.0203	0.0258	0.0216	0.0213				
Org. Carbon mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3 mg/L				46	43	43	44	44				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi mg/L				0.00039	0.00031	0.00028	0.00028	0.00026				
Boron B mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd mg/L				0.0000044	0.0000042	0.0000037	0.0000039	0.0000038				
Calcium Ca mg/L				14	12	11	11	11				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu mg/L				0.0013	0.0016	0.0013	0.0016	0.0015				
Iron Fe mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.2	6.5	6.5	6.4	6.4				
Manganese Mn mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo mg/L				0.00030	0.00026	0.00027	0.00026	0.00025				
Nickel Ni mg/L				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P mg/L				0.022	0.022	0.027	0.023	0.023				
Potassium K mg/L				3.4	2.8	2.8	2.7	2.7				
Selenium Se mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2 mg/L				0.57	0.56	0.56	0.56	0.56				
Silver Ag mg/L				0.0000064	0.0000067	0.0000066	0.0000068	0.0000064				
Sodium Na mg/L				48	39	40	38	37				
Strontium Sr mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn mg/L				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti mg/L				0.0059	0.0059	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn mg/L				0.0013	0.0034	0.0030	0.0020	0.0019				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-4-c-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				158	135	137	154	154				
TSS	mg/L				3.9	5.7	5.8	6.7	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.000				
Sulphate	mg/L				3.7	3.3	3.4	3.4	3.4				
Chloride	mg/L				73	70	67	69	69				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.09	0.07	0.06	0.06	0.06				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P	mg/L				0.0181	0.0189	0.0245	0.0200	0.0200				
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00001				
Bismuth Bi	mg/L				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000040	0.0000037	0.0000031	0.0000029	0.0000029				
Calcium Ca	mg/L				11	10	9	9	9				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.3	6.3				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00023	0.00021	0.00023	0.00020	0.00020				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.020	0.020	0.025	0.021	0.021				
Potassium K	mg/L				3.1	2.6	2.6	2.5	2.5				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00054	0.00055				
Silicon SiO2	mg/L				0.55	0.54	0.54	0.53	0.53				
Silver Ag	mg/L				0.0000059	0.0000059	0.0000056	0.0000050	0.0000049				
Sodium Na	mg/L				43	36	37	34	34				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti	mg/L				0.0059	0.0059	0.0060	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000039	0.000033	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0049	0.0049				

Appendix I

Table I-4-c-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				148	128	131	148	148				
TSS	mg/L				3.9	5.7	5.8	6.7	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.2	3.0	3.1	3.2	3.2				
Chloride	mg/L				67	65	62	65	65				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P	mg/L				0.0171	0.0181	0.0238	0.0194	0.0194				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000033	0.0000031	0.0000026	0.0000025	0.0000025				
Calcium Ca	mg/L				10	9	9	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.3	6.3				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00020	0.00018	0.00018				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.018	0.019	0.024	0.020	0.020				
Potassium K	mg/L				2.9	2.5	2.5	2.4	2.4				
Selenium Se	mg/L				0.00087	0.00056	0.00060	0.00054	0.00054				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.52	0.52				
Silver Ag	mg/L				0.0000049	0.0000051	0.0000049	0.0000044	0.0000043				
Sodium Na	mg/L				41	34	35	33	33				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

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Table I-4-c-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				142	123	127	146	145				
TSS	mg/L				3.9	5.7	5.8	6.7	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.0	2.8	2.9	3.1	3.1				
Chloride	mg/L				63	62	60	63	63				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P	mg/L				0.0165	0.0177	0.0234	0.0192	0.0191				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				44	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000029	0.0000028	0.0000023	0.0000023	0.0000023				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.4	6.3	6.3				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00017	0.00017	0.00019	0.00017	0.00017				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P	mg/L				0.017	0.018	0.024	0.019	0.019				
Potassium K	mg/L				2.8	2.4	2.4	2.4	2.3				
Selenium Se	mg/L				0.00087	0.00056	0.00060	0.00054	0.00054				
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52				
Silver Ag	mg/L				0.0000041	0.0000046	0.0000044	0.0000045	0.0000042				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.039	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0060	0.0059				
Uranium U	mg/L				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

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Table I-4-c-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				140	121	125	143	143			
TSS	mg/L				3.9	5.7	5.8	6.7	6.7			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				2.9	2.7	2.9	3.0	3.0			
Chloride	mg/L				61	60	58	62	62			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				27	25	27	26	26			
OrthoPhosphate-P	mg/L				0.0011	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0162	0.0175	0.0232	0.0189	0.0189			
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0			
Hardness CaCO3	mg/L				44	42	42	43	43			
Total Metals												
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005			
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000027	0.0000026	0.0000022	0.0000021	0.0000021			
Calcium Ca	mg/L				9	8	8	7	7			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0012	0.0015	0.0015			
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.1	6.4	6.4	6.3	6.3			
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000006	0.0000006			
Molybdenum Mo	mg/L				0.00016	0.00016	0.00018	0.00016	0.00016			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.016	0.018	0.023	0.019	0.019			
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3			
Selenium Se	mg/L				0.00086	0.00056	0.00060	0.00054	0.00054			
Silicon SiO2	mg/L				0.51	0.51	0.51	0.51	0.51			
Silver Ag	mg/L				0.0000039	0.0000044	0.0000043	0.0000038	0.0000038			
Sodium Na	mg/L				39	33	34	32	32			
Strontium Sr	mg/L				0.039	0.041	0.035	0.039	0.039			
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049			
Thallium Tl	mg/L				0.000029	0.000030	0.000030	0.000029	0.000030			
Thorium Th	mg/L				0.000001	0.000000	0.000000	0.000000	0.000000			
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039			
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059			
Uranium U	mg/L				0.000025	0.000030	0.000038	0.000031	0.000031			
Vanadium V	mg/L				0.0005	0.0001	0.0002	0.0002	0.0002			
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017			
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049			

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Table I-4-c-B.3
Scenario 3 - Sediment Control Option 3

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1073956	586904	257660	384118	135770				
TSS				29483	26699	11501	17154	5992				
Free CN				0.60	0.05	0.05	0.07	0.02				
Total CN				21	9	4	5	2				
WAD CN				0.81	0.07	0.07	0.09	0.03				
CNO				665	55	57	77	27				
SCN				9	6	3	5	2				
Sulphate				28611	18328	8593	12426	4655				
Chloride				468083	295283	123233	171437	61017				
Total Ammonia				143	215	45	78	27				
Nitrate				576	563	309	506	202				
Nitrite				83	64	28	15	14				
Alkalinity				206688	119301	53699	68141	23935				
OrthoPhosphate-P				17	12	6	9	3				
Phosphate-P				132	89	50	54	19				
Org. Carbon				40778	23698	14478	12543	4379				
Hardness CaCO3				342229	200983	84935	113548	39956				
Total Metals												
Aluminum Al				250	275	156	180	63				
Antimony Sb				3.4	4.6	5.9	1.9	0.7				
Arsenic As				3.8	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.09	0.04	0.06	0.02				
Bismuth Bi				0.92	0.99	0.55	0.86	0.35				
Boron B				253	104	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				84525	51200	22673	31239	11733				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.30	1.29	2.02	0.76	0.30				
Copper Cu				10	8	3	4	1				
Iron Fe				379	566	163	223	78				
Lead Pb				0.19	0.32	0.09	0.12	0.04				
Lithium Li				21	13	6	7	3				
Magnesium Mg				53966	30308	12949	16337	5729				
Manganese Mn				50	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.96	1.26	0.64	0.87	0.33				
Nickel Ni				3.73	3.14	1.18	1.54	0.57				
Phosphorus P				142	97	54	61	22				
Potassium K				24293	13561	5932	7917	2900				
Selenium Se				6.59	2.64	1.20	1.40	0.49				
Silicon SiO2				4141	2617	1129	1491	533				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				289400	152276	66909	80717	28310				
Strontium Sr				303	195	71	102	36				
Tellurium Te				370	230	97	125	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.02	1.94	0.84	1.10	0.39				
Titanium Ti				44	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.09	0.03				
Vanadium V				4.30	0.50	0.60	0.57	0.21				
Zinc Zn				8.69	15.70	6.16	5.41	1.98				
Zirconium Zr				37	23	10	13	4				

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Table I-4-c-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1220165	658674	285400	420123	147948				
TSS				29841	26873	11568	17241	6021				
Free CN				1.54		0.05	0.07	0.02				
Total CN				29	9	4	5	2				
WAD CN				2.06		0.07	0.09	0.03				
CNO				1699		58	76	26				
SCN				38	21	9	13	5				
Sulphate				55521	31543	13700	19054	6896				
Chloride				564931	342809	141595	195266	69076				
Total Ammonia				336	404	33	79	27				
Nitrate				2334	1503	669	977	361				
Nitrite				244	60	28	13	14				
Alkalinity				219476	125568	56119	71284	24998				
OrthoPhosphate-P				55	30	13	18	7				
Phosphate-P				170	108	57	64	23				
Org. Carbon				40852	23731	14490	12559	4385				
Hardness CaCO3				369674	214447	90137	120301	42240				
Total Metals												
Aluminum Al				263	281	158	183	64				
Antimony Sb				6.9	6.3	6.5	2.8	1.0				
Arsenic As				4.6	2.5	1.0	1.3	0.5				
Barium Ba				25	16	7	9	3				
Beryllium Be				0.26	0.15	0.07	0.09	0.03				
Bismuth Bi				4.27	2.64	1.19	1.68	0.62				
Boron B				259	108	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.02	0.01				
Calcium Ca				157307	86960	36496	49177	17800				
Chromium Cr				7	3	1	1	1				
Cobalt Co				4.36	2.79	2.60	1.51	0.55				
Copper Cu				12	9	3	5	2				
Iron Fe				389	571	165	226	79				
Lead Pb				0.30	0.38	0.12	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56106	31356	13354	16863	5907				
Manganese Mn				59	99	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.61	2.56	1.14	1.52	0.55				
Nickel Ni				6.11	4.31	1.63	2.13	0.76				
Phosphorus P				206	128	66	77	27				
Potassium K				36290	19455	8210	10873	3900				
Selenium Se				6.67	2.68	1.22	1.42	0.50				
Silicon SiO2				5192	3133	1329	1750	621				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				301049	157989	69116	83583	29279				
Strontium Sr				327	207	76	108	38				
Tellurium Te				370	230	97	125	44				
Thallium Tl				0.23	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.54	2.20	0.94	1.23	0.44				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.15	0.92	0.76	0.78	0.28				
Zinc Zn				15.36	18.98	7.43	7.05	2.53				
Zirconium Zr				37	23	10	13	4				

Appendix I

Table I-4-c-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1300322	697522	299220	436673	153011				
TSS				30001	26945	11589	17259	6024				
Free CN				0.98								
Total CN				24	9	4	5	2				
WAD CN				1.31								
CNO				1077								
SCN				49	24	9	12	4				
Sulphate				66032	35703	14708	19576	6788				
Chloride				628689	376026	154662	212713	75121				
Total Ammonia				275	273	33	44	16				
Nitrate				3170	1854	768	1060	374				
Nitrite				226	46	28	10	4				
Alkalinity				224269	127428	56526	71400	24887				
OrthoPhosphate-P				80	43	18	25	9				
Phosphate-P				195	121	62	71	25				
Org. Carbon				40952	23797	14519	12600	4400				
Hardness CaCO3				379716	218247	90921	120414	41950				
Total Metals												
Aluminum Al				269	284	159	184	64				
Antimony Sb				9.1	7.5	7.0	3.4	1.2				
Arsenic As				4.9	2.6	1.0	1.3	0.5				
Barium Ba				26	17	7	9	3				
Beryllium Be				0.34	0.19	0.08	0.11	0.04				
Bismuth Bi				6.46	3.77	1.63	2.27	0.83				
Boron B				263	109	47	59	20				
Cadmium Cd				0.05	0.03	0.01	0.02	0.01				
Calcium Ca				182997	96282	38219	48932	16820				
Chromium Cr				8	3	2	1	1				
Cobalt Co				5.48	3.21	2.69	1.52	0.52				
Copper Cu				13	9	3	5	2				
Iron Fe				394	573	166	226	79				
Lead Pb				0.36	0.40	0.12	0.16	0.06				
Lithium Li				22	14	6	7	3				
Magnesium Mg				57015	31741	13460	16945	5914				
Manganese Mn				62	100	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				5.54	2.90	1.20	1.51	0.52				
Nickel Ni				7.05	4.69	1.72	2.18	0.76				
Phosphorus P				242	146	72	84	30				
Potassium K				40508	20983	8490	10825	3735				
Selenium Se				6.71	2.70	1.22	1.42	0.50				
Silicon SiO2				5589	3283	1361	1758	611				
Silver Ag				0.07	0.04	0.02	0.02	0.01				
Sodium Na				305337	159622	69458	83645	29162				
Strontium Sr				335	210	76	108	38				
Tellurium Te				371	231	97	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.89	2.38	1.01	1.32	0.47				
Titanium Ti				45	28	12	15	5				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.62	1.14	0.83	0.87	0.31				
Zinc Zn				17.93	19.98	7.66	7.15	2.49				
Zirconium Zr				38	23	10	13	4				

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Table I-4-c-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1316091	745342	336198	512442	188653				
TSS				29982	26946	11592	17268	6028				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				34	17	6	8	3				
Sulphate				56753	30037	12268	16286	5607				
Chloride				672180	416620	179876	260752	96820				
Total Ammonia				89	61	36	41	15				
Nitrate				2872	1577	641	858	301				
Nitrite				87	12	6	7	2				
Alkalinity				219552	124925	55549	70173	24476				
OrthoPhosphate-P				96	47	18	24	8				
Phosphate-P				211	125	63	70	24				
Org. Carbon				41238	23954	14584	12693	4433				
Hardness CaCO3				368526	212290	88579	117438	40947				
Total Metals												
Aluminum Al				269	284	159	184	64				
Antimony Sb				10.8	7.7	6.9	3.1	1.1				
Arsenic As				4.7	2.5	1.0	1.2	0.4				
Barium Ba				25	16	6	9	3				
Beryllium Be				0.38	0.19	0.08	0.10	0.04				
Bismuth Bi				8.16	4.00	1.54	2.03	0.69				
Boron B				263	109	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.00				
Calcium Ca				148925	80870	33303	44391	15914				
Chromium Cr				7	2	1	1	0				
Cobalt Co				4.18	2.48	2.39	1.13	0.39				
Copper Cu				12	9	3	5	2				
Iron Fe				393	573	166	227	79				
Lead Pb				0.35	0.39	0.12	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56574	31450	13331	16772	5851				
Manganese Mn				58	98	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.30	2.23	0.94	1.17	0.40				
Nickel Ni				6.27	4.20	1.51	1.90	0.65				
Phosphorus P				253	146	71	81	28				
Potassium K				34851	17963	7289	9274	3206				
Selenium Se				6.70	2.69	1.22	1.42	0.50				
Silicon SiO2				5188	3066	1274	1647	573				
Silver Ag				0.07	0.04	0.02	0.02	0.01				
Sodium Na				300692	173573	81997	110182	41877				
Strontium Sr				326	205	74	106	37				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				4.16	2.42	1.00	1.29	0.45				
Titanium Ti				45	28	12	15	5				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.74	1.11	0.80	0.81	0.28				
Zinc Zn				15.52	18.58	7.08	6.37	2.22				
Zirconium Zr				38	24	10	13	4				

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Table I-4-c-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1649633	844341	350162	477954	165786				
TSS				30017	26963	11598	17213	6010				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				23	11	4	5	2				
Sulphate				45605	24045	9874	12258	4238				
Chloride				855872	466462	184211	233458	80754				
Total Ammonia				63	67	36	41	15				
Nitrate				2182	1176	484	569	203				
Nitrite				20	15	6	7	2				
Alkalinity				216162	123072	54813	68410	23877				
OrthoPhosphate-P				67	32	12	14	5				
Phosphate-P				182	110	56	60	21				
Org. Carbon				41509	24095	14641	12662	4422				
Hardness CaCO3				360257	207793	86790	113734	39688				
Total Metals												
Aluminum Al				269	284	159	183	64				
Antimony Sb				8.2	6.3	6.3	2.2	0.8				
Arsenic As				4.4	2.3	0.9	1.1	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.31	0.16	0.07	0.08	0.03				
Bismuth Bi				5.66	2.66	1.01	1.14	0.39				
Boron B				261	108	47	57	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.00				
Calcium Ca				146587	74893	29405	34534	11907				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.99	1.85	2.14	0.71	0.24				
Copper Cu				11	8	3	4	1				
Iron Fe				394	574	166	226	79				
Lead Pb				0.31	0.37	0.11	0.13	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55922	31093	13188	16441	5739				
Manganese Mn				55	96	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.31	1.70	0.72	0.81	0.28				
Nickel Ni				5.29	3.68	1.30	1.54	0.53				
Phosphorus P				215	126	63	67	23				
Potassium K				30467	15608	6348	7678	2664				
Selenium Se				6.71	2.70	1.23	1.41	0.49				
Silicon SiO2				4864	2891	1204	1506	525				
Silver Ag				0.07	0.04	0.02	0.02	0.01				
Sodium Na				436016	219652	91917	107839	37381				
Strontium Sr				319	201	73	102	36				
Tellurium Te				376	233	98	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.80	2.23	0.92	1.16	0.40				
Titanium Ti				46	28	12	15	5				
Uranium U				0.23	0.16	0.08	0.09	0.03				
Vanadium V				5.29	0.87	0.70	0.63	0.22				
Zinc Zn				13.05	17.24	6.54	5.44	1.90				
Zirconium Zr				38	24	10	13	4				

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Table I-4-c-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1348988	706899	298900	433395	148496				
TSS				29808	26865	11561	17230	6006				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				12	6	2	3	1				
Sulphate				33460	18466	7788	10405	3526				
Chloride				654592	374478	149907	203062	69083				
Total Ammonia				39	51	30	34	12				
Nitrate				1118	655	283	393	133				
Nitrite				16	12	5	6	2				
Alkalinity				210537	120486	53843	67953	23617				
OrthoPhosphate-P				37	18	7	9	3				
Phosphate-P				152	96	51	55	19				
Org. Carbon				41323	24005	14607	12727	4427				
Hardness CaCO3				348734	202509	84813	112518	39109				
Total Metals												
Aluminum Al				260	279	157	181	63				
Antimony Sb				5.5	5.1	5.9	1.8	0.6				
Arsenic As				4.0	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.20	0.11	0.04	0.06	0.02				
Bismuth Bi				3.00	1.44	0.55	0.73	0.23				
Boron B				257	106	46	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				105403	56024	22360	28253	9501				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.71	1.26	1.92	0.51	0.17				
Copper Cu				10	8	3	4	1				
Iron Fe				389	571	165	225	79				
Lead Pb				0.23	0.33	0.09	0.12	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54837	30590	12999	16341	5686				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.25	1.22	0.54	0.65	0.22				
Nickel Ni				4.19	3.17	1.11	1.37	0.47				
Phosphorus P				169	105	55	60	20				
Potassium K				25708	13431	5536	6972	2390				
Selenium Se				6.65	2.66	1.21	1.41	0.49				
Silicon SiO2				4371	2655	1114	1438	496				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				363422	186470	79542	96970	33187				
Strontium Sr				309	197	71	101	35				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.38	2.03	0.85	1.09	0.38				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				4.71	0.59	0.60	0.55	0.18				
Zinc Zn				10.12	15.88	6.03	5.00	1.73				
Zirconium Zr				38	23	10	13	4				

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Table I-4-c-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1208037	640342	273705	392674	136850				
TSS				29744	26836	11550	17161	5992				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				7	3	1	1	0				
Sulphate				27836	15769	6756	8767	3050				
Chloride				559816	329709	132958	176284	61355				
Total Ammonia				39	36	26	31	11				
Nitrate				711	338	129	146	50				
Nitrite				16	9	4	5	2				
Alkalinity				208170	119375	53425	66867	23353				
OrthoPhosphate-P				23	12	5	5	2				
Phosphate-P				138	89	49	51	18				
Org. Carbon				41302	23998	14604	12622	4409				
Hardness CaCO3				343689	200134	83917	110534	38602				
Total Metals												
Aluminum Al				258	277	156	179	62				
Antimony Sb				4.2	4.5	5.6	1.4	0.5				
Arsenic As				3.8	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.17	0.08	0.03	0.04	0.01				
Bismuth Bi				1.75	0.85	0.33	0.37	0.13				
Boron B				255	105	45	56	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				86151	46861	18872	22760	7907				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.11	0.97	1.81	0.34	0.12				
Copper Cu				10	7	3	4	1				
Iron Fe				388	570	165	224	78				
Lead Pb				0.21	0.31	0.08	0.10	0.04				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54391	30373	12915	16135	5634				
Manganese Mn				50	94	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.76	0.98	0.46	0.51	0.18				
Nickel Ni				3.69	2.93	1.02	1.22	0.42				
Phosphorus P				149	95	51	53	19				
Potassium K				23482	12377	5137	6327	2205				
Selenium Se				6.64	2.65	1.21	1.39	0.49				
Silicon SiO2				4178	2552	1071	1354	473				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				329312	170359	73442	87230	30388				
Strontium Sr				305	195	70	100	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				3.19	1.94	0.81	1.03	0.36				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.08	0.03				
Vanadium V				4.47	0.47	0.55	0.46	0.16				
Zinc Zn				8.83	15.24	5.78	4.58	1.61				
Zirconium Zr				38	23	10	13	4				

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Table I-4-c-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1131301	604436	260169	377448	131677				
TSS				29719	26825	11546	17156	5990				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				4	2	1	1	0				
Sulphate				24644	14275	6192	8133	2835				
Chloride				508100	305496	123829	166024	57868				
Total Ammonia				36	36	26	31	11				
Nitrate				90	49	20	24	8				
Nitrite				14	9	4	5	2				
Alkalinity				206962	118815	53216	66627	23272				
OrthoPhosphate-P				15	8	3	4	1				
Phosphate-P				130	86	47	49	17				
Org. Carbon				41310	24003	14607	12623	4409				
Hardness CaCO3				341047	198903	83456	110009	38424				
Total Metals												
Aluminum Al				254	275	155	178	62				
Antimony Sb				3.5	4.1	5.5	1.3	0.5				
Arsenic As				3.7	1.9	0.7	0.9	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.13	0.06	0.03	0.03	0.01				
Bismuth Bi				1.06	0.52	0.20	0.24	0.08				
Boron B				254	104	45	55	19				
Cadmium Cd				0.03	0.01	0.01	0.01	0.00				
Calcium Ca				75429	41841	16979	20633	7184				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.77	0.81	1.75	0.27	0.09				
Copper Cu				9	7	3	4	1				
Iron Fe				386	570	164	224	78				
Lead Pb				0.18	0.30	0.08	0.10	0.03				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54141	30257	12872	16085	5617				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.49	0.85	0.41	0.46	0.16				
Nickel Ni				3.40	2.79	0.97	1.16	0.40				
Phosphorus P				136	88	48	51	18				
Potassium K				22264	11808	4922	6085	2123				
Selenium Se				6.61	2.64	1.20	1.39	0.48				
Silicon SiO2				4036	2485	1046	1326	463				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				310714	161653	70160	83541	29134				
Strontium Sr				302	193	70	99	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				3.08	1.88	0.79	1.01	0.35				
Titanium Ti				45	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.30	0.39	0.52	0.42	0.15				
Zinc Zn				8.04	14.87	5.64	4.42	1.56				
Zirconium Zr				38	23	10	13	4				

Appendix I

Table I-4-c-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1084533	583016	252171	371986	129241				
TSS				29656	26794	11534	17195	5994				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				2	1	0	0	0				
Sulphate				22736	13403	5867	7874	2729				
Chloride				477159	291357	118553	161858	56163				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205842	118288	53015	66865	23276				
OrthoPhosphate-P				11	6	2	3	1				
Phosphate-P				126	83	47	49	17				
Org. Carbon				41221	23958	14589	12704	4420				
Hardness CaCO3				338932	197919	83082	110244	38396				
Total Metals												
Aluminum Al				251	274	155	178	62				
Antimony Sb				3.1	3.9	5.4	1.2	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				0.65	0.34	0.13	0.17	0.06				
Boron B				253	104	45	56	19				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				69047	38926	15892	19742	6827				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.57	0.72	1.71	0.24	0.08				
Copper Cu				9	7	2	4	1				
Iron Fe				385	569	164	224	78				
Lead Pb				0.16	0.29	0.08	0.10	0.03				
Lithium Li				21	13	6	7	2				
Magnesium Mg				53923	30155	12833	16122	5617				
Manganese Mn				48	93	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.33	0.78	0.38	0.44	0.15				
Nickel Ni				3.22	2.71	0.94	1.14	0.40				
Phosphorus P				128	85	47	50	17				
Potassium K				21522	11468	4795	5999	2084				
Selenium Se				6.59	2.64	1.20	1.39	0.48				
Silicon SiO2				3938	2440	1029	1325	460				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				299491	156520	68244	82123	28532				
Strontium Sr				301	193	70	99	35				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.00	0.00	0.00	0.00				
Tin Sn				3.00	1.85	0.78	1.00	0.35				
Titanium Ti				45	28	12	15	5				
Uranium U				0.20	0.14	0.08	0.08	0.03				
Vanadium V				4.20	0.34	0.50	0.41	0.14				
Zinc Zn				7.54	14.65	5.56	4.37	1.53				
Zirconium Zr				37	23	10	13	4				

Appendix I

Table I-4-c-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1063722	573231	248476	364428	127259				
TSS				29661	26798	11536	17144	5986				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				1	0	0	0	0				
Sulphate				21861	12991	5711	7597	2653				
Chloride				462990	284679	116029	157333	54920				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205608	118185	52978	66365	23183				
OrthoPhosphate-P				9	5	2	2	1				
Phosphate-P				123	83	46	48	17				
Org. Carbon				41246	23972	14595	12611	4405				
Hardness CaCO3				338340	197648	82983	109487	38247				
Total Metals												
Aluminum Al				250	273	155	177	62				
Antimony Sb				2.9	3.8	5.4	1.2	0.4				
Arsenic As				3.5	1.8	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.09	0.05	0.02	0.02	0.01				
Bismuth Bi				0.45	0.25	0.10	0.12	0.04				
Boron B				252	103	45	55	19				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				66102	37537	15367	18836	6575				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.47	0.67	1.70	0.21	0.07				
Copper Cu				9	7	2	4	1				
Iron Fe				384	569	164	223	78				
Lead Pb				0.15	0.28	0.07	0.09	0.03				
Lithium Li				21	13	6	7	2				
Magnesium Mg				53871	30132	12824	16033	5600				
Manganese Mn				48	93	25	25	9				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.25	0.75	0.37	0.41	0.14				
Nickel Ni				3.14	2.67	0.93	1.11	0.39				
Phosphorus P				125	83	46	48	17				
Potassium K				21192	11312	4736	5878	2053				
Selenium Se				6.59	2.63	1.20	1.38	0.48				
Silicon SiO2				3902	2424	1023	1300	455				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				294420	154132	67342	80401	28069				
Strontium Sr				300	192	69	99	34				
Tellurium Te				373	232	98	125	44				
Thallium Tl				0.22	0.14	0.06	0.08	0.03				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				2.97	1.83	0.77	0.99	0.35				
Titanium Ti				45	28	12	15	5				
Uranium U				0.19	0.14	0.08	0.08	0.03				
Vanadium V				4.15	0.32	0.49	0.39	0.14				
Zinc Zn				7.34	14.55	5.52	4.29	1.51				
Zirconium Zr				37	23	10	13	4				

Table I-4-c-C.1
Scenario 3 - Sediment Control Option 3

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.1	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1036	112	91	
Total Ammonia	mg/L		0.97	1.33	0.085	0.045	9%
Nitrate	mg/L		2.9	7.4	0.42	0.22	14%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.06	0.08	0.25	80%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00074	0.00005	0.00003	
Bismuth Bi	mg/L			0.01880	0.00107	0.00064	
Boron B	mg/L			0.033	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000072	0.0000070	0.0000166	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.0007	104%
Cobalt Co	mg/L			0.0123	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.06	0.12	0.28	40%
Lead Pb	mg/L	0.2	0.002	0.00049	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.7	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000072	0.0000010	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.309	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00055	0.00088	0.00084	88%
Silicon SiO2	mg/L			4.7	0.73	0.64	
Silver Ag	mg/L		0.0001	0.00014	0.0000093	0.0000076	9%
Sodium Na	mg/L			378	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000050	0.000031	0.002002	4%
Thorium Th	mg/L			0.000052	0.0000044	0.0000023	
Tin Sn	mg/L			0.00299	0.00055	0.00009	
Titanium Ti	mg/L			0.0059	0.0060	0.0062	
Uranium U	mg/L			0.000087	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0049	0.0050	0.0052	

Appendix I

Table I-4-c-C.2
Scenario 3 - Sediment Control Option 3

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				155	155	146	167	168				
TSS	mg/L				7.0	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.05	0.01	0.01	0.02	0.02				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.4	5.5	5.5	5.7				
Chloride	mg/L				63	61	60	69	70				
Total Ammonia	mg/L				0.012	0.025	0.005	0.016	0.017				
Nitrate	mg/L				0.04	0.06	0.08	0.11	0.12				
Nitrite	mg/L				0.007	0.008	0.006	0.004	0.009				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0018	0.0019	0.0021	0.0024	0.0027				
Phosphate-P	mg/L				0.0249	0.0170	0.0082	0.0205	0.0208				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00002				
Bismuth Bi	mg/L				0.00015	0.00019	0.00023	0.00026	0.00029				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000049	0.0000155	0.0000032	0.0000033				
Calcium Ca	mg/L				9	8	9	10	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0003				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00024	0.00023	0.00031	0.00029	0.00031				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.018	0.009	0.022	0.022				
Potassium K	mg/L				3.0	2.5	2.5	2.9	3.0				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.55	0.56	0.57				
Silver Ag	mg/L				0.0000053	0.0000031	0.0000058	0.0000043	0.0000045				
Sodium Na	mg/L				38	32	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-4-c-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow													
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				164	163	153	174	175				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00010		0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001		0.0000	0.0000	0.0000				
CNO	mg/L				0.12		0.02	0.02	0.02				
SCN	mg/L				0.003	0.002	0.002	0.003	0.003				
Sulphate	mg/L				6.2	5.8	6.8	6.8	7.0				
Chloride	mg/L				70	66	65	74	75				
Total Ammonia	mg/L				0.025	0.045	0.002	0.017	0.016				
Nitrate	mg/L				0.16	0.17	0.17	0.20	0.21				
Nitrite	mg/L				0.018	0.008	0.006	0.004	0.009				
Alkalinity	mg/L				24	24	25	27	27				
OrthoPhosphate-P	mg/L				0.0044	0.0039	0.0040	0.0043	0.0045				
Phosphate-P	mg/L				0.0275	0.0190	0.0101	0.0224	0.0226				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0020	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00038	0.00037	0.00039	0.00043	0.00045				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000043	0.0000058	0.0000164	0.0000041	0.0000042				
Calcium Ca	mg/L				14	12	12	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.009				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00042	0.00037	0.00044	0.00043	0.00044				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.030	0.021	0.012	0.025	0.025				
Potassium K	mg/L				3.8	3.1	3.1	3.5	3.6				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.60	0.60	0.61	0.62				
Silver Ag	mg/L				0.0000065	0.0000040	0.0000066	0.0000052	0.0000053				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002002				
Thorium Th	mg/L				0.000001	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00005	0.00005	0.00005	0.00005	0.00006				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-4-c-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow													
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				170	167	157	178	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00007								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.07								
SCN	mg/L				0.003	0.003	0.002	0.003	0.002				
Sulphate	mg/L				6.9	6.3	7.1	7.0	6.9				
Chloride	mg/L				74	70	69	78	78				
Total Ammonia	mg/L				0.021	0.031	0.002	0.010	0.010				
Nitrate	mg/L				0.22	0.21	0.20	0.22	0.22				
Nitrite	mg/L				0.016	0.006	0.006	0.003	0.003				
Alkalinity	mg/L				25	25	25	27	27				
OrthoPhosphate-P	mg/L				0.0061	0.0054	0.0053	0.0057	0.0059				
Phosphate-P	mg/L				0.0292	0.0205	0.0114	0.0238	0.0240				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				47	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi	mg/L				0.00052	0.00050	0.00051	0.00055	0.00057				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000048	0.0000061	0.0000166	0.0000042	0.0000042				
Calcium Ca	mg/L				16	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0016	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	5.3	5.4	7.4	7.4				
Manganese Mn	mg/L				0.025	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00048	0.00041	0.00046	0.00042	0.00042				
Nickel Ni	mg/L				0.0009	0.0007	0.0009	0.0008	0.0008				
Phosphorus P	mg/L				0.032	0.023	0.014	0.027	0.027				
Potassium K	mg/L				4.1	3.3	3.2	3.5	3.5				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.64	0.62	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000073	0.0000046	0.0000071	0.0000056	0.0000056				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000102	0.000301	0.000301	0.002002	0.002002				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00007	0.00006	0.00007	0.00007	0.00008				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000038	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0042	0.0023	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-4-c-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				171	172	166	193	199				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.3	5.6	6.5	6.3	6.2				
Chloride	mg/L				77	74	75	87	91				
Total Ammonia	mg/L				0.009	0.008	0.002	0.009	0.009				
Nitrate	mg/L				0.20	0.18	0.16	0.18	0.18				
Nitrite	mg/L				0.007	0.002	0.001	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0071	0.0058	0.0054	0.0055	0.0054				
Phosphate-P	mg/L				0.0302	0.0209	0.0115	0.0236	0.0235				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0010	0.0021	0.0016	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00064	0.00052	0.00049	0.00050	0.00049				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000045	0.0000058	0.0000163	0.0000039	0.0000039				
Calcium Ca	mg/L				14	12	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00039	0.00033	0.00039	0.00035	0.00035				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.023	0.014	0.026	0.026				
Potassium K	mg/L				3.7	3.0	2.9	3.2	3.2				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.59	0.59	0.59	0.59				
Silver Ag	mg/L				0.0000076	0.0000048	0.0000072	0.0000057	0.0000057				
Sodium Na	mg/L				39	34	38	43	45				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00009	0.00007	0.00006	0.00007	0.00007				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0052	0.0052				

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Table I-4-c-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake													
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				194	183	170	186	186				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.5	5.0	5.8	5.5	5.4				
Chloride	mg/L				90	80	76	82	81				
Total Ammonia	mg/L				0.007	0.008	0.003	0.009	0.009				
Nitrate	mg/L				0.15	0.13	0.12	0.12	0.12				
Nitrite	mg/L				0.002	0.003	0.001	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0052	0.0042	0.0038	0.0035	0.0034				
Phosphate-P	mg/L				0.0283	0.0193	0.0099	0.0216	0.0215				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0020	0.0014	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00047	0.00038	0.00035	0.00032	0.00031				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000043	0.0000056	0.0000161	0.0000035	0.0000035				
Calcium Ca	mg/L				14	11	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00033	0.00027	0.00033	0.00028	0.00028				
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.031	0.021	0.012	0.023	0.023				
Potassium K	mg/L				3.4	2.7	2.6	2.9	2.9				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.59	0.57	0.57	0.56	0.56				
Silver Ag	mg/L				0.0000075	0.0000046	0.0000071	0.0000050	0.0000050				
Sodium Na	mg/L				48	39	41	42	42				
Strontium Sr	mg/L				0.046	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00005	0.00004	0.00004	0.00004				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0039	0.0020	0.0018	0.0054	0.0054				
Zirconium Zr	mg/L				0.0052	0.0052	0.0052	0.0051	0.0051				

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Table I-4-c-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake													
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				173	168	157	177	176				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.7	4.4	5.3	5.1	5.0				
Chloride	mg/L				76	69	67	76	75				
Total Ammonia	mg/L				0.005	0.007	0.001	0.007	0.008				
Nitrate	mg/L				0.08	0.07	0.07	0.08	0.08				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0032	0.0026	0.0025	0.0025	0.0024				
Phosphate-P	mg/L				0.0263	0.0178	0.0086	0.0207	0.0205				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0042				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00029	0.00024	0.00023	0.00023	0.00022				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000035	0.0000049	0.0000155	0.0000030	0.0000030				
Calcium Ca	mg/L				11	9	9	10	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00026	0.00022	0.00029	0.00025	0.00024				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.019	0.010	0.022	0.021				
Potassium K	mg/L				3.1	2.5	2.4	2.7	2.7				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00061	0.00061				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.54				
Silver Ag	mg/L				0.0000061	0.0000035	0.0000060	0.0000045	0.0000042				
Sodium Na	mg/L				43	35	37	40	40				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000002	0.000001				
Tin Sn	mg/L				0.00003	0.00003	0.00003	0.00003	0.00002				
Titanium Ti	mg/L				0.0061	0.0061	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000045	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

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Table I-4-c-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				164	161	150	169	169				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.3	4.1	5.0	4.8	4.8				
Chloride	mg/L				69	65	63	70	70				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.05	0.04	0.03	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0022	0.0019	0.0018	0.0017	0.0017				
Phosphate-P	mg/L				0.0253	0.0170	0.0079	0.0198	0.0198				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00020	0.00018	0.00017	0.00016	0.00016				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000033	0.0000046	0.0000151	0.0000025	0.0000025				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00022	0.00020	0.00026	0.00022	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.018	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.54	0.54	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000058	0.0000031	0.0000055	0.0000035	0.0000035				
Sodium Na	mg/L				41	33	36	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-4-c-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				158	157	147	166	166				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.1	3.9	4.9	4.6	4.6				
Chloride	mg/L				66	62	61	68	68				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0015	0.0015	0.0014	0.0014				
Phosphate-P	mg/L				0.0248	0.0166	0.0076	0.0195	0.0195				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00016	0.00014	0.00014	0.00013	0.00013				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000029	0.0000043	0.0000149	0.0000023	0.0000023				
Calcium Ca	mg/L				9	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00025	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.52	0.53				
Silver Ag	mg/L				0.0000053	0.0000027	0.0000051	0.0000032	0.0000032				
Sodium Na	mg/L				39	33	35	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000000	0.000000				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-4-c-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow													
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				155	155	144	165	164				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.9	3.8	4.8	4.6	4.6				
Chloride	mg/L				64	60	59	67	67				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0013	0.0013	0.0012				
Phosphate-P	mg/L				0.0245	0.0164	0.0074	0.0194	0.0194				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00013	0.00012	0.00012	0.00012	0.00012				
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd	mg/L				0.0000027	0.0000042	0.0000147	0.0000022	0.0000022				
Calcium Ca	mg/L				8	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00019	0.00017	0.00024	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.019				
Potassium K	mg/L				2.8	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52				
Silver Ag	mg/L				0.0000049	0.0000024	0.0000049	0.0000033	0.0000031				
Sodium Na	mg/L				39	32	34	37	37				
Strontium Sr	mg/L				0.045	0.037	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0062	0.0061				
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-4-c-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst LakeWater Quality in Little Roberst Lake Outflow												
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				154	154	143	163	163			
TSS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.9	3.8	4.8	4.5	4.5			
Chloride	mg/L				63	60	59	66	66			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0012	0.0012	0.0012	0.0011	0.0011			
Phosphate-P	mg/L				0.0243	0.0163	0.0073	0.0193	0.0193			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00012	0.00011	0.00011	0.00011	0.00011			
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027			
Cadmium Cd	mg/L				0.0000026	0.0000041	0.0000146	0.0000021	0.0000021			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2			
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008			
Mercury Hg	mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006			
Molybdenum Mo	mg/L				0.00019	0.00017	0.00024	0.00020	0.00020			
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.8	2.2	2.2	2.5	2.5			
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060			
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52			
Silver Ag	mg/L				0.0000048	0.0000023	0.0000048	0.0000029	0.0000029			
Sodium Na	mg/L				38	32	34	37	37			
Strontium Sr	mg/L				0.045	0.037	0.040	0.046	0.046			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000			
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061			
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043			
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0051	0.0052			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Appendix I

Table I-4-c-C.3
Scenario 3 - Sediment Control Option 3

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	151	153				
TSS				3.9	5.6	5.8	6.7	6.7				
Free CN				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.09	0.01	0.03	0.03	0.03				
SCN				0.001	0.001	0.002	0.002	0.002				
Sulphate				3.8	3.9	4.3	4.9	5.2				
Chloride				61	62	62	67	69				
Total Ammonia				0.019	0.045	0.023	0.031	0.031				
Nitrate				0.08	0.12	0.16	0.20	0.23				
Nitrite				0.011	0.014	0.014	0.006	0.016				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00003				
Bismuth Bi				0.00012	0.00021	0.00028	0.00034	0.00039				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000041	0.0000039	0.0000042	0.0000045				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.021	0.027	0.024	0.025				
Potassium K				3.2	2.9	3.0	3.1	3.3				
Selenium Se				0.00086	0.00056	0.00060	0.00055	0.00055				
Silicon SiO2				0.54	0.55	0.57	0.58	0.60				
Silver Ag				0.0000049	0.0000059	0.0000062	0.0000066	0.0000068				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000022	0.0000025	0.0000027	0.0000029				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-c-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				160	139	143	165	166				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00020		0.00003	0.00003	0.00003				
Total CN				0.004	0.002	0.002	0.002	0.002				
WAD CN				0.0003		0.0000	0.0000	0.0000				
CNO				0.22		0.03	0.03	0.03				
SCN				0.005	0.004	0.004	0.005	0.005				
Sulphate				7.3	6.7	6.9	7.5	7.8				
Chloride				74	73	71	77	78				
Total Ammonia				0.044	0.085	0.016	0.031	0.030				
Nitrate				0.31	0.32	0.34	0.38	0.41				
Nitrite				0.032	0.013	0.014	0.005	0.016				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be				0.00003	0.00003	0.00003	0.00004	0.00004				
Bismuth Bi				0.00056	0.00056	0.00060	0.00066	0.00070				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000060	0.0000059	0.0000056	0.0000059	0.0000061				
Calcium Ca				21	18	18	19	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000010	0.0000010				
Molybdenum Mo				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P				0.027	0.027	0.033	0.030	0.031				
Potassium K				4.8	4.1	4.1	4.3	4.4				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.68	0.66	0.67	0.69	0.70				
Silver Ag				0.0000072	0.0000078	0.0000079	0.0000083	0.0000085				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.043				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000031	0.0000033	0.0000035	0.0000037				
Tin Sn				0.00046	0.00047	0.00047	0.00048	0.00049				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0040	0.0037	0.0028	0.0028				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Appendix I

Table I-4-c-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				171	148	150	171	172				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00013								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0002								
CNO				0.14								
SCN				0.006	0.005	0.005	0.005	0.005				
Sulphate				8.7	7.6	7.4	7.7	7.6				
Chloride				82	80	78	83	84				
Total Ammonia				0.036	0.058	0.016	0.017	0.018				
Nitrate				0.42	0.39	0.39	0.42	0.42				
Nitrite				0.030	0.010	0.014	0.004	0.005				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				50	46	46	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00085	0.00080	0.00082	0.00089	0.00093				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000070	0.0000065	0.0000059	0.0000061	0.0000061				
Calcium Ca				24	20	19	19	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu				0.0017	0.0019	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.5	6.7	6.8	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni				0.0009	0.0010	0.0009	0.0009	0.0009				
Phosphorus P				0.032	0.031	0.036	0.033	0.033				
Potassium K				5.3	4.4	4.3	4.2	4.2				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.73	0.69	0.68	0.69	0.69				
Silver Ag				0.0000086	0.0000088	0.0000087	0.0000090	0.0000091				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.044	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000034	0.0000035	0.0000036	0.0000038	0.0000039				
Tin Sn				0.00051	0.00050	0.00051	0.00052	0.00053				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0024	0.0042	0.0038	0.0028	0.0028				
Zirconium Zr				0.0049	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-c-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				173	158	169	201	212				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.005	0.004	0.003	0.003	0.003				
Sulphate				7.4	6.4	6.2	6.4	6.3				
Chloride				88	88	90	102	109				
Total Ammonia				0.012	0.013	0.018	0.016	0.017				
Nitrate				0.38	0.33	0.32	0.34	0.34				
Nitrite				0.011	0.002	0.003	0.003	0.003				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P				0.0276	0.0264	0.0314	0.0274	0.0271				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00107	0.00085	0.00077	0.00079	0.00077				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000064	0.0000060	0.0000054	0.0000056	0.0000056				
Calcium Ca				20	17	17	17	18				
Chromium Cr				0.001	0.001	0.001	0.000	0.000				
Cobalt Co				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P				0.033	0.031	0.036	0.032	0.032				
Potassium K				4.6	3.8	3.7	3.6	3.6				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.68	0.65	0.64	0.65	0.64				
Silver Ag				0.0000093	0.0000092	0.0000089	0.0000092	0.0000091				
Sodium Na				39	37	41	43	47				
Strontium Sr				0.043	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000039	0.0000039	0.0000041	0.0000043	0.0000044				
Tin Sn				0.00055	0.00051	0.00050	0.00051	0.00050				
Titanium Ti				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000029	0.000034	0.000042	0.000036	0.000036				
Vanadium V				0.0008	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0039	0.0036	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-c-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				216	179	176	187	186				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.002	0.002	0.002	0.002				
Sulphate				6.0	5.1	5.0	4.8	4.8				
Chloride				112	99	92	92	91				
Total Ammonia				0.008	0.014	0.018	0.016	0.017				
Nitrate				0.29	0.25	0.24	0.22	0.23				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P				0.0239	0.0232	0.0283	0.0234	0.0233				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0005	0.0004	0.0004				
Barium Ba				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00074	0.00056	0.00051	0.00045	0.00043				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000060	0.0000056	0.0000050	0.0000048	0.0000049				
Calcium Ca				19	16	15	14	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.6	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00043	0.00036	0.00036	0.00032	0.00031				
Nickel Ni				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.028	0.027	0.032	0.026	0.026				
Potassium K				4.0	3.3	3.2	3.0	3.0				
Selenium Se				0.00088	0.00057	0.00062	0.00055	0.00055				
Silicon SiO2				0.64	0.61	0.60	0.59	0.59				
Silver Ag				0.0000090	0.0000089	0.0000087	0.0000079	0.0000078				
Sodium Na				57	46	46	42	42				
Strontium Sr				0.042	0.043	0.037	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000044	0.0000043	0.0000044	0.0000042	0.0000043				
Tin Sn				0.00050	0.00047	0.00046	0.00045	0.00045				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000030	0.000034	0.000042	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0002	0.0002				
Zinc Zn				0.0017	0.0036	0.0033	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

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Table I-4-c-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				177	150	150	170	167				
TSS				3.9	5.7	5.8	6.8	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.4	3.9	3.9	4.1	4.0				
Chloride				86	79	75	80	78				
Total Ammonia				0.005	0.011	0.015	0.013	0.014				
Nitrate				0.15	0.14	0.14	0.15	0.15				
Nitrite				0.002	0.003	0.003	0.002	0.002				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P				0.0200	0.0203	0.0258	0.0216	0.0213				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0011	0.0029	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00039	0.00031	0.00028	0.00028	0.00026				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000044	0.0000042	0.0000037	0.0000039	0.0000038				
Calcium Ca				14	12	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00030	0.00026	0.00027	0.00026	0.00025				
Nickel Ni				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.022	0.022	0.027	0.023	0.023				
Potassium K				3.4	2.8	2.8	2.7	2.7				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.57	0.56	0.56	0.56	0.56				
Silver Ag				0.0000064	0.0000067	0.0000066	0.0000068	0.0000064				
Sodium Na				48	39	40	38	37				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000026	0.0000026	0.0000027	0.0000029	0.0000029				
Tin Sn				0.00044	0.00043	0.00043	0.00043	0.00042				
Titanium Ti				0.0059	0.0059	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0034	0.0030	0.0020	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-c-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				158	135	137	154	154				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.000				
Sulphate				3.7	3.3	3.4	3.4	3.4				
Chloride				73	70	67	69	69				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.09	0.07	0.06	0.06	0.06				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P				0.0181	0.0189	0.0245	0.0200	0.0200				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00001				
Bismuth Bi				0.00023	0.00018	0.00016	0.00015	0.00014				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000040	0.0000037	0.0000031	0.0000029	0.0000029				
Calcium Ca				11	10	9	9	9				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.3	6.3				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00023	0.00021	0.00023	0.00020	0.00020				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.020	0.020	0.025	0.021	0.021				
Potassium K				3.1	2.6	2.6	2.5	2.5				
Selenium Se				0.00087	0.00056	0.00061	0.00054	0.00055				
Silicon SiO2				0.55	0.54	0.54	0.53	0.53				
Silver Ag				0.0000059	0.0000059	0.0000056	0.0000050	0.0000049				
Sodium Na				43	36	37	34	34				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000026	0.0000020	0.0000018	0.0000016	0.0000015				
Tin Sn				0.00042	0.00041	0.00041	0.00040	0.00040				
Titanium Ti				0.0059	0.0059	0.0060	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000039	0.000033	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0050	0.0050	0.0050	0.0049	0.0049				

Appendix I

Table I-4-c-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				148	128	131	148	148				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.2	3.0	3.1	3.2	3.2				
Chloride				67	65	62	65	65				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P				0.0171	0.0181	0.0238	0.0194	0.0194				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000033	0.0000031	0.0000026	0.0000025	0.0000025				
Calcium Ca				10	9	9	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00020	0.00018	0.00020	0.00018	0.00018				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.024	0.020	0.020				
Potassium K				2.9	2.5	2.5	2.4	2.4				
Selenium Se				0.00087	0.00056	0.00060	0.00054	0.00054				
Silicon SiO2				0.53	0.53	0.53	0.52	0.52				
Silver Ag				0.0000049	0.0000051	0.0000049	0.0000044	0.0000043				
Sodium Na				41	34	35	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000015	0.0000012	0.0000011	0.0000009	0.0000009				
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000031	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-4-c-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				142	123	127	146	145				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.0	2.8	2.9	3.1	3.1				
Chloride				63	62	60	63	63				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P				0.0165	0.0177	0.0234	0.0192	0.0191				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000029	0.0000028	0.0000023	0.0000023	0.0000023				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.4	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00017	0.00017	0.00019	0.00017	0.00017				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.019	0.019				
Potassium K				2.8	2.4	2.4	2.4	2.3				
Selenium Se				0.00087	0.00056	0.00060	0.00054	0.00054				
Silicon SiO2				0.52	0.52	0.52	0.52	0.52				
Silver Ag				0.0000041	0.0000046	0.0000044	0.0000045	0.0000042				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.039	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000008	0.0000007	0.0000006	0.0000007	0.0000006				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0059	0.0059	0.0059	0.0060	0.0059				
Uranium U				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

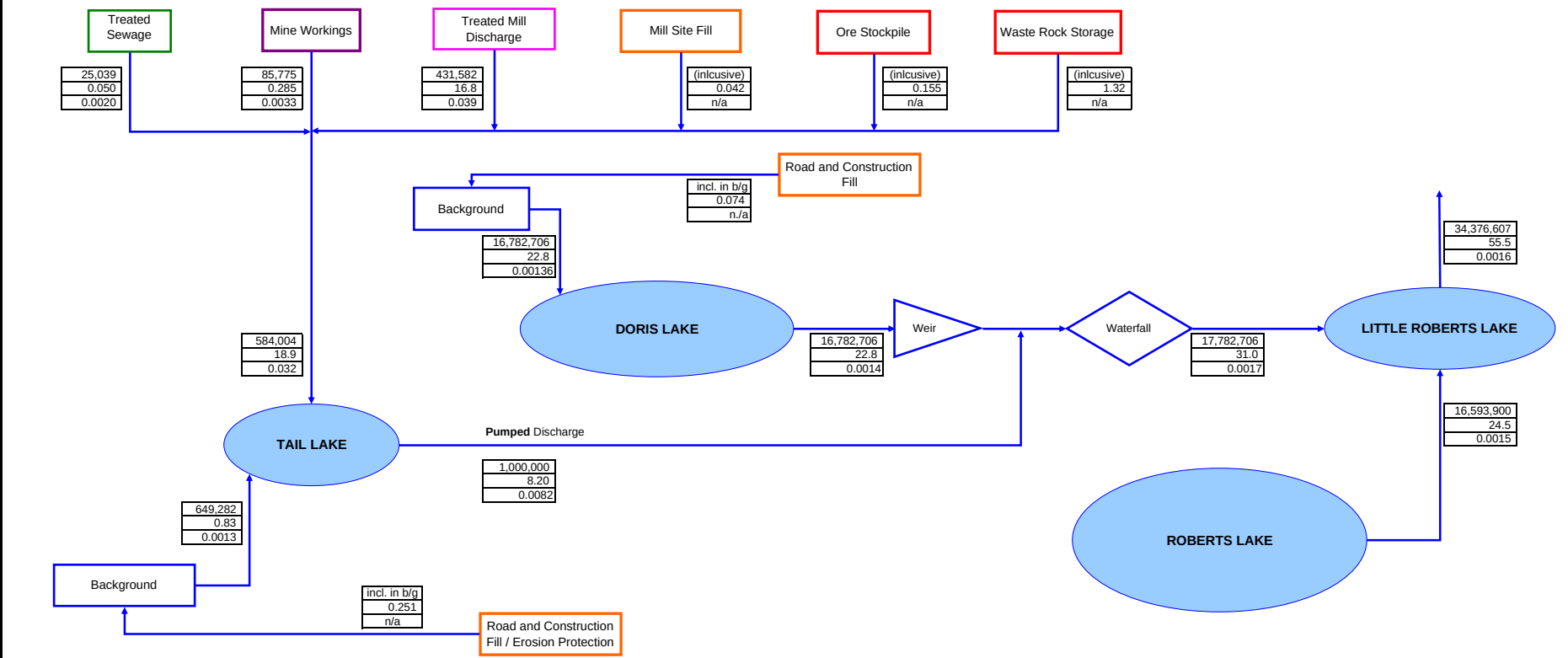
Appendix I

Table I-4-c-C.3
Scenario 3 - Sediment Co

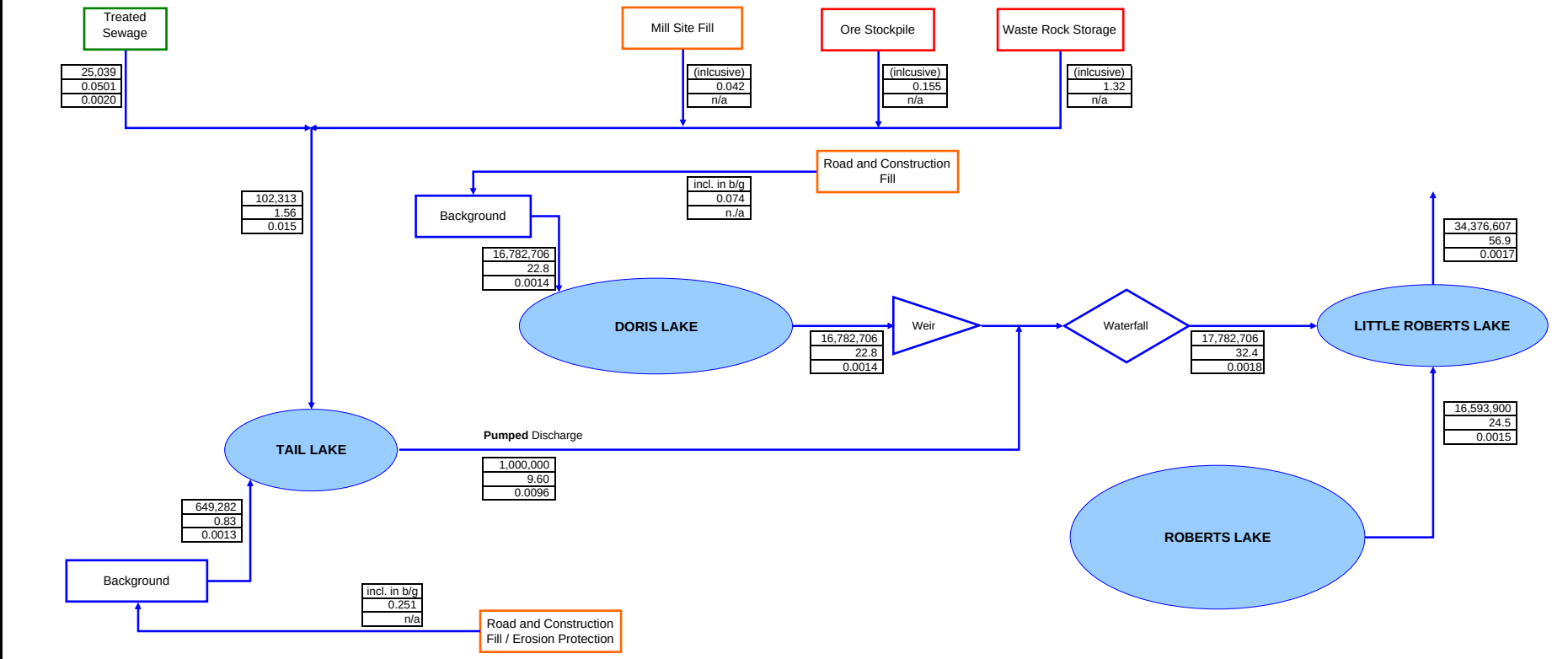
Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				140	121	125	143	143				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				2.9	2.7	2.9	3.0	3.0				
Chloride				61	60	58	62	62				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0011	0.0010	0.0010	0.0010	0.0010				
Phosphate-P				0.0162	0.0175	0.0232	0.0189	0.0189				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00006	0.00005	0.00005	0.00005	0.00005				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000027	0.0000026	0.0000022	0.0000021	0.0000021				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.4	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000006	0.0000006				
Molybdenum Mo				0.00016	0.00016	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.016	0.018	0.023	0.019	0.019				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00086	0.00056	0.00060	0.00054	0.00054				
Silicon SiO2				0.51	0.51	0.51	0.51	0.51				
Silver Ag				0.0000039	0.0000044	0.0000043	0.0000038	0.0000038				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.039	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000029	0.000030	0.000030	0.000029	0.000030				
Thorium Th				0.0000005	0.0000004	0.0000004	0.0000004	0.0000004				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000025	0.000030	0.000038	0.000031	0.000031				
Vanadium V				0.0005	0.0001	0.0002	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

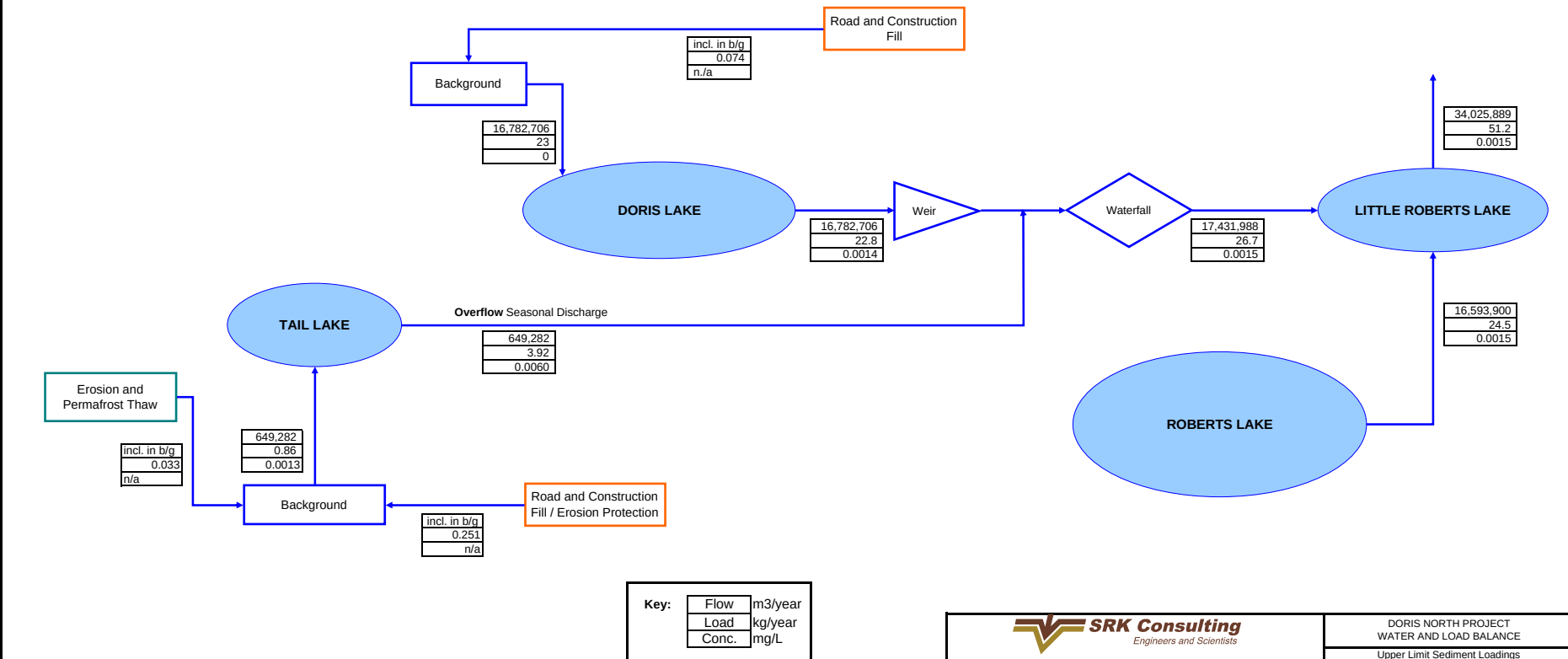
Sediment Control Option 4 - OPERATIONAL CONDITIONS
Year 2



POST MILLING OPERATIONAL CONDITIONS
Year 3



POST CLOSURE CONDITIONS
Year 5

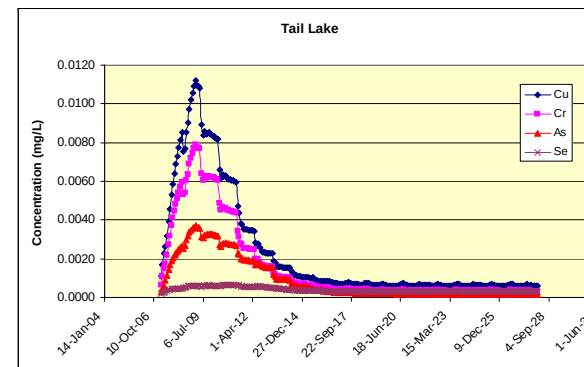
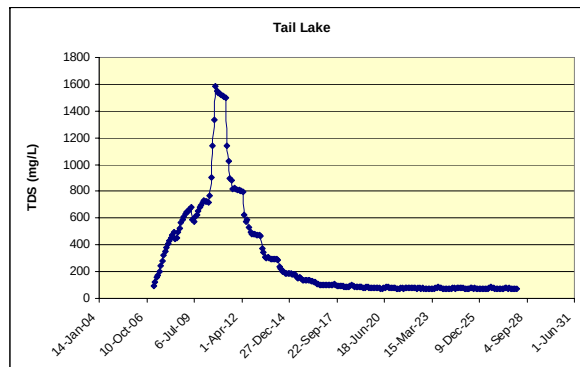
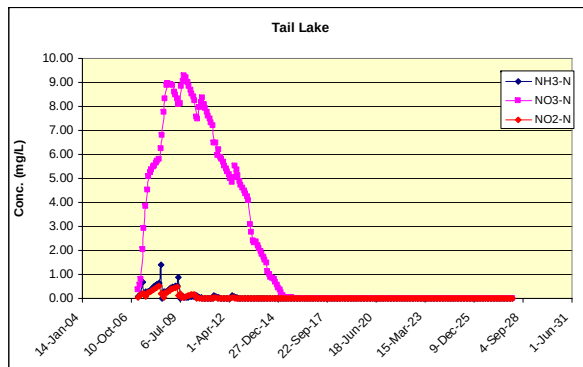
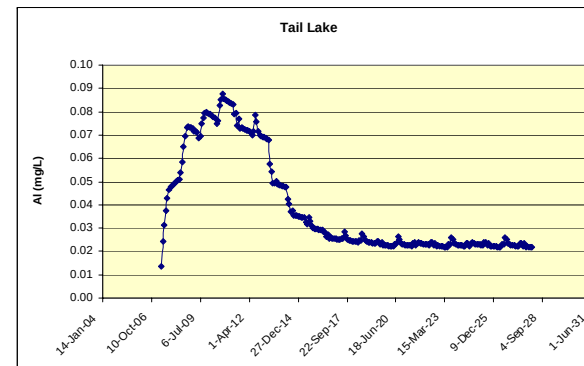
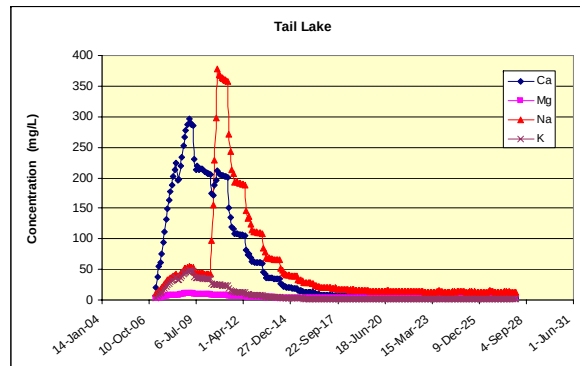
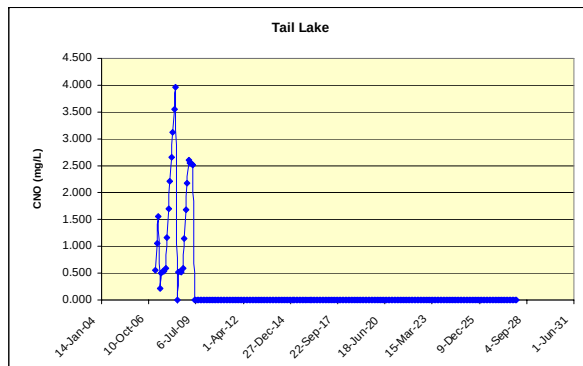
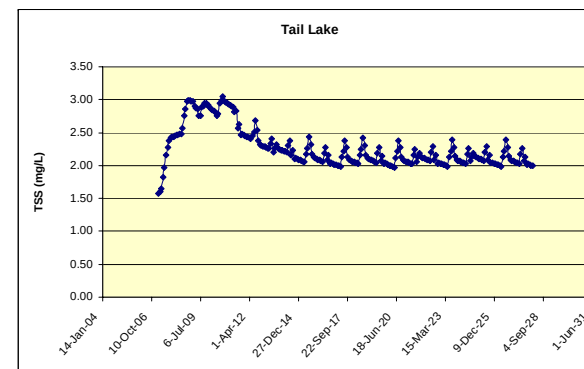
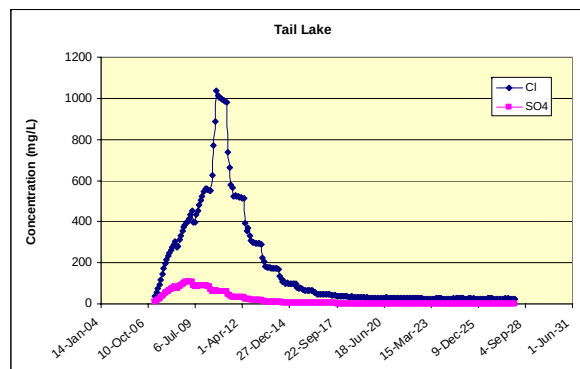
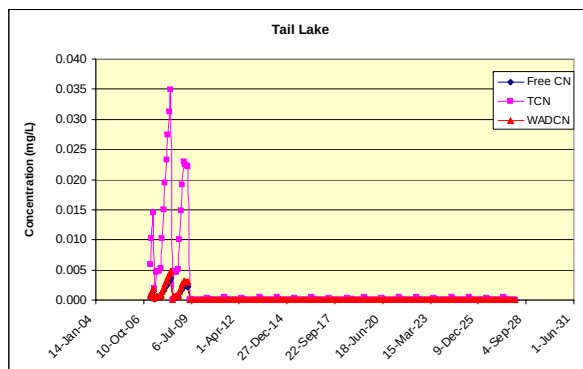


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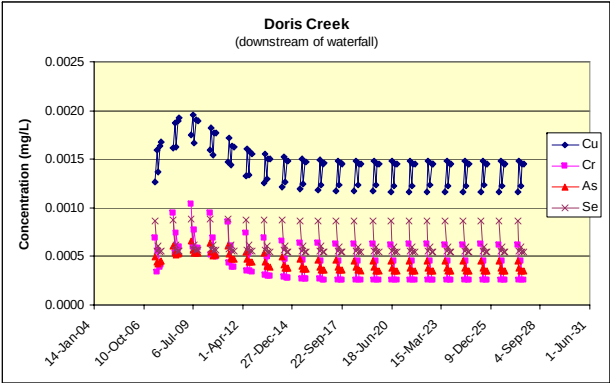
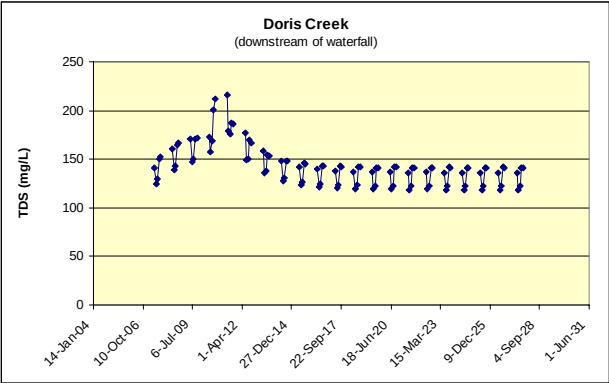
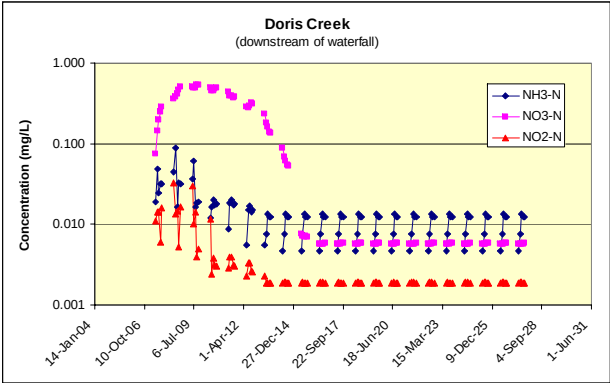
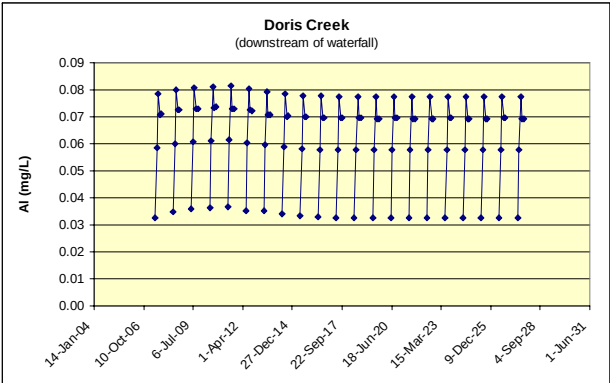
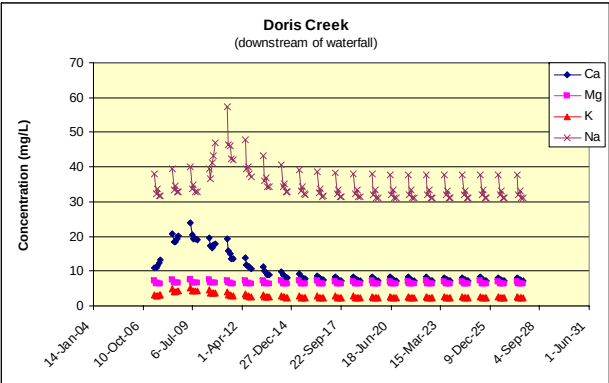
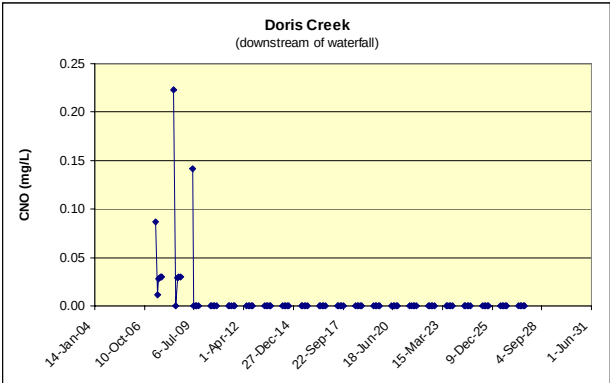
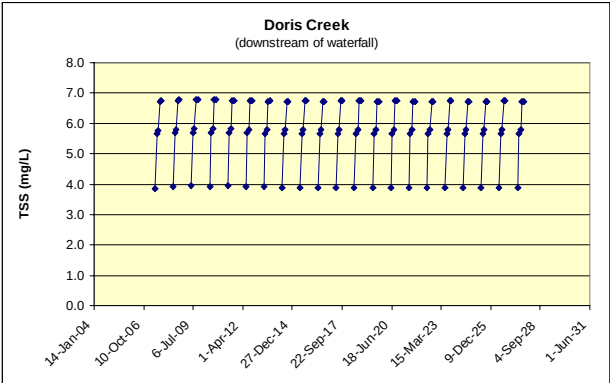
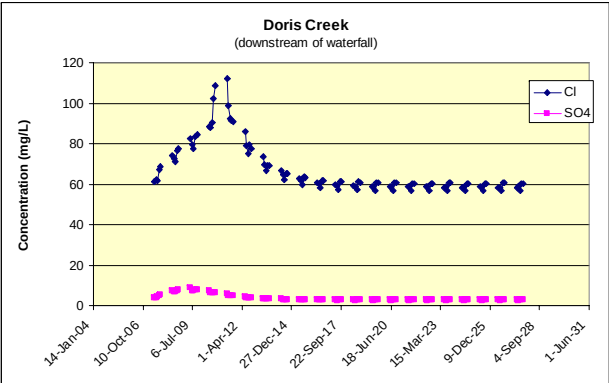
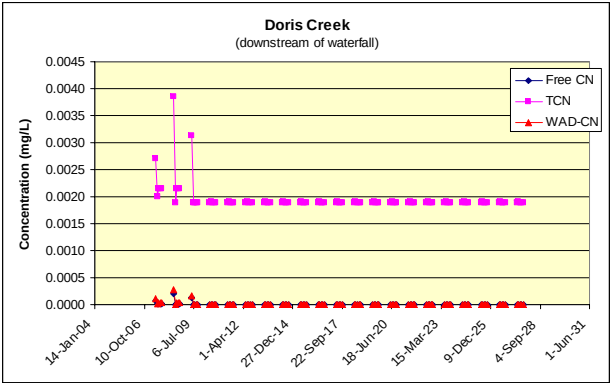
Flow	m ³ /year
Load	kg/year
Conc.	mg/L

 SRK Consulting Engineers and Scientists	DORIS NORTH PROJECT WATER AND LOAD BALANCE			
	Upper Limit Sediment Loadings 100 % to FSL Erosion Control			
MIRAMAR HOPE BAY LIMITED	PROJECT: 1CM014.06	Date: Oct-05	Approved: JTC	FIGURE I-4-d-1

Sediment Control Option 4



Sediment Control Option 4



Appendix I

Table I-4-d-A.1
Scenario 3 - Sediment Control Option 4

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.1	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			110	8.7	7.1	
Chloride	mg/L			1036	112	91	
Total Ammonia	mg/L		0.97	1.38	0.089	0.047	9%
Nitrate	mg/L		2.9	9.3	0.54	0.28	18%
Nitrite	mg/L		0.018	0.53	0.032	0.018	176%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.09	0.08	0.25	81%
Antimony Sb	mg/L			0.0195	0.0035	0.0022	
Arsenic As	mg/L	0.5	0.005	0.00	0.0007	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00083	0.00005	0.00003	
Bismuth Bi	mg/L			0.01889	0.00107	0.00064	
Boron B	mg/L			0.038	0.035	0.030	
Cadmium Cd	mg/L		0.000038	0.000087	0.0000079	0.0000171	21%
Calcium Ca	mg/L			296	24	16	
Chromium Cr	mg/L		0.001	0.0079	0.0010	0.001	104%
Cobalt Co	mg/L			0.0124	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.00195	0.0021	98%
Iron Fe	mg/L		0.3	0.07	0.12	0.28	41%
Lead Pb	mg/L	0.2	0.002	0.00057	0.00009	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.7	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000085	0.00000109	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.323	0.037	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00067	0.0009	0.00084	89%
Silicon SiO2	mg/L			4.8	0.74	0.64	
Silver Ag	mg/L		0.0001	0.00017	0.0000112	0.0000085	11%
Sodium Na	mg/L			378	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000058	0.000032	0.0020	4%
Thorium Th	mg/L			0.000113	0.0000076	0.0000039	
Tin Sn	mg/L			0.00308	0.00055	0.00009	
Titanium Ti	mg/L			0.0060	0.0060	0.0062	
Uranium U	mg/L			0.000146	0.000045	0.000047	
Vanadium V	mg/L			0.0043	0.0008	0.0006	
Zinc Zn	mg/L	0.5	0.03	0.028	0.0042	0.0058	14%
Zirconium Zr	mg/L			0.0061	0.0051	0.0052	

Table I-4-d-A.2
Scenario 3 - Sediment Control Option 4

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	173	202	245	280	321	353	381	407	429
TSS	mg/L	1.6	1.6	1.6	1.8	2.0	2.2	2.3	2.4	2.4	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00141	0.00019	0.00046	0.00049	0.00048	0.00054	0.00105	0.00155	0.00201	0.00241
Total CN	mg/L	0.006	0.010	0.015	0.002	0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0003	0.0006	0.0007	0.0006	0.0007	0.0014	0.0021	0.0027	0.0032
CNO	mg/L	0.55	1.06	1.55	0.21	0.50	0.54	0.53	0.59	1.16	1.70	2.22	2.65
SCN	mg/L	0.008	0.014	0.021	0.023	0.029	0.037	0.043	0.052	0.058	0.064	0.070	0.075
Sulphate	mg/L	7.5	13.4	19.3	23.1	28.8	36.4	42.8	50.2	56.0	61.0	65.9	69.9
Chloride	mg/L	37	57	77	95	118	147	171	197	216	233	248	262
Total Ammonia	mg/L	0.070	0.133	0.194	0.675	0.145	0.284	0.293	0.271	0.336	0.397	0.455	0.504
Nitrate	mg/L	0.35	0.58	0.80	2.03	2.94	3.85	4.51	5.10	5.26	5.36	5.46	5.53
Nitrite	mg/L	0.054	0.102	0.150	0.209	0.209	0.065	0.238	0.236	0.286	0.333	0.377	0.414
Alkalinity	mg/L	16	18	21	23	26	30	34	37	40	42	44	45
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0313	0.0381	0.0486	0.0572	0.0678	0.0765	0.0842	0.0916	0.0978
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0349	0.0416	0.0522	0.0608	0.0714	0.0800	0.0877	0.0949	0.1010
Org. Carbon	mg/L	3.0	2.9	2.8	3.1	3.4	3.6	3.6	3.6	3.6	3.5	3.3	3.3
Hardness CaCO3	mg/L	23	29	35	38	45	53	60	68	74	78	83	87
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.03	0.04	0.04	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0034	0.0046	0.0057	0.0068	0.0076	0.0081	0.0084	0.0088	0.0091
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0009	0.0012	0.0014	0.0017	0.0019	0.0020	0.0022	0.0023	0.0024
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0032	0.0038	0.0047	0.0054	0.0062	0.0068	0.0073	0.0078	0.0083
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00025	0.00031	0.00036	0.00040	0.00043	0.00045	0.00046	0.00047	0.00047
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00320	0.00439	0.00545	0.00641	0.00722	0.00765	0.00799	0.00832	0.00859
Boron B	mg/L	0.007	0.008	0.009	0.013	0.016	0.019	0.021	0.023	0.024	0.024	0.025	0.025
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000216	0.0000296	0.0000365	0.0000428	0.0000479	0.0000504	0.0000523	0.0000542	0.0000558
Calcium Ca	mg/L	21	38	54	61	75	95	112	132	148	163	177	189
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0025	0.0031	0.0040	0.0047	0.0056	0.0062	0.0068	0.0074	0.0079
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0026	0.0032	0.0039	0.0045	0.0053	0.0059	0.0064	0.0069	0.0073
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00015	0.00020	0.00024	0.00028	0.00031	0.00032	0.00034	0.00035	0.00036
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0028	0.0032	0.0035	0.0037	0.0039	0.0040	0.0041	0.0041
Magnesium Mg	mg/L	2.5	2.9	3.3	3.9	4.5	5.2	5.8	6.4	6.8	7.1	7.4	7.6
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.020	0.022
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000022	0.0000029	0.0000036	0.0000042	0.0000047	0.0000049	0.0000051	0.0000053	0.0000055
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00217	0.00265	0.00338	0.00398	0.00472	0.00532	0.00586	0.00638	0.00681
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0022	0.0028	0.0034	0.0040	0.0047	0.0052	0.0056	0.0060	0.0064
Phosphorus P	mg/L	0.020	0.033	0.047	0.060	0.075	0.094	0.110	0.128	0.141	0.153	0.164	0.173
Potassium K	mg/L	3.8	6.6	9.3	10.4	12.6	15.9	18.7	22.0	24.8	27.2	29.5	31.4
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00030	0.00035	0.00039	0.00042	0.00044	0.00045	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	0.70	0.92	1.14	1.37	1.63	1.96	2.23	2.53	2.74	2.92	3.09	3.24
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000769	0.0000908	0.0000995	0.0001057	0.0001109	0.0001113	0.0001107	0.0001101	0.0001095
Sodium Na	mg/L	11	13	16	17	20	24	26	30	32	34	36	38
Strontium Sr	mg/L	0.017	0.021	0.026	0.030	0.035	0.042	0.048	0.054	0.059	0.063	0.067	0.070
Tellurium Te	mg/L	0.025	0.024	0.024	0.026	0.028	0.029	0.030	0.030	0.030	0.029	0.028	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000025	0.000029	0.000033	0.000036	0.000039	0.000040	0.000040	0.000041	0.000041
Thorium Th	mg/L				0.000020	0.000031	0.000038	0.000044	0.000047	0.000046	0.000045	0.000043	0.000042
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00056	0.00077	0.00095	0.00111	0.00124	0.00130	0.00134	0.00139	0.00142
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0034	0.0036	0.0039	0.0041	0.0042	0.0041	0.0040	0.0040	0.0039
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000047	0.000060	0.000067	0.000073	0.000076	0.000074	0.000072	0.000070	0.000068
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0011	0.0014	0.0016	0.0019	0.0021	0.0022	0.0023	0.0024	0.0025
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0058	0.0072	0.0092	0.0110	0.0128	0.0142	0.0155	0.0166	0.0176
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0030	0.0034	0.0037	0.0039	0.0039	0.0039	0.0037	0.0036	0.0035

Table I-4-d-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	454	475	497	443	450	496	523	564	589	609	628	643
TSS	mg/L	2.5	2.5	2.5	2.5	2.6	2.8	2.9	3.0	3.0	3.0	3.0	3.0
Free CN	mg/L	0.00284	0.00322	0.00360		0.00047	0.00048	0.00048	0.00053	0.00104	0.00152	0.00198	0.00238
Total CN	mg/L	0.027	0.031	0.035		0.005	0.005	0.005	0.005	0.010	0.015	0.019	0.023
WAD CN	mg/L	0.0038	0.0043	0.0048		0.0006	0.0006	0.0006	0.0007	0.0014	0.0020	0.0026	0.0032
CNO	mg/L	3.12	3.55	3.96		0.52	0.53	0.52	0.58	1.14	1.68	2.18	2.61
SCN	mg/L	0.080	0.085	0.090	0.078	0.079	0.087	0.092	0.100	0.106	0.110	0.115	0.118
Sulphate	mg/L	74.5	78.4	82.3	73.1	74.6	82.8	87.8	95.1	99.7	103.3	106.7	109.5
Chloride	mg/L	277	290	302	274	282	313	332	357	372	384	395	404
Total Ammonia	mg/L	0.557	0.605	0.651	1.385		0.297	0.288	0.267	0.331	0.392	0.449	0.497
Nitrate	mg/L	5.64	5.71	5.79	6.26	6.78	7.78	8.31	8.89	8.95	8.93	8.91	8.88
Nitrite	mg/L	0.455	0.492	0.527	0.193	0.215	0.049	0.245	0.242	0.292	0.337	0.380	0.417
Alkalinity	mg/L	47	49	50	46	48	52	55	58	60	62	63	64
OrthoPhosphate-P	mg/L	0.1047	0.1107	0.1167	0.1014	0.1024	0.1138	0.1204	0.1308	0.1379	0.1436	0.1490	0.1535
Phosphate-P	mg/L	0.1079	0.1138	0.1197	0.1048	0.1057	0.1172	0.1237	0.1341	0.1412	0.1467	0.1521	0.1565
Org. Carbon	mg/L	3.2	3.1	3.0	3.2	3.5	3.7	3.7	3.8	3.7	3.6	3.4	3.4
Hardness CaCO3	mg/L	91	95	99	89	91	101	106	113	118	121	124	127
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Antimony Sb	mg/L	0.0095	0.0097	0.0100	0.0099	0.0106	0.0118	0.0126	0.0135	0.0138	0.0140	0.0142	0.0143
Arsenic As	mg/L	0.0025	0.0026	0.0027	0.0025	0.0027	0.0030	0.0032	0.0034	0.0035	0.0036	0.0036	0.0037
Barium Ba	mg/L	0.0087	0.0092	0.0096	0.0086	0.0087	0.0097	0.0102	0.0110	0.0115	0.0119	0.0122	0.0125
Beryllium Be	mg/L	0.00048	0.00049	0.00050	0.00052	0.00056	0.00061	0.00064	0.00067	0.00068	0.00068	0.00069	0.00069
Bismuth Bi	mg/L	0.00892	0.00918	0.00945	0.00941	0.01008	0.01121	0.01200	0.01279	0.01308	0.01325	0.01341	0.01353
Boron B	mg/L	0.026	0.026	0.027	0.027	0.029	0.031	0.033	0.035	0.036	0.036	0.036	0.036
Cadmium Cd	mg/L	0.0000576	0.0000591	0.0000607	0.0000612	0.0000659	0.0000732	0.0000784	0.0000834	0.0000850	0.0000858	0.0000867	0.0000873
Calcium Ca	mg/L	202	213	225	196	198	220	233	253	266	277	287	296
Chromium Cr	mg/L	0.005	0.006	0.006	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.008	0.008
Cobalt Co	mg/L	0.0084	0.0089	0.0094	0.0082	0.0083	0.0093	0.0098	0.0107	0.0112	0.0116	0.0121	0.0124
Copper Cu	mg/L	0.0077	0.0081	0.0085	0.0076	0.0077	0.0085	0.0090	0.0097	0.0102	0.0106	0.0109	0.0112
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.07
Lead Pb	mg/L	0.00037	0.00038	0.00039	0.00039	0.00042	0.00046	0.00049	0.00052	0.00054	0.00054	0.00055	0.00055
Lithium Li	mg/L	0.0042	0.0043	0.0044	0.0043	0.0044	0.0048	0.0050	0.0053	0.0054	0.0055	0.0055	0.0055
Magnesium Mg	mg/L	7.9	8.1	8.3	7.8	8.1	8.9	9.4	10.0	10.2	10.4	10.6	10.7
Manganese Mn	mg/L	0.023	0.024	0.026	0.023	0.023	0.025	0.027	0.029	0.031	0.032	0.033	0.034
Mercury Hg	mg/L	0.0000057	0.0000058	0.0000060	0.0000060	0.0000064	0.0000071	0.0000076	0.0000080	0.0000082	0.0000083	0.0000084	0.0000085
Molybdenum Mo	mg/L	0.00729	0.00771	0.00812	0.00706	0.00714	0.00793	0.00839	0.00912	0.00961	0.01001	0.01038	0.01069
Nickel Ni	mg/L	0.0068	0.0071	0.0075	0.0067	0.0068	0.0076	0.0080	0.0087	0.0091	0.0094	0.0097	0.0099
Phosphorus P	mg/L	0.183	0.192	0.201	0.182	0.187	0.208	0.220	0.237	0.248	0.256	0.263	0.270
Potassium K	mg/L	33.6	35.5	37.3	32.6	32.9	36.6	38.7	42.0	44.2	45.9	47.6	49.0
Selenium Se	mg/L	0.00047	0.00047	0.00047	0.00049	0.00052	0.00056	0.00059	0.00061	0.00061	0.00061	0.00061	0.00061
Silicon SiO2	mg/L	3.40	3.54	3.68	3.37	3.47	3.83	4.04	4.34	4.50	4.62	4.74	4.83
Silver Ag	mg/L	0.0001094	0.0001088	0.0001084	0.0001188	0.0001291	0.0001385	0.0001435	0.0001486	0.0001481	0.0001463	0.0001447	0.0001431
Sodium Na	mg/L	40	41	43	39	40	44	46	49	51	52	54	55
Strontium Sr	mg/L	0.074	0.077	0.080	0.072	0.074	0.082	0.086	0.093	0.096	0.099	0.102	0.104
Tellurium Te	mg/L	0.026	0.026	0.025	0.027	0.028	0.030	0.031	0.031	0.030	0.030	0.029	0.028
Thallium Tl	mg/L	0.000042	0.000042	0.000043	0.000044	0.000046	0.000051	0.000053	0.000056	0.000056	0.000056	0.000056	0.000056
Thorium Th	mg/L	0.000041	0.000040	0.000039	0.000051	0.000059	0.000066	0.000072	0.000074	0.000073	0.000070	0.000068	0.000066
Tin Sn	mg/L	0.00147	0.00150	0.00154	0.00155	0.00168	0.00187	0.00200	0.00213	0.00217	0.00218	0.00220	0.00221
Titanium Ti	mg/L	0.0038	0.0038	0.0037	0.0040	0.0042	0.0045	0.0046	0.0047	0.0046	0.0045	0.0045	0.0044
Uranium U	mg/L	0.000067	0.000065	0.000063	0.000078	0.000088	0.000095	0.000100	0.000103	0.000101	0.000098	0.000095	0.000093
Vanadium V	mg/L	0.0026	0.0027	0.0028	0.0027	0.0028	0.0031	0.0033	0.0035	0.0036	0.0037	0.0038	0.0038
Zinc Zn	mg/L	0.0187	0.0197	0.0206	0.0183	0.0187	0.0208	0.0222	0.0240	0.0252	0.0260	0.0268	0.0275
Zirconium Zr	mg/L	0.0034	0.0033	0.0032	0.0037	0.0040	0.0043	0.0045	0.0046	0.0045	0.0043	0.0042	0.0041

Table I-4-d-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	652	668	684	589	573	612	624	654	679	698	716	733
TSS	mg/L	2.9	2.9	2.9	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L	0.00232	0.00230	0.00228									
Total CN	mg/L	0.022	0.022	0.022		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0031	0.0031	0.0030									
CNO	mg/L	2.56	2.54	2.51									
SCN	mg/L	0.116	0.115	0.114	0.092	0.084	0.086	0.084	0.084	0.084	0.083	0.082	0.082
Sulphate	mg/L	107.7	107.4	107.0	88.9	83.7	86.6	85.8	87.1	87.7	87.4	87.2	87.1
Chloride	mg/L	416	434	451	399	399	435	452	481	506	525	545	563
Total Ammonia	mg/L	0.497	0.503	0.509	0.892		0.051	0.061	0.030	0.042	0.054	0.066	0.077
Nitrate	mg/L	8.61	8.46	8.31	8.07	8.11	8.83	9.05	9.28	9.20	9.01	8.84	8.68
Nitrite	mg/L	0.436	0.460	0.484	0.138	0.208	0.027	0.044	0.042	0.074	0.106	0.137	0.165
Alkalinity	mg/L	63	62	62	53	51	53	53	53	53	52	52	52
OrthoPhosphate-P	mg/L	0.1595	0.1671	0.1749	0.1501	0.1478	0.1611	0.1673	0.1789	0.1895	0.1982	0.2070	0.2149
Phosphate-P	mg/L	0.1624	0.1700	0.1778	0.1535	0.1511	0.1645	0.1707	0.1823	0.1929	0.2016	0.2104	0.2183
Org. Carbon	mg/L	3.3	3.3	3.2	3.5	3.7	4.0	4.0	4.1	4.1	4.0	4.0	4.0
Hardness CaCO3	mg/L	124	123	122	103	98	101	100	101	101	100	99	98
Total Metals													
Aluminum Al	mg/L	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Antimony Sb	mg/L	0.0145	0.0149	0.0153	0.0143	0.0147	0.0160	0.0168	0.0176	0.0183	0.0187	0.0191	0.0195
Arsenic As	mg/L	0.0036	0.0036	0.0036	0.0031	0.0031	0.0032	0.0032	0.0033	0.0033	0.0033	0.0032	0.0032
Barium Ba	mg/L	0.0123	0.0122	0.0121	0.0101	0.0096	0.0099	0.0098	0.0099	0.0099	0.0098	0.0098	0.0097
Beryllium Be	mg/L	0.00068	0.00069	0.00070	0.00068	0.00070	0.00074	0.00077	0.00080	0.00081	0.00082	0.00082	0.00083
Bismuth Bi	mg/L	0.01377	0.01416	0.01457	0.01370	0.01409	0.01539	0.01614	0.01703	0.01764	0.01806	0.01849	0.01889
Boron B	mg/L	0.036	0.036	0.036	0.033	0.033	0.036	0.036	0.037	0.038	0.037	0.037	0.037
Cadmium Cd	mg/L	0.0000854	0.0000847	0.0000841	0.0000768	0.0000765	0.0000807	0.0000822	0.0000838	0.0000838	0.0000830	0.0000822	0.0000816
Calcium Ca	mg/L	289	287	285	231	214	219	214	215	215	213	211	209
Chromium Cr	mg/L	0.008	0.008	0.008	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0122	0.0121	0.0120	0.0098	0.0091	0.0094	0.0092	0.0093	0.0093	0.0093	0.0092	0.0092
Copper Cu	mg/L	0.0110	0.0109	0.0108	0.0089	0.0084	0.0086	0.0084	0.0085	0.0085	0.0084	0.0084	0.0083
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00055	0.00055	0.00055	0.00050	0.00050	0.00054	0.00055	0.00056	0.00057	0.00057	0.00057	0.00057
Lithium Li	mg/L	0.0054	0.0054	0.0054	0.0050	0.0049	0.0052	0.0052	0.0053	0.0054	0.0053	0.0053	0.0053
Magnesium Mg	mg/L	10.6	10.5	10.5	9.3	9.1	9.5	9.5	9.7	9.8	9.7	9.7	9.7
Manganese Mn	mg/L	0.033	0.033	0.033	0.027	0.025	0.026	0.025	0.026	0.026	0.026	0.025	0.025
Mercury Hg	mg/L	0.0000083	0.0000082	0.0000082	0.0000074	0.0000074	0.0000077	0.0000079	0.0000080	0.0000080	0.0000079	0.0000079	0.0000078
Molybdenum Mo	mg/L	0.01047	0.01038	0.01030	0.00834	0.00770	0.00787	0.00768	0.00772	0.00772	0.00765	0.00758	0.00752
Nickel Ni	mg/L	0.0097	0.0097	0.0097	0.0081	0.0077	0.0080	0.0079	0.0080	0.0081	0.0080	0.0080	0.0080
Phosphorus P	mg/L	0.274	0.281	0.289	0.251	0.247	0.265	0.272	0.286	0.298	0.306	0.315	0.323
Potassium K	mg/L	48.0	47.6	47.2	38.3	35.4	36.2	35.4	35.6	35.6	35.2	34.9	34.6
Selenium Se	mg/L	0.00060	0.00059	0.00059	0.00057	0.00057	0.00060	0.00061	0.00062	0.00062	0.00062	0.00061	0.00060
Silicon SiO2	mg/L	4.73	4.69	4.66	3.99	3.80	3.94	3.91	3.95	3.95	3.91	3.88	3.85
Silver Ag	mg/L	0.0001410	0.0001409	0.0001407	0.0001438	0.0001501	0.0001587	0.0001615	0.0001654	0.0001667	0.0001661	0.0001657	0.0001654
Sodium Na	mg/L	54	53	53	45	43	44	44	44	44	43	43	43
Strontium Sr	mg/L	0.102	0.101	0.101	0.085	0.081	0.083	0.083	0.083	0.084	0.083	0.082	0.082
Tellurium Te	mg/L	0.027	0.027	0.027	0.029	0.030	0.032	0.033	0.034	0.034	0.033	0.033	0.033
Thallium Tl	mg/L	0.000055	0.000054	0.000054	0.000052	0.000052	0.000055	0.000056	0.000057	0.000057	0.000056	0.000056	0.000055
Thorium Th	mg/L	0.000065	0.000064	0.000064	0.000069	0.000075	0.000081	0.000086	0.000089	0.000089	0.000088	0.000087	0.000086
Tin Sn	mg/L	0.00224	0.00230	0.00236	0.00224	0.00232	0.00254	0.00267	0.00281	0.00290	0.00296	0.00302	0.00308
Titanium Ti	mg/L	0.0043	0.0043	0.0043	0.0045	0.0047	0.0050	0.0051	0.0052	0.0052	0.0052	0.0052	0.0052
Uranium U	mg/L	0.000091	0.000090	0.000090	0.000098	0.000105	0.000113	0.000117	0.000120	0.000120	0.000119	0.000118	0.000118
Vanadium V	mg/L	0.0038	0.0038	0.0039	0.0036	0.0036	0.0038	0.0039	0.0041	0.0042	0.0042	0.0043	0.0043
Zinc Zn	mg/L	0.0270	0.0269	0.0267	0.0222	0.0208	0.0216	0.0215	0.0219	0.0220	0.0218	0.0217	0.0216
Zirconium Zr	mg/L	0.0040	0.0039	0.0039	0.0042	0.0045	0.0048	0.0050	0.0051	0.0051	0.0050	0.0050	0.0050

Table I-4-d-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	728	724	721	769	903	1140	1337	1583	1546	1535	1527	1521
TSS	mg/L	2.8	2.8	2.8	2.8	2.8	2.9	3.0	3.1	3.0	3.0	2.9	2.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.081	0.081	0.080	0.063	0.057	0.059	0.057	0.058	0.057	0.056	0.056	0.056
Sulphate	mg/L	86.4	86.0	85.5	67.7	62.1	63.8	62.4	63.1	61.6	61.2	60.8	60.6
Chloride	mg/L	558	556	553	552	624	770	886	1036	1012	1005	1000	996
Total Ammonia	mg/L	0.076	0.076	0.076	0.103	0.063	0.031	0.046	0.016	0.016	0.016	0.016	0.016
Nitrate	mg/L	8.52	8.38	8.24	7.55	7.48	7.98	8.15	8.38	8.07	7.91	7.76	7.62
Nitrite	mg/L	0.164	0.163	0.162		0.025	0.012	0.011	0.008	0.007	0.007	0.007	0.007
Alkalinity	mg/L	51	51	51	44	43	45	44	45	44	44	44	43
OrthoPhosphate-P	mg/L	0.2133	0.2123	0.2112	0.1659	0.1513	0.1553	0.1512	0.1528	0.1492	0.1482	0.1474	0.1468
Phosphate-P	mg/L	0.2166	0.2156	0.2144	0.1699	0.1553	0.1595	0.1554	0.1570	0.1533	0.1523	0.1514	0.1509
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.3	4.6	4.7	4.8	4.7	4.6	4.6	4.6
Hardness CaCO3	mg/L	97	97	96	81	77	81	80	81	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.08	0.08	0.08	0.07	0.08	0.08	0.09	0.09	0.09	0.09	0.08	0.08
Antimony Sb	mg/L	0.0193	0.0192	0.0191	0.0151	0.0138	0.0142	0.0138	0.0140	0.0137	0.0136	0.0135	0.0134
Arsenic As	mg/L	0.0032	0.0032	0.0032	0.0027	0.0026	0.0028	0.0028	0.0028	0.0028	0.0028	0.0027	0.0027
Barium Ba	mg/L	0.0096	0.0096	0.0095	0.0078	0.0073	0.0076	0.0075	0.0076	0.0074	0.0073	0.0073	0.0073
Beryllium Be	mg/L	0.00082	0.00082	0.00082	0.00071	0.00069	0.00072	0.00072	0.00073	0.00072	0.00071	0.00071	0.00070
Bismuth Bi	mg/L	0.01874	0.01865	0.01856	0.01459	0.01332	0.01368	0.01333	0.01347	0.01316	0.01307	0.01299	0.01294
Boron B	mg/L	0.037	0.037	0.037	0.033	0.033	0.035	0.035	0.036	0.035	0.035	0.035	0.035
Cadmium Cd	mg/L	0.0000810	0.0000806	0.0000802	0.0000732	0.0000733	0.0000782	0.0000802	0.0000825	0.0000806	0.0000800	0.0000796	0.0000793
Calcium Ca	mg/L	208	207	206	174	170	187	196	212	207	205	204	203
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004
Cobalt Co	mg/L	0.0091	0.0090	0.0090	0.0071	0.0065	0.0067	0.0065	0.0066	0.0065	0.0064	0.0064	0.0064
Copper Cu	mg/L	0.0082	0.0082	0.0082	0.0066	0.0061	0.0063	0.0062	0.0063	0.0062	0.0061	0.0061	0.0061
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Lead Pb	mg/L	0.00057	0.00056	0.00056	0.00049	0.00047	0.00050	0.00050	0.00051	0.00050	0.00050	0.00050	0.00049
Lithium Li	mg/L	0.0052	0.0052	0.0052	0.0047	0.0046	0.0049	0.0049	0.0050	0.0049	0.0048	0.0048	0.0048
Magnesium Mg	mg/L	9.6	9.5	9.5	8.2	7.9	8.3	8.3	8.5	8.3	8.2	8.2	8.1
Manganese Mn	mg/L	0.025	0.025	0.025	0.020	0.018	0.019	0.018	0.018	0.018	0.018	0.018	0.018
Mercury Hg	mg/L	0.0000078	0.0000077	0.0000077	0.0000072	0.0000072	0.0000077	0.0000079	0.0000081	0.0000079	0.0000078	0.0000078	0.0000078
Molybdenum Mo	mg/L	0.00746	0.00743	0.00739	0.00581	0.00531	0.00545	0.00531	0.00536	0.00524	0.00520	0.00517	0.00515
Nickel Ni	mg/L	0.0080	0.0079	0.0079	0.0063	0.0058	0.0060	0.0059	0.0059	0.0058	0.0058	0.0057	0.0057
Phosphorus P	mg/L	0.320	0.319	0.317	0.256	0.238	0.246	0.242	0.245	0.239	0.238	0.236	0.235
Potassium K	mg/L	34.3	34.2	34.0	27.0	24.7	25.4	24.8	25.1	24.5	24.3	24.2	24.1
Selenium Se	mg/L	0.00060	0.00060	0.00059	0.00059	0.00060	0.00064	0.00065	0.00067	0.00065	0.00065	0.00064	0.00064
Silicon SiO2	mg/L	3.82	3.80	3.79	3.22	3.08	3.22	3.20	3.26	3.18	3.16	3.14	3.13
Silver Ag	mg/L	0.0001641	0.0001633	0.0001625	0.0001580	0.0001611	0.0001693	0.0001703	0.0001740	0.0001699	0.0001688	0.0001678	0.0001672
Sodium Na	mg/L	42	42	42	97	155	229	298	378	369	366	364	363
Strontium Sr	mg/L	0.081	0.081	0.080	0.067	0.064	0.066	0.066	0.067	0.065	0.065	0.064	0.064
Tellurium Te	mg/L	0.033	0.032	0.032	0.034	0.035	0.038	0.039	0.039	0.039	0.038	0.038	0.038
Thallium Tl	mg/L	0.000055	0.000054	0.000054	0.000052	0.000052	0.000056	0.000057	0.000058	0.000057	0.000056	0.000056	0.000056
Thorium Th	mg/L	0.000086	0.000085	0.000085	0.000087	0.000093	0.000101	0.000107	0.000111	0.000108	0.000108	0.000107	0.000107
Tin Sn	mg/L	0.00306	0.00304	0.00303	0.00243	0.00226	0.00234	0.00231	0.00234	0.00229	0.00227	0.00226	0.00225
Titanium Ti	mg/L	0.0051	0.0051	0.0051	0.0052	0.0054	0.0057	0.0059	0.0060	0.0059	0.0058	0.0058	0.0058
Uranium U	mg/L	0.000117	0.000116	0.000116	0.000120	0.000127	0.000136	0.000141	0.000145	0.000142	0.000141	0.000140	0.000140
Vanadium V	mg/L	0.0043	0.0043	0.0042	0.0035	0.0033	0.0034	0.0034	0.0034	0.0033	0.0033	0.0033	0.0033
Zinc Zn	mg/L	0.0215	0.0214	0.0213	0.0170	0.0157	0.0163	0.0162	0.0165	0.0161	0.0160	0.0159	0.0159
Zirconium Zr	mg/L	0.0049	0.0049	0.0049	0.0051	0.0053	0.0057	0.0059	0.0061	0.0059	0.0059	0.0059	0.0058

Table I-4-d-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1515	1507	1499	1141	1028	900	880	817	822	816	812	809
TSS	mg/L	2.9	2.9	2.9	2.8	2.8	2.6	2.6	2.5	2.5	2.5	2.4	2.4
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.055	0.055	0.055	0.041	0.036	0.032	0.031	0.029	0.029	0.029	0.028	0.028
Sulphate	mg/L	60.4	60.1	59.7	45.3	40.8	35.8	35.0	32.5	32.7	32.5	32.3	32.2
Chloride	mg/L	992	987	981	739	663	579	565	524	527	524	521	519
Total Ammonia	mg/L	0.016	0.015	0.015	0.136	0.070	0.032	0.047	0.015	0.015	0.015	0.015	0.015
Nitrate	mg/L	7.48	7.34	7.19	6.47	6.49	5.96	6.19	5.88	5.81	5.66	5.52	5.40
Nitrite	mg/L	0.007	0.007	0.007	0.025	0.027	0.011	0.011	0.007	0.007	0.007	0.007	0.007
Alkalinity	mg/L	43	43	43	37	36	32	32	30	31	30	30	30
OrthoPhosphate-P	mg/L	0.1462	0.1455	0.1446	0.1083	0.0966	0.0844	0.0821	0.0762	0.0766	0.0761	0.0757	0.0754
Phosphate-P	mg/L	0.1503	0.1495	0.1487	0.1130	0.1013	0.0885	0.0863	0.0800	0.0805	0.0800	0.0795	0.0792
Org. Carbon	mg/L	4.6	4.6	4.5	4.6	4.8	4.4	4.5	4.2	4.2	4.2	4.2	4.2
Hardness CaCO3	mg/L	78	77	77	64	61	55	55	51	51	51	51	51
Total Metals													
Aluminum Al	mg/L	0.08	0.08	0.08	0.08	0.08	0.07	0.08	0.07	0.07	0.07	0.07	0.07
Antimony Sb	mg/L	0.0134	0.0133	0.0132	0.0100	0.0089	0.0078	0.0076	0.0071	0.0071	0.0071	0.0070	0.0070
Arsenic As	mg/L	0.0027	0.0027	0.0027	0.0023	0.0022	0.0020	0.0020	0.0019	0.0019	0.0019	0.0019	0.0019
Barium Ba	mg/L	0.0072	0.0072	0.0072	0.0057	0.0053	0.0047	0.0047	0.0044	0.0044	0.0044	0.0043	0.0043
Beryllium Be	mg/L	0.00070	0.00070	0.00069	0.00061	0.00059	0.00053	0.00053	0.00050	0.00050	0.00049	0.00049	0.00049
Bismuth Bi	mg/L	0.01289	0.01283	0.01276	0.00957	0.00855	0.00747	0.00729	0.00676	0.00680	0.00676	0.00672	0.00669
Boron B	mg/L	0.035	0.035	0.034	0.031	0.031	0.028	0.029	0.027	0.027	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000790	0.0000786	0.0000781	0.0000705	0.0000706	0.0000647	0.0000670	0.0000635	0.0000639	0.0000635	0.0000631	0.0000629
Calcium Ca	mg/L	203	202	200	151	136	119	116	108	108	108	107	107
Chromium Cr	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0063	0.0063	0.0063	0.0047	0.0043	0.0037	0.0036	0.0034	0.0034	0.0034	0.0034	0.0034
Copper Cu	mg/L	0.0060	0.0060	0.0060	0.0047	0.0043	0.0038	0.0038	0.0035	0.0035	0.0035	0.0035	0.0035
Iron Fe	mg/L	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00049	0.00049	0.00049	0.00042	0.00041	0.00037	0.00038	0.00036	0.00036	0.00036	0.00035	0.00035
Lithium Li	mg/L	0.0048	0.0047	0.0047	0.0043	0.0042	0.0038	0.0038	0.0036	0.0036	0.0036	0.0036	0.0036
Magnesium Mg	mg/L	8.1	8.1	8.0	6.9	6.7	6.0	6.1	5.7	5.7	5.7	5.6	5.6
Manganese Mn	mg/L	0.018	0.018	0.017	0.013	0.012	0.011	0.010	0.010	0.010	0.010	0.010	0.010
Mercury Hg	mg/L	0.0000077	0.0000077	0.0000076	0.0000070	0.0000071	0.0000065	0.0000067	0.0000063	0.0000064	0.0000063	0.0000063	0.0000063
Molybdenum Mo	mg/L	0.00513	0.00510	0.00508	0.00381	0.00341	0.00297	0.00290	0.00269	0.00270	0.00269	0.00267	0.00266
Nickel Ni	mg/L	0.0057	0.0057	0.0056	0.0044	0.0040	0.0035	0.0034	0.0032	0.0032	0.0032	0.0032	0.0032
Phosphorus P	mg/L	0.234	0.233	0.232	0.182	0.167	0.148	0.146	0.136	0.137	0.136	0.135	0.135
Potassium K	mg/L	24.0	23.9	23.8	18.1	16.3	14.3	14.0	13.0	13.1	13.0	12.9	12.9
Selenium Se	mg/L	0.00064	0.00064	0.00063	0.00061	0.00062	0.00057	0.00058	0.00055	0.00055	0.00055	0.00055	0.00055
Silicon SiO2	mg/L	3.12	3.10	3.09	2.61	2.49	2.23	2.24	2.10	2.12	2.10	2.09	2.08
Silver Ag	mg/L	0.0001665	0.0001657	0.0001647	0.0001593	0.0001623	0.0001457	0.0001473	0.0001384	0.0001393	0.0001383	0.0001376	0.0001371
Sodium Na	mg/L	361	360	358	271	243	213	208	193	194	193	192	191
Strontium Sr	mg/L	0.064	0.064	0.063	0.052	0.050	0.044	0.044	0.041	0.042	0.041	0.041	0.041
Tellurium Te	mg/L	0.038	0.038	0.037	0.038	0.039	0.036	0.037	0.035	0.035	0.035	0.034	0.034
Thallium Tl	mg/L	0.000056	0.000055	0.000055	0.000052	0.000052	0.000048	0.000049	0.000047	0.000047	0.000047	0.000046	0.000046
Thorium Th	mg/L	0.000106	0.000106	0.000105	0.000103	0.000107	0.000100	0.000106	0.000101	0.000101	0.000101	0.000100	0.000100
Tin Sn	mg/L	0.00224	0.00223	0.00222	0.00172	0.00159	0.00141	0.00140	0.00131	0.00131	0.00131	0.00130	0.00129
Titanium Ti	mg/L	0.0057	0.0057	0.0057	0.0057	0.0058	0.0053	0.0054	0.0051	0.0052	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000139	0.000138	0.000138	0.000137	0.000143	0.000131	0.000136	0.000129	0.000130	0.000129	0.000128	0.000128
Vanadium V	mg/L	0.0033	0.0032	0.0032	0.0026	0.0025	0.0022	0.0022	0.0020	0.0020	0.0020	0.0020	0.0020
Zinc Zn	mg/L	0.0158	0.0157	0.0156	0.0121	0.0110	0.0097	0.0099	0.0093	0.0093	0.0093	0.0092	0.0092
Zirconium Zr	mg/L	0.0058	0.0058	0.0058	0.0058	0.0060	0.0055	0.0057	0.0054	0.0054	0.0054	0.0053	0.0053

Table I-4-d-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	806	802	797	624	570	589	534	494	483	480	477	475
TSS	mg/L	2.4	2.4	2.4	2.4	2.5	2.7	2.5	2.4	2.3	2.3	2.3	2.3
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.028	0.028	0.028	0.021	0.019	0.019	0.017	0.016	0.016	0.016	0.016	0.015
Sulphate	mg/L	32.1	31.9	31.8	24.7	22.6	23.4	21.2	19.7	19.2	19.1	19.0	18.9
Chloride	mg/L	517	514	512	393	356	367	332	307	300	298	296	295
Total Ammonia	mg/L	0.015	0.015	0.015	0.132	0.068	0.036	0.049	0.016	0.016	0.015	0.015	0.015
Nitrate	mg/L	5.27	5.14	5.01	4.85	5.04	5.52	5.37	5.10	4.88	4.74	4.60	4.48
Nitrite	mg/L	0.007	0.007	0.007	0.025	0.026	0.013	0.012	0.007	0.007	0.007	0.007	0.007
Alkalinity	mg/L	30	30	30	27	28	29	27	25	25	25	25	24
OrthoPhosphate-P	mg/L	0.0751	0.0748	0.0743	0.0565	0.0508	0.0522	0.0470	0.0434	0.0424	0.0421	0.0419	0.0418
Phosphate-P	mg/L	0.0789	0.0785	0.0781	0.0610	0.0552	0.0569	0.0513	0.0474	0.0463	0.0460	0.0458	0.0456
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.8	4.6	4.3	4.2	4.1	4.1	4.1
Hardness CaCO3	mg/L	50	50	50	44	44	46	43	40	39	39	39	39
Total Metals													
Aluminum Al	mg/L	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.07
Antimony Sb	mg/L	0.0070	0.0070	0.0069	0.0053	0.0048	0.0050	0.0045	0.0042	0.0041	0.0040	0.0040	0.0040
Arsenic As	mg/L	0.0019	0.0019	0.0019	0.0017	0.0017	0.0018	0.0017	0.0016	0.0016	0.0016	0.0016	0.0016
Barium Ba	mg/L	0.0043	0.0043	0.0043	0.0036	0.0034	0.0036	0.0034	0.0031	0.0031	0.0030	0.0030	0.0030
Beryllium Be	mg/L	0.00049	0.00049	0.00048	0.00045	0.00045	0.00048	0.00045	0.00042	0.00041	0.00040	0.00040	0.00040
Bismuth Bi	mg/L	0.00667	0.00664	0.00660	0.00503	0.00454	0.00467	0.00422	0.00390	0.00381	0.00378	0.00376	0.00375
Boron B	mg/L	0.027	0.026	0.026	0.025	0.025	0.027	0.026	0.025	0.024	0.024	0.024	0.024
Cadmium Cd	mg/L	0.0000627	0.0000623	0.0000620	0.0000586	0.0000600	0.0000651	0.0000629	0.0000595	0.0000581	0.0000577	0.0000574	0.0000572
Calcium Ca	mg/L	106	106	105	81	73	76	69	63	62	62	61	61
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0033	0.0033	0.0033	0.0026	0.0023	0.0024	0.0022	0.0020	0.0020	0.0020	0.0020	0.0020
Copper Cu	mg/L	0.0035	0.0035	0.0034	0.0028	0.0027	0.0028	0.0026	0.0024	0.0023	0.0023	0.0023	0.0023
Iron Fe	mg/L	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05
Lead Pb	mg/L	0.00035	0.00035	0.00035	0.00032	0.00032	0.00034	0.00033	0.00031	0.00030	0.00030	0.00030	0.00030
Lithium Li	mg/L	0.0036	0.0035	0.0035	0.0034	0.0034	0.0036	0.0034	0.0032	0.0031	0.0031	0.0031	0.0031
Magnesium Mg	mg/L	5.6	5.6	5.5	5.1	5.1	5.4	5.1	4.8	4.6	4.6	4.6	4.6
Manganese Mn	mg/L	0.010	0.010	0.009	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006
Mercury Hg	mg/L	0.0000062	0.0000062	0.0000062	0.0000059	0.0000061	0.0000066	0.0000063	0.0000060	0.0000059	0.0000058	0.0000058	0.0000058
Molybdenum Mo	mg/L	0.00265	0.00264	0.00262	0.00200	0.00181	0.00186	0.00167	0.00155	0.00151	0.00150	0.00149	0.00149
Nickel Ni	mg/L	0.0031	0.0031	0.0031	0.0025	0.0023	0.0024	0.0022	0.0021	0.0020	0.0020	0.0020	0.0020
Phosphorus P	mg/L	0.134	0.134	0.133	0.109	0.102	0.107	0.099	0.092	0.090	0.090	0.089	0.089
Potassium K	mg/L	12.8	12.7	12.7	9.9	9.1	9.4	8.5	7.9	7.7	7.7	7.6	7.6
Selenium Se	mg/L	0.00054	0.00054	0.00054	0.00054	0.00056	0.00060	0.00058	0.00054	0.00053	0.00053	0.00052	0.00052
Silicon SiO2	mg/L	2.07	2.06	2.05	1.84	1.81	1.93	1.81	1.70	1.66	1.65	1.64	1.63
Silver Ag	mg/L	0.0001365	0.0001358	0.0001351	0.0001370	0.0001424	0.0001508	0.0001414	0.0001325	0.0001295	0.0001286	0.0001279	0.0001274
Sodium Na	mg/L	190	189	188	146	133	137	124	115	112	111	111	110
Strontium Sr	mg/L	0.041	0.041	0.040	0.035	0.035	0.036	0.034	0.032	0.031	0.031	0.031	0.031
Tellurium Te	mg/L	0.034	0.034	0.034	0.035	0.037	0.039	0.037	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000046	0.000046	0.000045	0.000045	0.000046	0.000050	0.000048	0.000045	0.000044	0.000043	0.000043	0.000043
Thorium Th	mg/L	0.000099	0.000099	0.000098	0.000098	0.000103	0.000113	0.000110	0.000104	0.000102	0.000101	0.000101	0.000100
Tin Sn	mg/L	0.00129	0.00128	0.00128	0.00103	0.00098	0.00103	0.00095	0.00089	0.00087	0.00086	0.00086	0.00086
Titanium Ti	mg/L	0.0051	0.0050	0.0050	0.0052	0.0054	0.0057	0.0055	0.0051	0.0050	0.0050	0.0050	0.0049
Uranium U	mg/L	0.000127	0.000126	0.000126	0.000128	0.000135	0.000146	0.000140	0.000132	0.000129	0.000128	0.000127	0.000127
Vanadium V	mg/L	0.0020	0.0020	0.0020	0.0017	0.0016	0.0017	0.0016	0.0015	0.0014	0.0014	0.0014	0.0014
Zinc Zn	mg/L	0.0091	0.0091	0.0090	0.0072	0.0067	0.0070	0.0068	0.0064	0.0062	0.0062	0.0061	0.0061
Zirconium Zr	mg/L	0.0053	0.0053	0.0052	0.0054	0.0056	0.0061	0.0058	0.0055	0.0054	0.0053	0.0053	0.0053

Table I-4-d-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	473	471	468	374	345	305	301	306	299	297	295	294
TSS	mg/L	2.3	2.3	2.3	2.3	2.4	2.2	2.3	2.3	2.3	2.3	2.2	2.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.015	0.015	0.015	0.011	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008
Sulphate	mg/L	18.8	18.7	18.6	14.4	13.1	11.5	11.3	11.4	11.2	11.1	11.0	11.0
Chloride	mg/L	294	292	291	225	205	180	177	179	175	174	173	172
Total Ammonia	mg/L	0.015	0.015	0.015		0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	4.36	4.23	4.10	3.08	2.75	2.40	2.34	2.36	2.20	2.07	1.96	1.84
Nitrite	mg/L	0.007	0.007	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	24	24	24	23	24	22	22	22	22	22	22	22
OrthoPhosphate-P	mg/L	0.0416	0.0414	0.0411	0.0313	0.0281	0.0246	0.0240	0.0243	0.0237	0.0236	0.0234	0.0233
Phosphate-P	mg/L	0.0454	0.0452	0.0449	0.0358	0.0325	0.0286	0.0280	0.0283	0.0277	0.0275	0.0273	0.0272
Org. Carbon	mg/L	4.1	4.1	4.0	4.2	4.5	4.1	4.2	4.3	4.2	4.2	4.1	4.1
Hardness CaCO3	mg/L	39	38	38	35	36	32	33	34	33	33	33	32
Total Metals													
Aluminum Al	mg/L	0.07	0.07	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0040	0.0040	0.0039	0.0030	0.0027	0.0024	0.0023	0.0024	0.0023	0.0023	0.0023	0.0023
Arsenic As	mg/L	0.0015	0.0015	0.0015	0.0012	0.0011	0.0010	0.0009	0.0010	0.0009	0.0009	0.0009	0.0009
Barium Ba	mg/L	0.0030	0.0030	0.0030	0.0026	0.0025	0.0022	0.0023	0.0023	0.0023	0.0023	0.0022	0.0022
Beryllium Be	mg/L	0.00040	0.00040	0.00040	0.00034	0.00032	0.00028	0.00027	0.00028	0.00027	0.00027	0.00027	0.00027
Bismuth Bi	mg/L	0.00373	0.00372	0.00370	0.00278	0.00248	0.00217	0.00211	0.00213	0.00208	0.00207	0.00206	0.00205
Boron B	mg/L	0.024	0.023	0.023	0.020	0.020	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Cadmium Cd	mg/L	0.0000570	0.0000567	0.0000564	0.0000428	0.0000384	0.0000337	0.0000329	0.0000332	0.0000325	0.0000322	0.0000321	0.0000319
Calcium Ca	mg/L	61	60	60	46	42	37	36	36	36	35	35	35
Chromium Cr	mg/L	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0019	0.0019	0.0019	0.0015	0.0013	0.0012	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Copper Cu	mg/L	0.0023	0.0023	0.0023	0.0019	0.0018	0.0016	0.0016	0.0016	0.0016	0.0016	0.0015	0.0015
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00029	0.00029	0.00029	0.00023	0.00021	0.00019	0.00018	0.00018	0.00018	0.00018	0.00018	0.00018
Lithium Li	mg/L	0.0031	0.0031	0.0030	0.0030	0.0030	0.0028	0.0028	0.0029	0.0028	0.0028	0.0028	0.0028
Magnesium Mg	mg/L	4.5	4.5	4.5	4.2	4.3	3.9	4.0	4.1	4.0	4.0	3.9	3.9
Manganese Mn	mg/L	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Mercury Hg	mg/L	0.0000057	0.0000057	0.0000057	0.0000046	0.0000043	0.0000038	0.0000038	0.0000039	0.0000038	0.0000038	0.0000037	0.0000037
Molybdenum Mo	mg/L	0.00148	0.00147	0.00147	0.00112	0.00102	0.00089	0.00087	0.00088	0.00086	0.00085	0.00085	0.00085
Nickel Ni	mg/L	0.0020	0.0020	0.0019	0.0016	0.0015	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012
Phosphorus P	mg/L	0.089	0.088	0.088	0.068	0.061	0.053	0.052	0.052	0.051	0.051	0.051	0.050
Potassium K	mg/L	7.6	7.5	7.5	6.0	5.5	4.9	4.8	4.9	4.8	4.7	4.7	4.7
Selenium Se	mg/L	0.00052	0.00052	0.00051	0.00048	0.00047	0.00043	0.00043	0.00044	0.00043	0.00043	0.00042	0.00042
Silicon SiO2	mg/L	1.62	1.62	1.61	1.40	1.34	1.20	1.20	1.23	1.20	1.19	1.18	1.18
Silver Ag	mg/L	0.0001269	0.0001262	0.0001255	0.0001146	0.0001124	0.0000983	0.0000959	0.0000969	0.0000946	0.0000939	0.0000934	0.0000931
Sodium Na	mg/L	110	109	109	85	78	69	68	69	67	67	67	66
Strontium Sr	mg/L	0.030	0.030	0.030	0.027	0.027	0.024	0.025	0.026	0.025	0.025	0.025	0.025
Tellurium Te	mg/L	0.034	0.033	0.033	0.035	0.036	0.033	0.034	0.035	0.034	0.034	0.034	0.034
Thallium Tl	mg/L	0.000043	0.000043	0.000042	0.000038	0.000037	0.000033	0.000033	0.000034	0.000033	0.000033	0.000033	0.000033
Thorium Th	mg/L	0.000100	0.000100	0.000099	0.000075	0.000068	0.000059	0.000058	0.000058	0.000057	0.000057	0.000056	0.000056
Tin Sn	mg/L	0.00085	0.00085	0.00084	0.00065	0.00061	0.00055	0.00054	0.00055	0.00054	0.00053	0.00053	0.00053
Titanium Ti	mg/L	0.0049	0.0049	0.0049	0.0051	0.0052	0.0048	0.0049	0.0050	0.0049	0.0049	0.0048	0.0048
Uranium U	mg/L	0.000126	0.000126	0.000125	0.000105	0.000099	0.000087	0.000085	0.000085	0.000083	0.000083	0.000082	0.000082
Vanadium V	mg/L	0.0014	0.0014	0.0014	0.0012	0.0011	0.0010	0.0010	0.0010	0.0009	0.0009	0.0009	0.0009
Zinc Zn	mg/L	0.0061	0.0061	0.0060	0.0047	0.0043	0.0038	0.0040	0.0042	0.0041	0.0040	0.0040	0.0040
Zirconium Zr	mg/L	0.0053	0.0052	0.0052	0.0049	0.0049	0.0044	0.0045	0.0046	0.0045	0.0045	0.0044	0.0044

Table I-4-d-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	293	291	289	239	225	199	198	185	186	185	184	183
TSS	mg/L	2.2	2.2	2.2	2.3	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.008	0.008	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004
Sulphate	mg/L	11.0	10.9	10.8	8.5	7.8	6.9	6.8	6.3	6.4	6.3	6.3	6.3
Chloride	mg/L	172	171	170	134	124	109	108	100	101	100	100	99
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.73	1.61	1.49	1.11	0.99	0.87	0.84	0.78	0.68	0.57	0.46	0.35
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	21	21	21	21	22	20	20	19	19	19	19	19
OrthoPhosphate-P	mg/L	0.0233	0.0231	0.0230	0.0176	0.0158	0.0139	0.0136	0.0126	0.0127	0.0126	0.0125	0.0125
Phosphate-P	mg/L	0.0271	0.0270	0.0268	0.0221	0.0203	0.0179	0.0176	0.0163	0.0164	0.0163	0.0162	0.0162
Org. Carbon	mg/L	4.1	4.1	4.1	4.3	4.5	4.1	4.2	3.9	4.0	3.9	3.9	3.9
Hardness CaCO3	mg/L	32	32	32	31	32	29	29	28	28	28	28	27
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03
Antimony Sb	mg/L	0.0023	0.0023	0.0022	0.0017	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012
Arsenic As	mg/L	0.0009	0.0009	0.0009	0.0007	0.0007	0.0006	0.0006	0.0005	0.0006	0.0005	0.0005	0.0005
Barium Ba	mg/L	0.0022	0.0022	0.0022	0.0020	0.0020	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017
Beryllium Be	mg/L	0.00026	0.00026	0.00026	0.00024	0.00023	0.00020	0.00020	0.00018	0.00018	0.00018	0.00018	0.00018
Bismuth Bi	mg/L	0.00204	0.00203	0.00202	0.00151	0.00135	0.00118	0.00115	0.00106	0.00107	0.00106	0.00106	0.00105
Boron B	mg/L	0.018	0.017	0.017	0.016	0.016	0.014	0.015	0.014	0.014	0.014	0.014	0.014
Cadmium Cd	mg/L	0.0000318	0.0000317	0.0000315	0.0000240	0.0000216	0.0000189	0.0000185	0.0000172	0.0000173	0.0000172	0.0000171	0.0000170
Calcium Ca	mg/L	35	35	35	27	25	22	21	20	20	20	20	20
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0011	0.0011	0.0011	0.0008	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Copper Cu	mg/L	0.0015	0.0015	0.0015	0.0013	0.0013	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00018	0.00017	0.00017	0.00014	0.00013	0.00012	0.00011	0.00010	0.00011	0.00010	0.00010	0.00010
Lithium Li	mg/L	0.0028	0.0027	0.0027	0.0028	0.0028	0.0026	0.0026	0.0025	0.0025	0.0025	0.0025	0.0025
Magnesium Mg	mg/L	3.9	3.9	3.9	3.8	3.8	3.5	3.6	3.4	3.4	3.4	3.4	3.4
Manganese Mn	mg/L	0.004	0.004	0.004	0.003	0.003	0.002	0.003	0.002	0.002	0.002	0.002	0.002
Mercury Hg	mg/L	0.0000037	0.0000037	0.0000037	0.0000031	0.0000030	0.0000027	0.0000027	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025
Molybdenum Mo	mg/L	0.00084	0.00084	0.00083	0.00065	0.00059	0.00052	0.00051	0.00047	0.00047	0.00047	0.00047	0.00046
Nickel Ni	mg/L	0.0012	0.0012	0.0012	0.0010	0.0010	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Phosphorus P	mg/L	0.050	0.050	0.050	0.039	0.035	0.031	0.030	0.028	0.028	0.028	0.028	0.028
Potassium K	mg/L	4.7	4.7	4.6	3.8	3.6	3.2	3.2	3.0	3.0	3.0	2.9	2.9
Selenium Se	mg/L	0.00042	0.00042	0.00042	0.00041	0.00041	0.00037	0.00037	0.00035	0.00035	0.00035	0.00035	0.00035
Silicon SiO2	mg/L	1.17	1.17	1.16	1.06	1.04	0.93	0.95	0.89	0.89	0.89	0.88	0.88
Silver Ag	mg/L	0.0000927	0.0000922	0.0000917	0.0000892	0.0000898	0.0000783	0.0000763	0.0000708	0.0000712	0.0000707	0.0000704	0.0000701
Sodium Na	mg/L	66	66	65	53	49	43	43	40	40	40	40	40
Strontium Sr	mg/L	0.024	0.024	0.024	0.023	0.023	0.021	0.022	0.020	0.020	0.020	0.020	0.020
Tellurium Te	mg/L	0.034	0.034	0.033	0.035	0.036	0.033	0.034	0.032	0.033	0.032	0.032	0.032
Thallium Tl	mg/L	0.000033	0.000032	0.000032	0.000030	0.000030	0.000027	0.000028	0.000026	0.000026	0.000026	0.000026	0.000026
Thorium Th	mg/L	0.000056	0.000056	0.000055	0.000042	0.000038	0.000033	0.000033	0.000030	0.000030	0.000030	0.000030	0.000030
Tin Sn	mg/L	0.00053	0.00052	0.00052	0.00041	0.00040	0.00035	0.00036	0.00033	0.00034	0.00033	0.00033	0.00033
Titanium Ti	mg/L	0.0048	0.0048	0.0048	0.0050	0.0051	0.0047	0.0048	0.0045	0.0046	0.0045	0.0045	0.0045
Uranium U	mg/L	0.000082	0.000081	0.000081	0.000071	0.000069	0.000060	0.000059	0.000055	0.000055	0.000055	0.000054	0.000054
Vanadium V	mg/L	0.0009	0.0009	0.0009	0.0008	0.0008	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006
Zinc Zn	mg/L	0.0040	0.0040	0.0039	0.0031	0.0029	0.0026	0.0028	0.0027	0.0027	0.0027	0.0027	0.0027
Zirconium Zr	mg/L	0.0044	0.0044	0.0044	0.0043	0.0043	0.0039	0.0040	0.0038	0.0038	0.0038	0.0037	0.0037

Table I-4-d-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	182	181	180	158	153	161	149	139	136	135	134	134
TSS	mg/L	2.1	2.1	2.0	2.2	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.1
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Sulphate	mg/L	6.2	6.2	6.2	5.1	4.8	5.0	4.6	4.3	4.2	4.1	4.1	4.1
Chloride	mg/L	99	98	98	81	76	80	74	68	67	66	66	66
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	0.24	0.14	0.03	0.03	0.02	0.03	0.02	0.02	0.000	0.000	0.000	0.000
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	19	19	19	19	20	22	20	19	19	19	18	18
OrthoPhosphate-P	mg/L	0.0124	0.0124	0.0123	0.0097	0.0088	0.0091	0.0083	0.0077	0.0075	0.0075	0.0074	0.0074
Phosphate-P	mg/L	0.0161	0.0160	0.0159	0.0141	0.0132	0.0138	0.0125	0.0116	0.0113	0.0113	0.0112	0.0112
Org. Carbon	mg/L	3.9	3.9	3.9	4.1	4.4	4.7	4.4	4.1	4.0	4.0	4.0	4.0
Hardness CaCO3	mg/L	27	27	27	27	28	30	29	27	26	26	26	26
Total Metals													
Aluminum Al	mg/L	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0012	0.0012	0.0012	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008
Arsenic As	mg/L	0.0005	0.0005	0.0005	0.0004	0.0004	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Barium Ba	mg/L	0.0017	0.0017	0.0017	0.0016	0.0016	0.0018	0.0017	0.0016	0.0015	0.0015	0.0015	0.0015
Beryllium Be	mg/L	0.00018	0.00018	0.00018	0.00017	0.00018	0.00018	0.00016	0.00015	0.00015	0.00014	0.00014	0.00014
Bismuth Bi	mg/L	0.00105	0.00104	0.00104	0.00079	0.00071	0.00073	0.00066	0.00061	0.00059	0.00059	0.00058	0.00058
Boron B	mg/L	0.014	0.013	0.013	0.013	0.013	0.014	0.013	0.013	0.012	0.012	0.012	0.012
Cadmium Cd	mg/L	0.0000170	0.0000169	0.0000168	0.0000132	0.0000121	0.0000125	0.0000113	0.0000105	0.0000102	0.0000102	0.0000101	0.0000101
Calcium Ca	mg/L	19	19	19	16	15	15	14	13	13	13	12	12
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0006	0.0006	0.0006	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Copper Cu	mg/L	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009
Iron Fe	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00010	0.00010	0.00010	0.00009	0.00008	0.00009	0.00008	0.00007	0.00007	0.00007	0.00007	0.00007
Lithium Li	mg/L	0.0024	0.0024	0.0024	0.0025	0.0026	0.0028	0.0027	0.0025	0.0024	0.0024	0.0024	0.0024
Magnesium Mg	mg/L	3.3	3.3	3.3	3.4	3.5	3.8	3.6	3.4	3.3	3.3	3.2	3.2
Manganese Mn	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Mercury Hg	mg/L	0.0000024	0.0000024	0.0000024	0.0000022	0.0000022	0.0000023	0.0000021	0.0000020	0.0000019	0.0000019	0.0000019	0.0000019
Molybdenum Mo	mg/L	0.00046	0.00046	0.00046	0.00037	0.00034	0.00036	0.00032	0.00030	0.00029	0.00029	0.00029	0.00029
Nickel Ni	mg/L	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Phosphorus P	mg/L	0.028	0.027	0.027	0.022	0.020	0.021	0.019	0.018	0.017	0.017	0.017	0.017
Potassium K	mg/L	2.9	2.9	2.9	2.5	2.4	2.6	2.4	2.2	2.2	2.2	2.2	2.1
Selenium Se	mg/L	0.00035	0.00034	0.00034	0.00035	0.00036	0.00038	0.00036	0.00034	0.00033	0.00033	0.00032	0.00032
Silicon SiO2	mg/L	0.87	0.87	0.86	0.84	0.84	0.90	0.85	0.79	0.77	0.77	0.76	0.76
Silver Ag	mg/L	0.0000698	0.0000695	0.0000691	0.0000721	0.0000745	0.0000765	0.0000689	0.0000637	0.0000622	0.0000618	0.0000615	0.0000612
Sodium Na	mg/L	40	39	39	33	32	33	31	29	28	28	28	28
Strontium Sr	mg/L	0.020	0.020	0.020	0.020	0.020	0.022	0.021	0.019	0.019	0.019	0.019	0.019
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.035	0.038	0.036	0.034	0.033	0.033	0.033	0.033
Thallium Tl	mg/L	0.000025	0.000025	0.000025	0.000025	0.000025	0.000027	0.000026	0.000024	0.000023	0.000023	0.000023	0.000023
Thorium Th	mg/L	0.000030	0.000030	0.000029	0.000023	0.000021	0.000022	0.000020	0.000018	0.000018	0.000018	0.000018	0.000018
Tin Sn	mg/L	0.00033	0.00033	0.00033	0.00027	0.00027	0.00029	0.00027	0.00025	0.00025	0.00024	0.00024	0.00024
Titanium Ti	mg/L	0.0045	0.0045	0.0044	0.0047	0.0049	0.0053	0.0050	0.0047	0.0046	0.0046	0.0046	0.0045
Uranium U	mg/L	0.000054	0.000054	0.000054	0.000051	0.000051	0.000052	0.000048	0.000044	0.000043	0.000043	0.000042	0.000042
Vanadium V	mg/L	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005
Zinc Zn	mg/L	0.0027	0.0027	0.0026	0.0022	0.0020	0.0022	0.0023	0.0022	0.0022	0.0021	0.0021	0.0021
Zirconium Zr	mg/L	0.0037	0.0037	0.0037	0.0038	0.0039	0.0041	0.0039	0.0037	0.0036	0.0036	0.0036	0.0035

Table I-4-d-A.2
Scenario 3 - Sediment Control Optio

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	133	133	132	121	120	108	110	103	104	103	102
TSS	mg/L	2.1	2.1	2.1	2.2	2.3	2.1	2.2	2.0	2.0	2.0	2.0
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Sulphate	mg/L	4.1	4.1	4.0	3.4	3.3	3.0	3.0	2.8	2.8	2.8	2.8
Chloride	mg/L	65	65	65	55	54	48	49	46	46	46	45
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	18	18	18	19	20	18	19	17	18	17	17
OrthoPhosphate-P	mg/L	0.0074	0.0073	0.0073	0.0059	0.0054	0.0048	0.0048	0.0044	0.0045	0.0044	0.0044
Phosphate-P	mg/L	0.0111	0.0111	0.0110	0.0103	0.0098	0.0088	0.0087	0.0081	0.0082	0.0081	0.0081
Org. Carbon	mg/L	4.0	3.9	3.9	4.2	4.4	4.0	4.1	3.9	3.9	3.9	3.8
Hardness CaCO3	mg/L	26	26	26	26	27	25	26	24	25	24	24
Total Metals												
Aluminum Al	mg/L	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0008	0.0008	0.0008	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic As	mg/L	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Barium Ba	mg/L	0.0015	0.0015	0.0015	0.0015	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014	0.0013
Beryllium Be	mg/L	0.00014	0.00014	0.00014	0.00015	0.00015	0.00013	0.00013	0.00012	0.00012	0.00012	0.00012
Bismuth Bi	mg/L	0.00058	0.00058	0.00057	0.00044	0.00039	0.00034	0.00033	0.00031	0.00031	0.00031	0.00031
Boron B	mg/L	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011	0.011
Cadmium Cd	mg/L	0.0000100	0.0000100	0.0000099	0.0000080	0.0000074	0.0000065	0.0000065	0.0000060	0.0000060	0.0000060	0.0000060
Calcium Ca	mg/L	12	12	12	10	10	9	9	8	8	8	8
Chromium Cr	mg/L	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cobalt Co	mg/L	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Copper Cu	mg/L	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007
Iron Fe	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00005	0.00005	0.00005	0.00005
Lithium Li	mg/L	0.0024	0.0024	0.0024	0.0025	0.0026	0.0024	0.0024	0.0023	0.0023	0.0023	0.0023
Magnesium Mg	mg/L	3.2	3.2	3.2	3.3	3.4	3.1	3.2	3.0	3.1	3.0	3.0
Manganese Mn	mg/L	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Mercury Hg	mg/L	0.0000019	0.0000019	0.0000019	0.0000018	0.0000018	0.0000016	0.0000017	0.0000016	0.0000016	0.0000016	0.0000015
Molybdenum Mo	mg/L	0.00029	0.00029	0.00028	0.00024	0.00022	0.00020	0.00020	0.00018	0.00019	0.00018	0.00018
Nickel Ni	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Phosphorus P	mg/L	0.017	0.017	0.017	0.014	0.013	0.012	0.012	0.011	0.011	0.011	0.011
Potassium K	mg/L	2.1	2.1	2.1	1.9	1.9	1.7	1.8	1.7	1.7	1.7	1.6
Selenium Se	mg/L	0.00032	0.00032	0.00032	0.00033	0.00034	0.00031	0.00032	0.00030	0.00030	0.00030	0.00030
Silicon SiO2	mg/L	0.76	0.75	0.75	0.75	0.77	0.70	0.72	0.67	0.68	0.67	0.67
Silver Ag	mg/L	0.0000610	0.0000607	0.0000603	0.0000657	0.0000688	0.0000602	0.0000587	0.0000545	0.0000549	0.0000545	0.0000542
Sodium Na	mg/L	28	27	27	24	24	21	22	20	20	20	20
Strontium Sr	mg/L	0.019	0.019	0.018	0.018	0.019	0.018	0.018	0.017	0.017	0.017	0.017
Tellurium Te	mg/L	0.032	0.032	0.032	0.034	0.036	0.033	0.034	0.032	0.032	0.032	0.031
Thallium Tl	mg/L	0.000023	0.000023	0.000023	0.000023	0.000024	0.000022	0.000022	0.000021	0.000021	0.000021	0.000021
Thorium Th	mg/L	0.000018	0.000018	0.000017	0.000014	0.000013	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011
Tin Sn	mg/L	0.00024	0.00024	0.00024	0.00020	0.00021	0.00019	0.00020	0.00019	0.00019	0.00019	0.00019
Titanium Ti	mg/L	0.0045	0.0045	0.0045	0.0048	0.0049	0.0045	0.0047	0.0044	0.0044	0.0044	0.0044
Uranium U	mg/L	0.000042	0.000042	0.000042	0.000042	0.000043	0.000038	0.000037	0.000034	0.000035	0.000034	0.000034
Vanadium V	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Zinc Zn	mg/L	0.0021	0.0021	0.0021	0.0017	0.0016	0.0015	0.0018	0.0017	0.0018	0.0017	0.0017
Zirconium Zr	mg/L	0.0035	0.0035	0.0035	0.0036	0.0037	0.0034	0.0035	0.0033	0.0033	0.0033	0.0033

Appendix I

Table I-4-d-A.3
Scenario 3 - Sediment Control Option 4

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	117442	101234	86389	86424	83234	78530	81148	81148	73295
TSS	183	177	183	1239	685	341	375	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18777	17356	15517	15450	14847	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	71048	57314	58180	52622	47526	49110	49110	44357
Total Ammonia	149	145	149	471	351	234	255	188	145	149	149	135
Nitrate	758	733	758	3302	2351	1429	1592	1057	733	758	758	684
Nitrite	116	112	116	172	153	132	132	123	112	116	116	105
Alkalinity	6928	6704	6928	15548	12117	8343	8349	7362	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1171.73	314.49	328.91	86.92				
Hardness CaCO3	14992	14508	14992	26182	22190	16931	17008	15652	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	32.57	20.31	12.72	13.28	7.47	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.73	3.48	2.24	2.46	1.73	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	1.00	0.78	0.55	0.58	0.46	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.33	2.03	1.77	1.74	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.29	0.19	0.10	0.11	0.07	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.61	3.35	2.12	2.33	1.63	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	13.40	9.31	5.32	5.77	3.79	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.03	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42935	42652	41363	40255	40823	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.38	1.30	1.13	1.08	1.05	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.91	1.85	1.75	1.71	1.71	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.92	1.74	1.55	1.52	1.49	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	24.62	13.60	10.13	10.47	6.36	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.19	0.14	0.09	0.09	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.90	1.19	0.71	0.76	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2944	2137	1482	1494	1213	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.24	5.02	4.82	4.78	4.67	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.84	1.62	1.40	1.39	1.32	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	55	46	39	39	36	32	33	33	30
Potassium K	6696	6480	6696	7139	7048	6799	6637	6741	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.27	0.16	0.08	0.09	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	1110	864	669	682	601	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.08	0.05	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11765	9539	7318	7367	6677	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.80	8.45	2.66	3.34	0.90	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Thorium Th				0.05	0.03	0.01	0.02	0.01				
Tin Sn	0.18	0.18	0.18	0.80	0.60	0.35	0.39	0.26	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.48	1.26	0.48	0.58	0.23	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.07	0.04	0.01	0.02	0.01	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.21	0.87	0.55	0.58	0.45	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.7	4.3	3.9	4.3	3.8	3.4	3.5	3.5	3.2
Zirconium Zr				2.71	1.42	0.51	0.64	0.20				

Appendix I

Table I-4-d-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)													
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09	
Parameter													
TDS	81148	78530	81148	117011	101009	86327	86328	83208	78530	81148	81148	73295	
TSS	183	177	183	1227	680	339	372	235	177	183	183	166	
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99	
Total CN	11	10	11	11	11	11	10	11	10	11	11	10	
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32	
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093	
SCN	16	16	16	16	16	16	16	16	16	16	16	15	
Sulphate	14302	13840	14302	18769	17351	15516	15447	14846	13840	14302	14302	12918	
Chloride	49110	47526	49110	82247	70972	57293	58150	52614	47526	49110	49110	44357	
Total Ammonia	149	145	149	471	351	234	255	188	145	149	149	135	
Nitrate	758	733	758	3302	2351	1429	1592	1057	733	758	758	684	
Nitrite	116	112	116	172	153	132	132	123	112	116	116	105	
Alkalinity	6928	6704	6928	15450	12059	8326	8329	7357	6704	6928	6928	6257	
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19	
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19	
Org. Carbon				2098.99	1158.56	310.77	324.90	85.83					
Hardness CaCO3	14992	14508	14992	26053	22109	16908	16978	15644	14508	14992	14992	13541	
Total Metals													
Aluminum Al	4.47	4.33	4.47	32.51	20.29	12.69	13.26	7.47	4.33	4.47	4.47	4.04	
Antimony Sb	1.32	1.28	1.32	4.73	3.48	2.24	2.46	1.73	1.28	1.32	1.32	1.19	
Arsenic As	0.39	0.38	0.39	1.00	0.78	0.55	0.58	0.46	0.38	0.39	0.39	0.36	
Barium Ba	1.56	1.51	1.56	2.32	2.02	1.76	1.74	1.63	1.51	1.56	1.56	1.41	
Beryllium Be	0.05	0.05	0.05	0.29	0.19	0.10	0.11	0.07	0.05	0.05	0.05	0.04	
Bismuth Bi	1.23	1.19	1.23	4.61	3.35	2.12	2.33	1.63	1.19	1.23	1.23	1.11	
Boron B	2.80	2.71	2.80	13.35	9.28	5.31	5.76	3.79	2.71	2.80	2.80	2.53	
Cadmium Cd	0.01	0.01	0.01	0.03	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	
Calcium Ca	40484	39178	40484	42914	42641	41358	40250	40822	39178	40484	40484	36566	
Chromium Cr	1.02	0.99	1.02	1.38	1.30	1.13	1.08	1.05	0.99	1.02	1.02	0.92	
Cobalt Co	1.67	1.62	1.67	1.91	1.85	1.75	1.71	1.71	1.62	1.67	1.67	1.51	
Copper Cu	1.46	1.41	1.46	1.92	1.74	1.55	1.52	1.49	1.41	1.46	1.46	1.32	
Iron Fe	4.63	4.48	4.63	24.46	13.54	10.08	10.42	6.35	4.48	4.63	4.63	4.18	
Lead Pb	0.05	0.05	0.05	0.19	0.14	0.09	0.09	0.06	0.05	0.05	0.05	0.04	
Lithium Li	0.46	0.45	0.46	1.89	1.18	0.71	0.75	0.55	0.45	0.46	0.46	0.42	
Magnesium Mg	1082	1047	1082	2928	2128	1478	1490	1212	1047	1082	1082	977	
Manganese Mn	4.56	4.41	4.56	5.24	5.01	4.82	4.77	4.67	4.41	4.56	4.56	4.12	
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34	
Nickel Ni	1.26	1.22	1.26	1.83	1.62	1.40	1.39	1.32	1.22	1.26	1.26	1.14	
Phosphorus P	33	32	33	55	46	39	39	36	32	33	33	30	
Potassium K	6696	6480	6696	7133	7045	6798	6635	6740	6480	6696	6696	6048	
Selenium Se	0.04	0.04	0.04	0.27	0.16	0.08	0.09	0.05	0.04	0.04	0.04	0.03	
Silicon SiO2	556	538	556	1106	862	669	681	601	538	556	556	502	
Silver Ag	0.01	0.01	0.01	0.08	0.05	0.02	0.02	0.01	0.01	0.01	0.01	0.01	
Sodium Na	6353	6148	6353	11703	9504	7307	7352	6673	6148	6353	6353	5739	
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11	
Tellurium Te	0.02	0.02	0.02	17.60	8.35	2.63	3.30	0.89	0.02	0.02	0.02	0.02	
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	
Thorium Th				0.05	0.03	0.01	0.02	0.01					
Tin Sn	0.18	0.18	0.18	0.80	0.60	0.35	0.39	0.26	0.18	0.18	0.18	0.16	
Titanium Ti	0.10	0.09	0.10	2.45	1.25	0.48	0.57	0.23	0.09	0.10	0.10	0.09	
Uranium U	0.00	0.00	0.00	0.07	0.04	0.01	0.02	0.01	0.00	0.00	0.00	0.00	
Vanadium V	0.36	0.35	0.36	1.21	0.87	0.55	0.58	0.45	0.35	0.36	0.36	0.33	
Zinc Zn	3.5	3.4	3.5	4.7	4.3	3.9	4.3	3.8	3.4	3.5	3.5	3.2	
Zirconium Zr				2.69	1.41	0.51	0.64	0.20					

Appendix I

Table I-4-d-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	87387	70473	55832	56817	52721	49028	50662	50662	45759
TSS				1046	495	155	195	51				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	6073	4275	2477	2821	1822	1247	1289	1289	1164
Chloride	49110	47526	49110	82214	70956	57290	58148	52614	47526	49110	49110	44357
Total Ammonia	25	24	25	336	218	106	129	61	24	25	25	22
Nitrate	29	28	29	2483	1551	670	849	316	28	29	29	26
Nitrite	64	62	64	119	100	79	81	71	62	64	64	58
Alkalinity				8718	5118	1396	1623	429				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2092.35	1155.64	310.19	324.55	85.81				
Hardness CaCO3				11508	7099	1913	2467	652				
Total Metals												
Aluminum Al	0.81	0.78	0.81	25.99	14.79	8.25	8.72	3.46	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.61	3.36	2.13	2.35	1.62	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.57	0.37	0.16	0.20	0.09	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.86	0.52	0.26	0.28	0.13	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.26	0.16	0.07	0.08	0.05	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.58	3.32	2.10	2.31	1.61	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	10.52	6.65	2.92	3.40	1.51	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	3812	2310	1091	1268	580	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.44	0.34	0.17	0.15	0.10	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.34	0.23	0.13	0.15	0.09	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.52	0.30	0.11	0.13	0.06	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	19.47	8.70	5.50	5.92	1.87	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.14	0.09	0.05	0.05	0.03	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.48	0.77	0.30	0.36	0.15	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1977	1155	513	555	249	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.97	0.61	0.42	0.51	0.27	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.72	0.47	0.26	0.28	0.18	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	43	35	28	28	25	22	23	23	21
Potassium K	25	24	25	671	370	126	178	68	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.22	0.12	0.04	0.05	0.02	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	544	295	114	142	51	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.07	0.04	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5545	3152	963	1213	331	12	12	12	11
Strontium Sr	0	0	0	9	6	2	3	1	0	0	0	0
Tellurium Te				17.52	8.30	2.61	3.27	0.87				
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.04	0.03	0.01	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.79	0.59	0.35	0.39	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.40	1.20	0.44	0.53	0.19	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.06	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	1.00	0.67	0.36	0.40	0.26	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.5	1.0	0.6	1.1	0.5	0.2	0.2	0.2	0.2
Zirconium Zr				2.55	1.33	0.47	0.59	0.18				

Appendix I

Table I-4-d-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				417065	398294	383460	386128	380307				
TSS				1125	533	167	210	56				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				1297	798	265	393	121				
Chloride				242419	237932	232442	233166	231127				
Total Ammonia				244	151	64	83	29				
Nitrate				1917	1189	501	641	224				
Nitrite				45	28	12	15	5				
Alkalinity				8830	5188	1417	1649	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2119.25	1171.42	314.86	329.81	87.29				
Hardness CaCO3				11656	7196	1942	2507	663				
Total Metals												
Aluminum Al				29.08	15.53	7.83	8.39	2.72				
Antimony Sb				0.13	0.09	0.05	0.07	0.02				
Arsenic As				0.48	0.30	0.12	0.15	0.05				
Barium Ba				0.64	0.36	0.16	0.17	0.05				
Beryllium Be				0.15	0.08	0.02	0.03	0.01				
Bismuth Bi				0.09	0.06	0.02	0.03	0.01				
Boron B				9.05	5.39	2.00	2.41	0.75				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				25188	23913	22928	23064	22513				
Chromium Cr				0.22	0.18	0.07	0.04	0.01				
Cobalt Co				0.12	0.07	0.03	0.03	0.01				
Copper Cu				0.44	0.24	0.07	0.09	0.03				
Iron Fe				24.48	10.86	6.02	6.63	1.87				
Lead Pb				0.10	0.06	0.03	0.03	0.01				
Lithium Li				1.32	0.64	0.21	0.26	0.07				
Magnesium Mg				1620	873	320	345	94				
Manganese Mn				0.51	0.24	0.17	0.24	0.07				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.28	0.15	0.05	0.06	0.02				
Phosphorus P				15	8	3	4	1				
Potassium K				643	334	92	143	39				
Selenium Se				0.25	0.13	0.04	0.05	0.02				
Silicon SiO2				526	278	100	127	39				
Silver Ag				0.06	0.03	0.01	0.01	0.00				
Sodium Na				132174	129208	126659	126952	125918				
Strontium Sr				9	5	1	2	1				
Tellurium Te				17.74	8.42	2.64	3.33	0.88				
Thallium Tl				0.02	0.01	0.00	0.00	0.00				
Thorium Th				0.04	0.03	0.01	0.01	0.00				
Tin Sn				0.12	0.10	0.04	0.05	0.01				
Titanium Ti				2.52	1.21	0.38	0.48	0.13				
Uranium U				0.06	0.03	0.01	0.01	0.00				
Vanadium V				0.38	0.20	0.06	0.06	0.02				
Zinc Zn				0.7	0.4	0.2	0.7	0.2				
Zirconium Zr				2.58	1.34	0.47	0.60	0.18				

Appendix I

Table I-4-d-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				39489	20419	5256	7929	2081				
TSS				1144	542	167	211	55				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				1309	805	265	393	121				
Chloride				12224	7666	2053	2778	729				
Total Ammonia				244	151	64	83	29				
Nitrate				1917	1189	501	641	224				
Nitrite				45	28	12	15	5				
Alkalinity				8975	5275	1419	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2153.97	1191.12	315.39	330.38	86.71				
Hardness CaCO3				11847	7317	1945	2511	659				
Total Metals												
Aluminum Al				29.27	15.61	7.84	8.40	2.71				
Antimony Sb				0.13	0.10	0.05	0.07	0.02				
Arsenic As				0.49	0.30	0.12	0.15	0.05				
Barium Ba				0.65	0.36	0.16	0.17	0.05				
Beryllium Be				0.15	0.08	0.02	0.03	0.01				
Bismuth Bi				0.09	0.06	0.02	0.03	0.01				
Boron B				9.13	5.43	2.01	2.41	0.75				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				2944	1655	654	790	237				
Chromium Cr				0.23	0.18	0.07	0.04	0.01				
Cobalt Co				0.12	0.07	0.03	0.03	0.01				
Copper Cu				0.45	0.25	0.07	0.09	0.03				
Iron Fe				24.81	11.00	6.03	6.64	1.86				
Lead Pb				0.10	0.06	0.03	0.03	0.01				
Lithium Li				1.34	0.65	0.21	0.26	0.07				
Magnesium Mg				1645	887	321	345	94				
Manganese Mn				0.52	0.24	0.17	0.24	0.07				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.28	0.15	0.05	0.06	0.02				
Phosphorus P				15	8	3	4	1				
Potassium K				654	339	92	143	38				
Selenium Se				0.25	0.13	0.04	0.05	0.02				
Silicon SiO2				531	280	100	127	39				
Silver Ag				0.06	0.03	0.01	0.01	0.00				
Sodium Na				6738	3725	1116	1409	371				
Strontium Sr				9	5	1	2	1				
Tellurium Te				18.03	8.56	2.65	3.33	0.88				
Thallium Tl				0.02	0.01	0.00	0.00	0.00				
Thorium Th				0.04	0.03	0.01	0.01	0.00				
Tin Sn				0.12	0.10	0.04	0.05	0.01				
Titanium Ti				2.56	1.23	0.38	0.48	0.13				
Uranium U				0.06	0.03	0.01	0.01	0.00				
Vanadium V				0.38	0.20	0.06	0.06	0.02				
Zinc Zn				0.7	0.4	0.2	0.7	0.2				
Zirconium Zr				2.60	1.35	0.47	0.60	0.18				

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Table I-4-d-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				39345	20343	5320	7972	2092				
TSS				1140	540	170	212	56				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				1306	804	266	394	121				
Chloride				12179	7637	2078	2794	733				
Total Ammonia				244	151	64	83	29				
Nitrate				1917	1189	501	641	224				
Nitrite				45	28	12	15	5				
Alkalinity				8942	5255	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2146.11	1186.67	319.23	332.17	87.16				
Hardness CaCO3				11804	7290	1969	2525	662				
Total Metals												
Aluminum Al				29.23	15.59	7.88	8.41	2.72				
Antimony Sb				0.13	0.09	0.05	0.07	0.02				
Arsenic As				0.48	0.30	0.12	0.15	0.05				
Barium Ba				0.65	0.36	0.16	0.17	0.05				
Beryllium Be				0.15	0.08	0.02	0.03	0.01				
Bismuth Bi				0.09	0.06	0.02	0.03	0.01				
Boron B				9.11	5.42	2.02	2.41	0.75				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				2937	1651	659	792	238				
Chromium Cr				0.22	0.18	0.07	0.04	0.01				
Cobalt Co				0.12	0.07	0.03	0.03	0.01				
Copper Cu				0.45	0.24	0.07	0.09	0.03				
Iron Fe				24.73	10.97	6.09	6.67	1.87				
Lead Pb				0.10	0.06	0.03	0.03	0.01				
Lithium Li				1.34	0.65	0.21	0.26	0.07				
Magnesium Mg				1639	884	324	347	94				
Manganese Mn				0.51	0.24	0.17	0.24	0.07				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.28	0.15	0.05	0.06	0.02				
Phosphorus P				15	8	3	4	1				
Potassium K				651	338	93	144	39				
Selenium Se				0.25	0.13	0.04	0.05	0.02				
Silicon SiO2				530	280	101	127	39				
Silver Ag				0.06	0.03	0.01	0.01	0.00				
Sodium Na				6713	3711	1129	1417	372				
Strontium Sr				9	5	2	2	1				
Tellurium Te				17.97	8.53	2.68	3.35	0.88				
Thallium Tl				0.02	0.01	0.00	0.00	0.00				
Thorium Th				0.04	0.03	0.01	0.01	0.00				
Tin Sn				0.12	0.10	0.04	0.05	0.01				
Titanium Ti				2.55	1.22	0.39	0.49	0.13				
Uranium U				0.06	0.03	0.01	0.01	0.00				
Vanadium V				0.38	0.20	0.06	0.06	0.02				
Zinc Zn				0.7	0.4	0.2	0.7	0.2				
Zirconium Zr				2.60	1.35	0.48	0.60	0.18				

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Table I-4-d-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				39433	20389	5249	7918	2096				
TSS				1142	541	167	210	56				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	51				
Chloride				12206	7654	2050	2775	734				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8962	5267	1417	1650	437				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2150.88	1189.37	314.97	329.92	87.32				
Hardness CaCO3				11830	7306	1942	2507	664				
Total Metals												
Aluminum Al				11.71	4.72	3.25	2.52	0.67				
Antimony Sb				0.05	0.04	0.03	0.04	0.01				
Arsenic As				0.08	0.05	0.01	0.02	0.00				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.02	2.89	0.94	1.04	0.27				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1912	1015	384	445	118				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.00	0.01	0.00				
Copper Cu				0.34	0.18	0.04	0.05	0.01				
Iron Fe				20.69	8.45	4.95	5.27	1.39				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.26	0.60	0.18	0.23	0.06				
Magnesium Mg				1539	821	293	310	82				
Manganese Mn				0.42	0.18	0.14	0.21	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.19	0.09	0.02	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				627	323	85	134	36				
Selenium Se				0.17	0.08	0.02	0.03	0.01				
Silicon SiO2				337	160	49	62	16				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				6703	3704	1108	1399	370				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.92	8.50	2.62	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.48	1.18	0.36	0.46	0.12				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.22	0.10	0.02	0.01	0.00				
Zinc Zn				0.3	0.2	0.1	0.5	0.1				
Zirconium Zr				1.79	0.85	0.26	0.33	0.09				

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Table I-4-d-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				39503	20426	5258	7932	2082				
TSS				1144	542	168	211	55				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				707	432	108	192	50				
Chloride				12228	7668	2053	2779	729				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8978	5277	1420	1652	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2154.72	1191.54	315.49	330.49	86.74				
Hardness CaCO3				11851	7319	1946	2512	659				
Total Metals												
Aluminum Al				11.73	4.72	3.25	2.53	0.66				
Antimony Sb				0.05	0.04	0.03	0.04	0.01				
Arsenic As				0.08	0.05	0.01	0.02	0.00				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.03	2.90	0.94	1.04	0.27				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1915	1017	385	446	117				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.00	0.01	0.00				
Copper Cu				0.34	0.18	0.04	0.05	0.01				
Iron Fe				20.72	8.46	4.96	5.27	1.38				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.26	0.60	0.19	0.23	0.06				
Magnesium Mg				1542	823	294	311	82				
Manganese Mn				0.42	0.18	0.14	0.21	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.19	0.09	0.02	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				628	323	86	135	35				
Selenium Se				0.17	0.08	0.02	0.03	0.01				
Silicon SiO2				337	160	49	62	16				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				6715	3710	1109	1401	368				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.96	8.51	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.48	1.18	0.36	0.46	0.12				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.22	0.10	0.02	0.01	0.00				
Zinc Zn				0.3	0.2	0.1	0.6	0.1				
Zirconium Zr				1.80	0.85	0.26	0.33	0.09				

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Table I-4-d-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				39358	20350	5322	7975	2093				
TSS				1140	540	170	212	56				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				705	431	109	193	51				
Chloride				12183	7640	2078	2795	733				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8945	5257	1437	1661	436				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2146.79	1187.06	319.34	332.29	87.19				
Hardness CaCO3				11807	7292	1969	2525	663				
Total Metals												
Aluminum Al				11.68	4.71	3.29	2.54	0.67				
Antimony Sb				0.05	0.04	0.03	0.04	0.01				
Arsenic As				0.08	0.05	0.01	0.02	0.00				
Barium Ba				0.59	0.33	0.15	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.01	2.89	0.95	1.04	0.27				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1908	1013	390	448	118				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.00	0.01	0.00				
Copper Cu				0.34	0.18	0.04	0.05	0.01				
Iron Fe				20.65	8.43	5.02	5.30	1.39				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.26	0.60	0.19	0.23	0.06				
Magnesium Mg				1537	820	297	313	82				
Manganese Mn				0.42	0.18	0.14	0.21	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.19	0.09	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				626	322	87	135	36				
Selenium Se				0.17	0.08	0.02	0.03	0.01				
Silicon SiO2				336	159	50	62	16				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				6690	3696	1123	1409	370				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.89	8.48	2.66	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.47	1.17	0.37	0.46	0.12				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.22	0.10	0.02	0.01	0.00				
Zinc Zn				0.3	0.2	0.1	0.6	0.1				
Zirconium Zr				1.79	0.85	0.27	0.33	0.09				

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Table I-4-d-A.3
Scenario 3 - Sediment Co

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				39445	20396	5251	7920	2079				
TSS				1143	542	167	210	55				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	432	108	192	50				
Chloride				12210	7657	2050	2775	728				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8965	5269	1418	1650	433				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				4	1	0	0	0				
Org. Carbon				2151.56	1189.76	315.06	330.02	86.62				
Hardness CaCO3				11834	7309	1943	2508	658				
Total Metals												
Aluminum Al				11.71	4.72	3.25	2.52	0.66				
Antimony Sb				0.05	0.04	0.03	0.04	0.01				
Arsenic As				0.08	0.05	0.01	0.02	0.00				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				5.03	2.89	0.94	1.04	0.27				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1912	1015	385	445	117				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.04	0.02	0.00	0.01	0.00				
Copper Cu				0.34	0.18	0.04	0.05	0.01				
Iron Fe				20.69	8.45	4.95	5.27	1.38				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.26	0.60	0.18	0.23	0.06				
Magnesium Mg				1540	822	293	311	81				
Manganese Mn				0.42	0.18	0.14	0.21	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.04	0.02	0.00	0.01	0.00				
Nickel Ni				0.19	0.09	0.02	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				627	323	85	135	35				
Selenium Se				0.17	0.08	0.02	0.03	0.01				
Silicon SiO2				337	160	49	62	16				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				6705	3705	1108	1399	367				
Strontium Sr				8	5	1	2	1				
Tellurium Te				17.93	8.50	2.63	3.30	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				2.48	1.18	0.36	0.46	0.12				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.22	0.10	0.02	0.01	0.00				
Zinc Zn				0.3	0.2	0.1	0.5	0.1				
Zirconium Zr				1.79	0.85	0.26	0.33	0.09				

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Table I-4-a-B.1
Scenario 3 - Sediment Control Option 1

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.3	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			109	8.7	7.1	
Chloride	mg/L			1043	113	91	
Total Ammonia	mg/L		0.97	1.31	0.085	0.045	9%
Nitrate	mg/L		2.9	6.9	0.39	0.21	13%
Nitrite	mg/L		0.018	0.53	0.032	0.018	175%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.09	0.08	0.25	81%
Antimony Sb	mg/L			0.0194	0.0035	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00072	0.00005	0.00003	
Bismuth Bi	mg/L			0.01877	0.00107	0.00064	
Boron B	mg/L			0.032	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000067	0.0000068	0.0000164	18%
Calcium Ca	mg/L			295	24	16	
Chromium Cr	mg/L		0.001	0.0078	0.0010	0.001	103%
Cobalt Co	mg/L			0.0123	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0019	0.0021	97%
Iron Fe	mg/L		0.3	0.09	0.12	0.28	41%
Lead Pb	mg/L	0.2	0.002	0.00047	0.00008	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.6	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000069	0.0000010	0.0000008	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.306	0.036	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00062	0.00088	0.00084	88%
Silicon SiO2	mg/L			4.6	0.73	0.63	
Silver Ag	mg/L		0.0001	0.00013	0.0000089	0.0000074	9%
Sodium Na	mg/L			381	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000048	0.000031	0.002001	4%
Thorium Th	mg/L			0.000047	0.0000040	0.0000021	
Tin Sn	mg/L			0.00297	0.00054	0.00009	
Titanium Ti	mg/L			0.0080	0.0061	0.0062	
Uranium U	mg/L			0.000076	0.000042	0.000045	
Vanadium V	mg/L			0.0041	0.0008	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.027	0.0042	0.0057	14%
Zirconium Zr	mg/L			0.0046	0.0050	0.0051	

Appendix I

Table I-4-d-B.2
Scenario 3 - Sediment Control Option 4

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	151	153				
TSS	mg/L				3.9	5.6	5.8	6.7	6.7				
Free CN	mg/L				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.09	0.01	0.03	0.03	0.03				
SCN	mg/L				0.001	0.001	0.002	0.002	0.002				
Sulphate	mg/L				3.8	3.9	4.3	4.9	5.2				
Chloride	mg/L				61	62	62	67	69				
Total Ammonia	mg/L				0.019	0.049	0.024	0.031	0.032				
Nitrate	mg/L				0.08	0.14	0.20	0.25	0.28				
Nitrite	mg/L				0.011	0.014	0.014	0.006	0.016				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P	mg/L				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon	mg/L				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0005				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00003	0.00003				
Bismuth Bi	mg/L				0.00012	0.00021	0.00028	0.00034	0.00039				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000044	0.0000043	0.0000047	0.0000051				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000008	0.0000008	0.0000008	0.0000009				
Molybdenum Mo	mg/L				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.021	0.027	0.024	0.025				
Potassium K	mg/L				3.2	2.9	3.0	3.1	3.3				
Selenium Se	mg/L				0.00086	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.56	0.57	0.59	0.61				
Silver Ag	mg/L				0.0000049	0.0000063	0.0000068	0.0000073	0.0000076				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000031				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000004	0.000004				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000032	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Appendix I

Table I-4-d-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS mg/L				160	139	143	165	166				
TSS mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN mg/L				0.00020		0.00003	0.00003	0.00003				
Total CN mg/L				0.004	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0003		0.0000	0.0000	0.0000				
CNO mg/L				0.22		0.03	0.03	0.03				
SCN mg/L				0.005	0.004	0.004	0.005	0.005				
Sulphate mg/L				7.3	6.7	6.9	7.5	7.8				
Chloride mg/L				74	73	71	77	78				
Total Ammonia mg/L				0.044	0.089	0.016	0.032	0.032				
Nitrate mg/L				0.36	0.38	0.41	0.47	0.50				
Nitrite mg/L				0.032	0.013	0.015	0.005	0.016				
Alkalinity mg/L				29	27	28	28	28				
OrthoPhosphate-P mg/L				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P mg/L				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3 mg/L				48	45	45	47	47				
Total Metals												
Aluminum Al mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba mg/L				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be mg/L				0.00004	0.00003	0.00004	0.00004	0.00004				
Bismuth Bi mg/L				0.00056	0.00056	0.00060	0.00066	0.00071				
Boron B mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd mg/L				0.0000066	0.0000066	0.0000064	0.0000068	0.0000071				
Calcium Ca mg/L				21	18	18	19	20				
Chromium Cr mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co mg/L				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg mg/L				0.0000010	0.0000010	0.0000010	0.0000010	0.0000011				
Molybdenum Mo mg/L				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni mg/L				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P mg/L				0.027	0.028	0.034	0.031	0.031				
Potassium K mg/L				4.8	4.1	4.1	4.3	4.4				
Selenium Se mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.69	0.67	0.67	0.69	0.71				
Silver Ag mg/L				0.0000079	0.0000087	0.0000089	0.0000095	0.0000097				
Sodium Na mg/L				39	33	35	33	33				
Strontium Sr mg/L				0.043	0.044	0.038	0.042	0.043				
Tellurium Te mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl mg/L				0.000031	0.000031	0.000031	0.000031	0.000032				
Thorium Th mg/L				0.000004	0.000004	0.000005	0.000005	0.000006				
Tin Sn mg/L				0.00047	0.00047	0.00048	0.00049	0.00049				
Titanium Ti mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U mg/L				0.000029	0.000034	0.000042	0.000036	0.000037				
Vanadium V mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn mg/L				0.0020	0.0040	0.0037	0.0028	0.0029				
Zirconium Zr mg/L				0.0049	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-d-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS mg/L				171	148	150	171	172				
TSS mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN mg/L				0.00013								
Total CN mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0002								
CNO mg/L				0.14								
SCN mg/L				0.006	0.005	0.005	0.005	0.005				
Sulphate mg/L				8.7	7.6	7.4	7.7	7.7				
Chloride mg/L				82	80	78	83	84				
Total Ammonia mg/L				0.036	0.061	0.016	0.018	0.019				
Nitrate mg/L				0.50	0.48	0.49	0.53	0.54				
Nitrite mg/L				0.030	0.010	0.014	0.004	0.005				
Alkalinity mg/L				29	27	28	28	28				
OrthoPhosphate-P mg/L				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P mg/L				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3 mg/L				50	46	46	47	47				
Total Metals												
Aluminum Al mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb mg/L				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As mg/L				0.0007	0.0006	0.0005	0.0005	0.0005				
Barium Ba mg/L				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be mg/L				0.00005	0.00004	0.00005	0.00005	0.00005				
Bismuth Bi mg/L				0.00085	0.00080	0.00082	0.00090	0.00094				
Boron B mg/L				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd mg/L				0.0000079	0.0000075	0.0000070	0.0000072	0.0000073				
Calcium Ca mg/L				24	20	19	19	19				
Chromium Cr mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co mg/L				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu mg/L				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb mg/L				0.00005	0.00009	0.00007	0.00007	0.00007				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.5	6.7	6.8	6.7	6.7				
Manganese Mn mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg mg/L				0.0000011	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo mg/L				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni mg/L				0.0009	0.0010	0.0009	0.0009	0.0009				
Phosphorus P mg/L				0.032	0.031	0.037	0.034	0.034				
Potassium K mg/L				5.3	4.4	4.3	4.2	4.2				
Selenium Se mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2 mg/L				0.74	0.70	0.69	0.70	0.70				
Silver Ag mg/L				0.0000097	0.0000101	0.0000101	0.0000106	0.0000107				
Sodium Na mg/L				40	34	35	33	33				
Strontium Sr mg/L				0.044	0.044	0.038	0.042	0.042				
Tellurium Te mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl mg/L				0.000032	0.000032	0.000032	0.000032	0.000032				
Thorium Th mg/L				0.000005	0.000005	0.000006	0.000006	0.000006				
Tin Sn mg/L				0.00051	0.00051	0.00051	0.00052	0.00053				
Titanium Ti mg/L				0.0059	0.0059	0.0059	0.0059	0.0060				
Uranium U mg/L				0.000030	0.000035	0.000043	0.000037	0.000038				
Vanadium V mg/L				0.0007	0.0002	0.0004	0.0004	0.0004				
Zinc Zn mg/L				0.0024	0.0042	0.0039	0.0028	0.0028				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-d-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				173	158	169	201	212				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.005	0.004	0.003	0.003	0.003				
Sulphate	mg/L				7.5	6.4	6.2	6.4	6.3				
Chloride	mg/L				88	88	90	102	109				
Total Ammonia	mg/L				0.012	0.016	0.020	0.017	0.018				
Nitrate	mg/L				0.49	0.45	0.45	0.48	0.49				
Nitrite	mg/L				0.012	0.002	0.004	0.003	0.003				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P	mg/L				0.0276	0.0264	0.0314	0.0274	0.0271				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00005	0.00005	0.00004	0.00005	0.00005				
Bismuth Bi	mg/L				0.00107	0.00085	0.00078	0.00080	0.00078				
Boron B	mg/L				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000076	0.0000073	0.0000068	0.0000071	0.0000072				
Calcium Ca	mg/L				20	17	17	17	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.000				
Cobalt Co	mg/L				0.0006	0.0005	0.0012	0.0005	0.0004				
Copper Cu	mg/L				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00009	0.00006	0.00006	0.00007				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000011	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.034	0.032	0.036	0.033	0.032				
Potassium K	mg/L				4.6	3.8	3.7	3.6	3.6				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.69	0.66	0.65	0.66	0.66				
Silver Ag	mg/L				0.0000110	0.0000109	0.0000107	0.0000112	0.0000112				
Sodium Na	mg/L				39	37	41	43	47				
Strontium Sr	mg/L				0.043	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000032	0.000032	0.000032	0.000032	0.000032				
Thorium Th	mg/L				0.000006	0.000006	0.000007	0.000007	0.000008				
Tin Sn	mg/L				0.00055	0.00052	0.00051	0.00051	0.00051				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000031	0.000036	0.000044	0.000039	0.000039				
Vanadium V	mg/L				0.0008	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0021	0.0040	0.0036	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0051	0.0051				

Appendix I

Table I-4-d-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				216	179	176	187	186				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.1	5.0	4.9	4.8				
Chloride	mg/L				112	99	92	92	91				
Total Ammonia	mg/L				0.009	0.018	0.020	0.017	0.018				
Nitrate	mg/L				0.43	0.39	0.40	0.37	0.38				
Nitrite	mg/L				0.003	0.004	0.004	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P	mg/L				0.0239	0.0232	0.0283	0.0234	0.0233				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00075	0.00057	0.00051	0.00045	0.00044				
Boron B	mg/L				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000075	0.0000071	0.0000066	0.0000063	0.0000064				
Calcium Ca	mg/L				19	16	15	14	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00043	0.00036	0.00036	0.00032	0.00031				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.029	0.028	0.033	0.027	0.027				
Potassium K	mg/L				4.0	3.3	3.2	3.0	3.0				
Selenium Se	mg/L				0.00089	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.65	0.63	0.62	0.60	0.61				
Silver Ag	mg/L				0.0000111	0.0000109	0.0000108	0.0000099	0.0000099				
Sodium Na	mg/L				57	46	46	42	42				
Strontium Sr	mg/L				0.042	0.043	0.037	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000032	0.000032	0.000032	0.000031	0.000031				
Thorium Th	mg/L				0.000007	0.000007	0.000008	0.000007	0.000008				
Tin Sn	mg/L				0.00051	0.00048	0.00047	0.00046	0.00046				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000033	0.000037	0.000045	0.000038	0.000039				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0037	0.0033	0.0022	0.0022				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-4-d-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				177	150	150	170	167				
TSS	mg/L				3.9	5.7	5.8	6.8	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.4	3.9	4.0	4.1	4.0				
Chloride	mg/L				86	79	75	80	78				
Total Ammonia	mg/L				0.006	0.015	0.017	0.014	0.015				
Nitrate	mg/L				0.29	0.28	0.29	0.32	0.31				
Nitrite	mg/L				0.002	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P	mg/L				0.0200	0.0203	0.0258	0.0216	0.0213				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0007	0.0011	0.0030	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00040	0.00031	0.00028	0.00029	0.00027				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000058	0.0000057	0.0000053	0.0000055	0.0000054				
Calcium Ca	mg/L				14	12	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00030	0.00026	0.00027	0.00026	0.00025				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.023	0.023	0.028	0.024	0.024				
Potassium K	mg/L				3.4	2.8	2.8	2.7	2.7				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.59	0.58	0.57	0.58	0.57				
Silver Ag	mg/L				0.0000084	0.0000086	0.0000086	0.0000091	0.0000086				
Sodium Na	mg/L				48	39	40	38	37				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000006	0.000006	0.000006	0.000006	0.000006				
Tin Sn	mg/L				0.00045	0.00044	0.00043	0.00044	0.00043				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000030	0.000035	0.000043	0.000038	0.000037				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0014	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0051	0.0050				

Appendix I

Table I-4-d-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				158	135	137	154	154				
TSS	mg/L				3.9	5.7	5.8	6.7	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.000				
Sulphate	mg/L				3.7	3.4	3.4	3.5	3.5				
Chloride	mg/L				73	70	67	69	69				
Total Ammonia	mg/L				0.006	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.24	0.18	0.16	0.14	0.14				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P	mg/L				0.0181	0.0189	0.0245	0.0200	0.0200				
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00024	0.00018	0.00017	0.00015	0.00015				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000055	0.0000048	0.0000040	0.0000038	0.0000037				
Calcium Ca	mg/L				11	10	10	9	9				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.3	6.3				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000009	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00023	0.00021	0.00023	0.00020	0.00020				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.020	0.021	0.026	0.021	0.021				
Potassium K	mg/L				3.1	2.6	2.6	2.5	2.5				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.56	0.55	0.55	0.54	0.54				
Silver Ag	mg/L				0.0000078	0.0000074	0.0000069	0.0000061	0.0000060				
Sodium Na	mg/L				43	36	37	34	34				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000006	0.000004	0.000004	0.000003	0.000003				
Tin Sn	mg/L				0.00042	0.00041	0.00041	0.00041	0.00041				
Titanium Ti	mg/L				0.0059	0.0059	0.0060	0.0059	0.0059				
Uranium U	mg/L				0.000030	0.000034	0.000041	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-4-d-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				148	128	131	148	148				
TSS	mg/L				3.9	5.7	5.8	6.7	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.3	3.0	3.1	3.2	3.2				
Chloride	mg/L				67	65	62	65	65				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.09	0.07	0.06	0.05	0.05				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P	mg/L				0.0171	0.0181	0.0238	0.0194	0.0194				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi	mg/L				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000041	0.0000037	0.0000031	0.0000030	0.0000029				
Calcium Ca	mg/L				10	9	9	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.3	6.3				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00020	0.00018	0.00018				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.018	0.019	0.025	0.020	0.020				
Potassium K	mg/L				2.9	2.5	2.5	2.4	2.4				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.53	0.53	0.52	0.53				
Silver Ag	mg/L				0.0000059	0.0000059	0.0000057	0.0000050	0.0000049				
Sodium Na	mg/L				41	34	35	33	33				
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00041	0.00040	0.00040	0.00040	0.00040				
Titanium Ti	mg/L				0.0059	0.0059	0.0060	0.0059	0.0059				
Uranium U	mg/L				0.000028	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0032	0.0028	0.0017	0.0018				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0049	0.0049				

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Table I-4-d-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)													
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				142	123	127	146	145				
TSS	mg/L				3.9	5.7	5.8	6.7	6.7				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.0	2.8	3.0	3.1	3.1				
Chloride	mg/L				63	62	60	63	63				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P	mg/L				0.0165	0.0177	0.0234	0.0192	0.0191				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				44	42	42	43	43				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00009	0.00007	0.00007	0.00007	0.00007				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000033	0.0000031	0.0000026	0.0000026	0.0000025				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.4	6.3	6.3				
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00017	0.00017	0.00019	0.00017	0.00017				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P	mg/L				0.017	0.018	0.024	0.020	0.019				
Potassium K	mg/L				2.8	2.4	2.4	2.4	2.3				
Selenium Se	mg/L				0.00087	0.00056	0.00060	0.00055	0.00054				
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52				
Silver Ag	mg/L				0.0000047	0.0000050	0.0000048	0.0000049	0.0000045				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.039	0.041	0.035	0.039	0.039				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00040	0.00039	0.00039	0.00039	0.00039				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0060	0.0059				
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0049				

Appendix I

Table I-4-d-B.2
Scenario 3 - Sediment Cont

Water Quality in DORIS CR Water Quality in DORIS CREEK (d/s of the waterfall)												
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				140	121	125	143	143			
TSS	mg/L				3.9	5.7	5.8	6.7	6.7			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				2.9	2.8	2.9	3.0	3.0			
Chloride	mg/L				61	60	58	62	62			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				27	25	27	26	26			
OrthoPhosphate-P	mg/L				0.0011	0.0010	0.0010	0.0010	0.0010			
Phosphate-P	mg/L				0.0162	0.0175	0.0232	0.0189	0.0189			
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0			
Hardness CaCO3	mg/L				44	42	42	43	43			
Total Metals												
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005			
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000029	0.0000028	0.0000023	0.0000023	0.0000023			
Calcium Ca	mg/L				9	8	8	7	7			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0001	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0015	0.0012	0.0015	0.0015			
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.1	6.4	6.4	6.3	6.3			
Manganese Mn	mg/L				0.006	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007			
Molybdenum Mo	mg/L				0.00016	0.00016	0.00018	0.00016	0.00016			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0004	0.0004			
Phosphorus P	mg/L				0.017	0.018	0.023	0.019	0.019			
Potassium K	mg/L				2.8	2.4	2.4	2.3	2.3			
Selenium Se	mg/L				0.00087	0.00056	0.00060	0.00054	0.00054			
Silicon SiO2	mg/L				0.51	0.51	0.52	0.51	0.51			
Silver Ag	mg/L				0.0000042	0.0000046	0.0000045	0.0000040	0.0000039			
Sodium Na	mg/L				39	33	34	32	32			
Strontium Sr	mg/L				0.039	0.041	0.035	0.039	0.039			
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00039	0.00039	0.00039	0.00039	0.00039			
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059			
Uranium U	mg/L				0.000026	0.000030	0.000038	0.000032	0.000031			
Vanadium V	mg/L				0.0005	0.0001	0.0002	0.0002	0.0002			
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0017	0.0017			
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049			

Table I-4-d-B.3
Scenario 3 - Sediment Control Option 4

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1073956	586904	257660	384118	135770				
TSS				29483	26699	11501	17154	5992				
Free CN				0.60	0.05	0.05	0.07	0.02				
Total CN				21	9	4	5	2				
WAD CN				0.81	0.07	0.07	0.09	0.03				
CNO				665	55	57	77	27				
SCN				9	6	3	5	2				
Sulphate				28611	18365	8618	12464	4670				
Chloride				468083	295283	123233	171437	61017				
Total Ammonia				143	230	49	80	28				
Nitrate				576	683	389	630	253				
Nitrite				83	67	28	16	14				
Alkalinity				206688	119301	53699	68141	23935				
OrthoPhosphate-P				17	12	6	9	3				
Phosphate-P				132	89	50	54	19				
Org. Carbon				40778	23698	14478	12543	4379				
Hardness CaCO3				342229	200983	84935	113548	39956				
Total Metals												
Aluminum Al				250	276	157	181	63				
Antimony Sb				3.4	4.6	5.9	1.9	0.7				
Arsenic As				3.8	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.09	0.05	0.07	0.03				
Bismuth Bi				0.92	1.00	0.55	0.86	0.35				
Boron B				253	105	46	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				84525	51265	22715	31305	11760				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.30	1.29	2.03	0.76	0.30				
Copper Cu				10	8	3	4	1				
Iron Fe				379	567	163	223	78				
Lead Pb				0.19	0.33	0.10	0.13	0.05				
Lithium Li				21	13	6	7	3				
Magnesium Mg				53966	30314	12954	16344	5732				
Manganese Mn				50	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.96	1.26	0.64	0.87	0.33				
Nickel Ni				3.73	3.15	1.18	1.55	0.57				
Phosphorus P				142	98	54	62	22				
Potassium K				24293	13563	5933	7918	2900				
Selenium Se				6.59	2.64	1.21	1.40	0.49				
Silicon SiO2				4141	2630	1137	1504	538				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				289400	152278	66910	80719	28311				
Strontium Sr				303	195	71	102	36				
Tellurium Te				370	230	97	125	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.01	0.01	0.00				
Tin Sn				3.02	1.95	0.84	1.11	0.39				
Titanium Ti				44	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.09	0.03				
Vanadium V				4.30	0.51	0.60	0.58	0.21				
Zinc Zn				8.69	15.73	6.18	5.43	1.99				
Zirconium Zr				37	23	10	13	4				

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Table I-4-d-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1220165	658674	285400	420123	147948				
TSS				29841	26873	11568	17241	6021				
Free CN				1.54		0.05	0.07	0.02				
Total CN				29	9	4	5	2				
WAD CN				2.06		0.07	0.09	0.03				
CNO				1699		58	76	26				
SCN				38	21	9	13	5				
Sulphate				55638	31637	13747	19120	6921				
Chloride				564931	342809	141595	195266	69076				
Total Ammonia				339	419	33	82	28				
Nitrate				2711	1806	820	1192	443				
Nitrite				245	63	29	13	14				
Alkalinity				219476	125568	56119	71284	24998				
OrthoPhosphate-P				55	30	13	18	7				
Phosphate-P				170	108	57	64	23				
Org. Carbon				40852	23731	14490	12559	4385				
Hardness CaCO3				369674	214447	90137	120301	42240				
Total Metals												
Aluminum Al				266	284	160	185	65				
Antimony Sb				6.9	6.3	6.5	2.8	1.0				
Arsenic As				4.7	2.5	1.0	1.3	0.5				
Barium Ba				25	16	7	9	3				
Beryllium Be				0.28	0.17	0.07	0.10	0.04				
Bismuth Bi				4.29	2.65	1.19	1.69	0.63				
Boron B				260	108	47	59	21				
Cadmium Cd				0.05	0.03	0.01	0.02	0.01				
Calcium Ca				157507	87121	36576	49291	17843				
Chromium Cr				7	3	1	1	1				
Cobalt Co				4.37	2.80	2.61	1.52	0.56				
Copper Cu				12	9	3	5	2				
Iron Fe				390	572	165	226	79				
Lead Pb				0.32	0.39	0.12	0.16	0.06				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56126	31372	13362	16874	5911				
Manganese Mn				59	99	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.61	2.56	1.14	1.52	0.55				
Nickel Ni				6.13	4.32	1.64	2.14	0.77				
Phosphorus P				208	130	67	78	28				
Potassium K				36295	19459	8212	10876	3901				
Selenium Se				6.69	2.69	1.23	1.43	0.50				
Silicon SiO2				5230	3164	1344	1772	629				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				301053	157993	69118	83585	29280				
Strontium Sr				327	207	76	108	38				
Tellurium Te				370	230	97	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.56	2.21	0.95	1.24	0.44				
Titanium Ti				45	28	12	15	5				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.19	0.94	0.77	0.80	0.29				
Zinc Zn				15.44	19.05	7.46	7.10	2.55				
Zirconium Zr				38	23	10	13	4				

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Table I-4-d-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1300322	697522	299220	436673	153011				
TSS				30001	26945	11589	17259	6024				
Free CN				0.98								
Total CN				24	9	4	5	2				
WAD CN				1.31								
CNO				1077								
SCN				49	24	9	12	4				
Sulphate				66224	35837	14771	19664	6820				
Chloride				628689	376026	154662	212713	75121				
Total Ammonia				278	288	33	46	17				
Nitrate				3793	2288	969	1343	480				
Nitrite				226	48	28	10	4				
Alkalinity				224269	127428	56526	71400	24887				
OrthoPhosphate-P				80	43	18	25	9				
Phosphate-P				195	121	62	71	25				
Org. Carbon				40952	23797	14519	12600	4400				
Hardness CaCO3				379716	218247	90921	120414	41950				
Total Metals												
Aluminum Al				275	288	161	186	65				
Antimony Sb				9.2	7.5	7.0	3.4	1.2				
Arsenic As				5.0	2.7	1.1	1.4	0.5				
Barium Ba				26	17	7	9	3				
Beryllium Be				0.36	0.21	0.09	0.12	0.04				
Bismuth Bi				6.48	3.79	1.64	2.29	0.84				
Boron B				264	110	48	59	21				
Cadmium Cd				0.06	0.04	0.01	0.02	0.01				
Calcium Ca				183326	96511	38326	49082	16876				
Chromium Cr				8	3	2	1	1				
Cobalt Co				5.50	3.23	2.70	1.54	0.53				
Copper Cu				13	9	3	5	2				
Iron Fe				395	574	166	227	79				
Lead Pb				0.38	0.42	0.13	0.17	0.06				
Lithium Li				22	14	6	7	3				
Magnesium Mg				57048	31764	13471	16961	5920				
Manganese Mn				62	100	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				5.54	2.90	1.20	1.51	0.52				
Nickel Ni				7.08	4.71	1.73	2.19	0.76				
Phosphorus P				246	149	74	86	30				
Potassium K				40517	20989	8493	10829	3736				
Selenium Se				6.74	2.71	1.23	1.43	0.50				
Silicon SiO2				5651	3327	1381	1787	622				
Silver Ag				0.07	0.05	0.02	0.03	0.01				
Sodium Na				305345	159628	69460	83648	29163				
Strontium Sr				335	210	76	108	38				
Tellurium Te				371	231	97	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.04	0.03	0.01	0.02	0.01				
Tin Sn				3.91	2.40	1.02	1.33	0.47				
Titanium Ti				45	28	12	15	5				
Uranium U				0.23	0.17	0.09	0.10	0.03				
Vanadium V				5.67	1.17	0.85	0.90	0.32				
Zinc Zn				18.06	20.07	7.71	7.21	2.51				
Zirconium Zr				38	24	10	13	4				

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Table I-4-d-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1316091	745342	336198	512442	188653				
TSS				29982	26946	11592	17268	6028				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				34	17	6	8	3				
Sulphate				57029	30215	12348	16398	5648				
Chloride				672180	416620	179876	260752	96820				
Total Ammonia				92	78	40	44	16				
Nitrate				3764	2151	899	1221	435				
Nitrite				88	12	8	8	3				
Alkalinity				219552	124925	55549	70173	24476				
OrthoPhosphate-P				96	47	18	24	8				
Phosphate-P				211	125	63	70	24				
Org. Carbon				41238	23954	14584	12693	4433				
Hardness CaCO3				368526	212290	88579	117438	40947				
Total Metals												
Aluminum Al				277	290	162	187	65				
Antimony Sb				10.8	7.7	6.9	3.1	1.1				
Arsenic As				4.9	2.6	1.0	1.3	0.5				
Barium Ba				25	16	6	9	3				
Beryllium Be				0.41	0.22	0.09	0.12	0.04				
Bismuth Bi				8.19	4.03	1.55	2.04	0.70				
Boron B				264	110	48	59	21				
Cadmium Cd				0.06	0.03	0.01	0.02	0.01				
Calcium Ca				149397	81175	33440	44584	15985				
Chromium Cr				7	2	1	1	0				
Cobalt Co				4.21	2.51	2.40	1.15	0.39				
Copper Cu				12	9	3	5	2				
Iron Fe				395	575	166	227	79				
Lead Pb				0.39	0.42	0.13	0.17	0.06				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56622	31480	13345	16792	5859				
Manganese Mn				58	98	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.30	2.23	0.94	1.17	0.40				
Nickel Ni				6.31	4.23	1.53	1.91	0.66				
Phosphorus P				258	150	73	83	29				
Potassium K				34863	17970	7293	9279	3208				
Selenium Se				6.74	2.72	1.24	1.44	0.50				
Silicon SiO2				5277	3124	1300	1683	587				
Silver Ag				0.08	0.05	0.02	0.03	0.01				
Sodium Na				300703	173580	82001	110187	41879				
Strontium Sr				327	205	74	106	37				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.05	0.03	0.01	0.02	0.01				
Tin Sn				4.20	2.45	1.01	1.31	0.45				
Titanium Ti				45	28	12	15	5				
Uranium U				0.24	0.17	0.09	0.10	0.03				
Vanadium V				5.82	1.16	0.82	0.84	0.29				
Zinc Zn				15.71	18.70	7.13	6.45	2.25				
Zirconium Zr				38	24	10	13	5				

Table I-4-d-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1649633	844341	350162	477954	165786				
TSS				30017	26963	11598	17213	6010				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				23	11	4	5	2				
Sulphate				45955	24259	9968	12370	4279				
Chloride				855872	466462	184211	233458	80754				
Total Ammonia				66	87	40	44	16				
Nitrate				3312	1864	788	933	337				
Nitrite				22	18	8	8	3				
Alkalinity				216162	123072	54813	68410	23877				
OrthoPhosphate-P				67	32	12	14	5				
Phosphate-P				182	110	56	60	21				
Org. Carbon				41509	24095	14641	12662	4422				
Hardness CaCO3				360257	207793	86790	113734	39688				
Total Metals												
Aluminum Al				280	291	162	186	65				
Antimony Sb				8.3	6.4	6.4	2.2	0.8				
Arsenic As				4.7	2.5	1.0	1.2	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.36	0.19	0.08	0.09	0.03				
Bismuth Bi				5.71	2.69	1.02	1.15	0.39				
Boron B				263	109	47	58	20				
Cadmium Cd				0.06	0.03	0.01	0.02	0.01				
Calcium Ca				147185	75258	29566	34726	11978				
Chromium Cr				7	2	1	1	0				
Cobalt Co				3.04	1.88	2.15	0.72	0.25				
Copper Cu				11	8	3	4	1				
Iron Fe				396	575	167	226	79				
Lead Pb				0.36	0.40	0.12	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55982	31130	13204	16460	5746				
Manganese Mn				55	96	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.31	1.70	0.72	0.81	0.28				
Nickel Ni				5.35	3.71	1.32	1.55	0.54				
Phosphorus P				222	130	65	69	24				
Potassium K				30483	15617	6352	7683	2666				
Selenium Se				6.76	2.73	1.24	1.43	0.50				
Silicon SiO2				4977	2960	1234	1542	539				
Silver Ag				0.08	0.05	0.02	0.03	0.01				
Sodium Na				436030	219661	91921	107844	37383				
Strontium Sr				319	201	73	103	36				
Tellurium Te				376	233	98	125	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.06	0.03	0.02	0.02	0.01				
Tin Sn				3.85	2.26	0.94	1.17	0.41				
Titanium Ti				46	28	12	15	5				
Uranium U				0.25	0.18	0.09	0.10	0.03				
Vanadium V				5.39	0.93	0.73	0.66	0.23				
Zinc Zn				13.29	17.39	6.60	5.51	1.93				
Zirconium Zr				39	24	10	13	5				

Appendix I

Table I-4-d-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1348988	706899	298900	433395	148496				
TSS				29808	26865	11561	17230	6006				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				12	6	2	3	1				
Sulphate				33791	18671	7878	10532	3569				
Chloride				654592	374478	149907	203062	69083				
Total Ammonia				42	71	34	36	13				
Nitrate				2190	1316	576	806	274				
Nitrite				17	15	7	7	2				
Alkalinity				210537	120486	53843	67953	23617				
OrthoPhosphate-P				37	18	7	9	3				
Phosphate-P				152	96	51	55	19				
Org. Carbon				41323	24005	14607	12727	4427				
Hardness CaCO3				348734	202509	84813	112518	39109				
Total Metals												
Aluminum Al				269	285	160	185	64				
Antimony Sb				5.6	5.1	5.9	1.8	0.6				
Arsenic As				4.2	2.2	0.9	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.25	0.13	0.06	0.08	0.02				
Bismuth Bi				3.04	1.47	0.56	0.74	0.24				
Boron B				259	107	46	58	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.00				
Calcium Ca				105969	56374	22515	28471	9575				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.75	1.28	1.93	0.53	0.17				
Copper Cu				10	8	3	4	1				
Iron Fe				391	573	166	226	79				
Lead Pb				0.27	0.36	0.10	0.14	0.05				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54894	30625	13014	16363	5693				
Manganese Mn				52	95	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.25	1.22	0.54	0.65	0.22				
Nickel Ni				4.24	3.20	1.13	1.39	0.47				
Phosphorus P				176	109	57	62	21				
Potassium K				25723	13439	5540	6978	2392				
Selenium Se				6.69	2.69	1.22	1.42	0.50				
Silicon SiO2				4477	2721	1143	1480	511				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				363436	186479	79545	96976	33189				
Strontium Sr				309	197	71	101	35				
Tellurium Te				374	233	98	126	44				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.04	0.03	0.01	0.02	0.01				
Tin Sn				3.42	2.06	0.86	1.11	0.38				
Titanium Ti				45	28	12	15	5				
Uranium U				0.23	0.17	0.09	0.10	0.03				
Vanadium V				4.80	0.65	0.62	0.58	0.20				
Zinc Zn				10.35	16.02	6.09	5.09	1.76				
Zirconium Zr				38	24	10	13	4				

Appendix I

Table I-4-d-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1208037	640342	273705	392674	136850				
TSS				29744	26836	11550	17161	5992				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				7	3	1	1	0				
Sulphate				28171	15925	6814	8832	3072				
Chloride				559816	329709	132958	176284	61355				
Total Ammonia				42	36	26	31	11				
Nitrate				1800	846	319	359	122				
Nitrite				17	9	4	5	2				
Alkalinity				208170	119375	53425	66867	23353				
OrthoPhosphate-P				23	12	5	5	2				
Phosphate-P				138	89	49	51	18				
Org. Carbon				41302	23998	14604	12622	4409				
Hardness CaCO3				343689	200134	83917	110534	38602				
Total Metals												
Aluminum Al				268	282	158	181	63				
Antimony Sb				4.3	4.5	5.7	1.4	0.5				
Arsenic As				4.0	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.21	0.10	0.04	0.05	0.02				
Bismuth Bi				1.80	0.87	0.33	0.38	0.13				
Boron B				257	106	46	56	20				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				86725	47128	18972	22873	7945				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.16	0.99	1.82	0.35	0.12				
Copper Cu				10	7	3	4	1				
Iron Fe				390	572	165	224	78				
Lead Pb				0.25	0.33	0.09	0.11	0.04				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54449	30400	12925	16146	5638				
Manganese Mn				50	94	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.76	0.98	0.46	0.51	0.18				
Nickel Ni				3.74	2.95	1.03	1.23	0.43				
Phosphorus P				156	98	52	55	19				
Potassium K				23496	12384	5139	6329	2206				
Selenium Se				6.68	2.68	1.22	1.40	0.49				
Silicon SiO2				4286	2602	1090	1375	480				
Silver Ag				0.06	0.03	0.01	0.02	0.01				
Sodium Na				329326	170365	73444	87233	30389				
Strontium Sr				305	195	70	100	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.04	0.02	0.01	0.01	0.00				
Tin Sn				3.24	1.96	0.82	1.04	0.36				
Titanium Ti				45	28	12	15	5				
Uranium U				0.23	0.16	0.08	0.09	0.03				
Vanadium V				4.56	0.51	0.56	0.47	0.16				
Zinc Zn				9.05	15.35	5.82	4.62	1.62				
Zirconium Zr				38	24	10	13	4				

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Table I-4-d-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1131301	604436	260169	377448	131677				
TSS				29719	26825	11546	17156	5990				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				4	2	1	1	0				
Sulphate				24826	14359	6224	8169	2847				
Chloride				508100	305496	123829	166024	57868				
Total Ammonia				36	36	26	31	11				
Nitrate				683	323	122	139	47				
Nitrite				14	9	4	5	2				
Alkalinity				206962	118815	53216	66627	23272				
OrthoPhosphate-P				15	8	3	4	1				
Phosphate-P				130	86	47	49	17				
Org. Carbon				41310	24003	14607	12623	4409				
Hardness CaCO3				341047	198903	83456	110009	38424				
Total Metals												
Aluminum Al				259	278	156	179	62				
Antimony Sb				3.5	4.1	5.5	1.3	0.5				
Arsenic As				3.8	2.0	0.8	1.0	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.15	0.08	0.03	0.04	0.01				
Bismuth Bi				1.08	0.54	0.21	0.24	0.08				
Boron B				255	105	45	56	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				75742	41985	17033	20694	7205				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.79	0.82	1.75	0.27	0.09				
Copper Cu				9	7	3	4	1				
Iron Fe				388	570	165	224	78				
Lead Pb				0.20	0.31	0.08	0.10	0.04				
Lithium Li				21	13	6	7	2				
Magnesium Mg				54172	30272	12877	16091	5620				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.49	0.85	0.41	0.46	0.16				
Nickel Ni				3.43	2.81	0.97	1.16	0.41				
Phosphorus P				140	90	49	51	18				
Potassium K				22272	11811	4923	6087	2124				
Selenium Se				6.64	2.66	1.21	1.39	0.49				
Silicon SiO2				4095	2513	1056	1337	467				
Silver Ag				0.05	0.03	0.01	0.01	0.00				
Sodium Na				310721	161657	70161	83542	29135				
Strontium Sr				302	193	70	99	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				3.10	1.89	0.80	1.01	0.35				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.08	0.03				
Vanadium V				4.35	0.41	0.53	0.43	0.15				
Zinc Zn				8.16	14.93	5.66	4.45	1.56				
Zirconium Zr				38	23	10	13	4				

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Table I-4-d-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1084533	583016	252171	371986	129241				
TSS				29656	26794	11534	17195	5994				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				2	1	0	0	0				
Sulphate				22829	13447	5883	7896	2736				
Chloride				477159	291357	118553	161858	56163				
Total Ammonia				36	36	26	31	11				
Nitrate				57	34	14	18	6				
Nitrite				14	9	4	5	2				
Alkalinity				205842	118288	53015	66865	23276				
OrthoPhosphate-P				11	6	2	3	1				
Phosphate-P				126	83	47	49	17				
Org. Carbon				41221	23958	14589	12704	4420				
Hardness CaCO3				338932	197919	83082	110244	38396				
Total Metals												
Aluminum Al				254	275	155	179	62				
Antimony Sb				3.1	3.9	5.4	1.2	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.12	0.06	0.03	0.03	0.01				
Bismuth Bi				0.66	0.34	0.14	0.18	0.06				
Boron B				253	104	45	56	19				
Cadmium Cd				0.03	0.01	0.01	0.01	0.00				
Calcium Ca				69206	39000	15920	19779	6839				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.58	0.72	1.72	0.24	0.08				
Copper Cu				9	7	2	4	1				
Iron Fe				385	569	164	224	78				
Lead Pb				0.17	0.29	0.08	0.10	0.03				
Lithium Li				21	13	6	7	2				
Magnesium Mg				53939	30162	12836	16125	5618				
Manganese Mn				48	93	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.33	0.78	0.38	0.44	0.15				
Nickel Ni				3.24	2.72	0.94	1.14	0.40				
Phosphorus P				130	86	47	50	17				
Potassium K				21526	11470	4796	5999	2085				
Selenium Se				6.61	2.64	1.20	1.39	0.48				
Silicon SiO2				3968	2454	1035	1332	462				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				299495	156522	68245	82124	28532				
Strontium Sr				301	193	70	99	35				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				3.02	1.86	0.78	1.00	0.35				
Titanium Ti				45	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.22	0.35	0.50	0.42	0.14				
Zinc Zn				7.61	14.68	5.57	4.39	1.54				
Zirconium Zr				38	23	10	13	4				

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Table I-4-d-B.3
Scenario 3 - Sediment Cc

Solute Loadings in DORI Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1063722	573231	248476	364428	127259				
TSS				29661	26798	11536	17144	5986				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				1	0	0	0	0				
Sulphate				21912	13014	5720	7607	2656				
Chloride				462990	284679	116029	157333	54920				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	12	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205608	118185	52978	66365	23183				
OrthoPhosphate-P				9	5	2	2	1				
Phosphate-P				123	83	46	48	17				
Org. Carbon				41246	23972	14595	12611	4405				
Hardness CaCO3				338340	197648	82983	109487	38247				
Total Metals												
Aluminum Al				251	274	155	177	62				
Antimony Sb				2.9	3.8	5.4	1.2	0.4				
Arsenic As				3.5	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				0.46	0.25	0.10	0.12	0.04				
Boron B				253	104	45	55	19				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				66189	37577	15382	18853	6580				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.48	0.68	1.70	0.21	0.07				
Copper Cu				9	7	2	4	1				
Iron Fe				385	569	164	223	78				
Lead Pb				0.16	0.29	0.08	0.09	0.03				
Lithium Li				21	13	6	7	2				
Magnesium Mg				53880	30136	12826	16035	5600				
Manganese Mn				48	93	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.25	0.75	0.37	0.41	0.14				
Nickel Ni				3.15	2.68	0.93	1.11	0.39				
Phosphorus P				126	84	47	49	17				
Potassium K				21194	11313	4737	5879	2053				
Selenium Se				6.60	2.64	1.20	1.38	0.48				
Silicon SiO2				3919	2431	1026	1303	456				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				294422	154133	67342	80402	28069				
Strontium Sr				300	192	69	99	34				
Tellurium Te				373	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.00	0.00	0.00	0.00				
Tin Sn				2.98	1.84	0.78	0.99	0.35				
Titanium Ti				45	28	12	15	5				
Uranium U				0.20	0.14	0.08	0.08	0.03				
Vanadium V				4.17	0.33	0.49	0.40	0.14				
Zinc Zn				7.37	14.56	5.52	4.30	1.51				
Zirconium Zr				37	23	10	13	4				

Table I-4-d-C.1
Scenario 3 - Sediment Control Option 4

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		1000000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		8			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	Creek (%)
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1583	216	199	
TSS	mg/L			3.1	6.8	8.1	
Free CN	mg/L		0.005	0.0036	0.00020	0.00010	4%
Total CN	mg/L	1.0		0.035	0.004	0.003	
WAD CN	mg/L			0.0048	0.0003	0.0001	
CNO	mg/L			4.0	0.22	0.12	
SCN	mg/L			0.118	0.006	0.003	
Sulphate	mg/L			110	8.7	7.1	
Chloride	mg/L			1036	112	91	
Total Ammonia	mg/L		0.97	1.38	0.089	0.047	9%
Nitrate	mg/L		2.9	9.3	0.54	0.28	18%
Nitrite	mg/L		0.018	0.53	0.032	0.018	176%
Alkalinity	mg/L			64	29	27	
OrthoPhosphate-P	mg/L			0.2149	0.0126	0.0071	
Phosphate-P	mg/L			0.2183	0.0314	0.0302	
Org. Carbon	mg/L			4.8	7.3	7.1	
Hardness CaCO3	mg/L			127	50	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.09	0.08	0.25	81%
Antimony Sb	mg/L			0.0195	0.0035	0.0022	
Arsenic As	mg/L	0.5	0.005	0.00	0.0007	0.0006	13%
Barium Ba	mg/L			0.0125	0.0035	0.0054	
Beryllium Be	mg/L			0.00083	0.00005	0.00003	
Bismuth Bi	mg/L			0.01889	0.00107	0.00064	
Boron B	mg/L			0.038	0.035	0.030	
Cadmium Cd	mg/L		0.000038	0.000087	0.0000079	0.0000171	21%
Calcium Ca	mg/L			296	24	16	
Chromium Cr	mg/L		0.001	0.0079	0.0010	0.0007	104%
Cobalt Co	mg/L			0.0124	0.0014	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0020	0.0021	98%
Iron Fe	mg/L		0.3	0.07	0.12	0.28	41%
Lead Pb	mg/L	0.2	0.002	0.00057	0.00009	0.00027	4%
Lithium Li	mg/L			0.0055	0.0029	0.0029	
Magnesium Mg	mg/L			10.7	7.5	7.4	
Manganese Mn	mg/L			0.034	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000085	0.0000011	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0107	0.00073	0.00048	1%
Nickel Ni	mg/L	0.5	0.025	0.010	0.0010	0.0009	4%
Phosphorus P	mg/L			0.323	0.037	0.033	
Potassium K	mg/L			49	5.3	4.1	
Selenium Se	mg/L		0.001	0.00067	0.00089	0.00084	89%
Silicon SiO2	mg/L			4.8	0.74	0.64	
Silver Ag	mg/L		0.0001	0.00017	0.0000112	0.0000085	11%
Sodium Na	mg/L			378	57	48	
Strontium Sr	mg/L			0.104	0.044	0.048	
Tellurium Te	mg/L			0.039	0.049	0.051	
Thallium Tl	mg/L		0.0008	0.000058	0.000032	0.002002	4%
Thorium Th	mg/L			0.000113	0.0000076	0.0000039	
Tin Sn	mg/L			0.00308	0.00055	0.00009	
Titanium Ti	mg/L			0.0060	0.0060	0.0062	
Uranium U	mg/L			0.000146	0.000045	0.000047	
Vanadium V	mg/L			0.0043	0.0008	0.0006	
Zinc Zn	mg/L	0.5	0.03	0.028	0.0042	0.0058	14%
Zirconium Zr	mg/L			0.0061	0.0051	0.0052	

Appendix I

Table I-4-d-C.2
Scenario 3 - Sediment Control Option 4

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				155	155	146	167	168				
TSS	mg/L				7.0	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.05	0.01	0.01	0.02	0.02				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.4	5.5	5.5	5.7				
Chloride	mg/L				63	61	60	69	70				
Total Ammonia	mg/L				0.012	0.026	0.006	0.017	0.017				
Nitrate	mg/L				0.04	0.08	0.10	0.13	0.15				
Nitrite	mg/L				0.007	0.008	0.006	0.004	0.009				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0018	0.0019	0.0021	0.0024	0.0027				
Phosphate-P	mg/L				0.0249	0.0170	0.0082	0.0205	0.0208				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0004	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00002	0.00002				
Bismuth Bi	mg/L				0.00015	0.00019	0.00023	0.00026	0.00029				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000050	0.0000158	0.0000035	0.0000036				
Calcium Ca	mg/L				9	8	9	10	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0003				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000008				
Molybdenum Mo	mg/L				0.00024	0.00023	0.00031	0.00029	0.00031				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.026	0.018	0.009	0.022	0.022				
Potassium K	mg/L				3.0	2.5	2.5	2.9	3.0				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00061				
Silicon SiO2	mg/L				0.54	0.54	0.55	0.56	0.57				
Silver Ag	mg/L				0.0000053	0.0000033	0.0000061	0.0000047	0.0000049				
Sodium Na	mg/L				38	32	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-d-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				164	163	153	174	175				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00010		0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001		0.0000	0.0000	0.0000				
CNO	mg/L				0.12		0.02	0.02	0.02				
SCN	mg/L				0.003	0.002	0.002	0.003	0.003				
Sulphate	mg/L				6.2	5.8	6.8	6.9	7.0				
Chloride	mg/L				70	66	65	74	75				
Total Ammonia	mg/L				0.026	0.047	0.002	0.017	0.017				
Nitrate	mg/L				0.19	0.20	0.21	0.24	0.26				
Nitrite	mg/L				0.018	0.008	0.007	0.004	0.009				
Alkalinity	mg/L				24	24	25	27	27				
OrthoPhosphate-P	mg/L				0.0044	0.0039	0.0040	0.0043	0.0045				
Phosphate-P	mg/L				0.0275	0.0190	0.0101	0.0224	0.0226				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0020	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00038	0.00038	0.00039	0.00043	0.00045				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000046	0.0000061	0.0000168	0.0000045	0.0000047				
Calcium Ca	mg/L				14	12	12	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.4	7.4				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.009				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000009				
Molybdenum Mo	mg/L				0.00042	0.00037	0.00044	0.00043	0.00044				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.030	0.022	0.013	0.025	0.026				
Potassium K	mg/L				3.8	3.1	3.1	3.5	3.6				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.60	0.60	0.62	0.62				
Silver Ag	mg/L				0.0000069	0.0000045	0.0000072	0.0000058	0.0000060				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000302	0.002002	0.002002				
Thorium Th	mg/L				0.000002	0.000002	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00005	0.00005	0.00005	0.00006	0.00006				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000046	0.000046				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0058				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-d-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				170	167	157	178	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00007								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.07								
SCN	mg/L				0.003	0.003	0.002	0.003	0.002				
Sulphate	mg/L				6.9	6.3	7.1	7.0	6.9				
Chloride	mg/L				74	70	69	78	78				
Total Ammonia	mg/L				0.021	0.033	0.002	0.010	0.010				
Nitrate	mg/L				0.26	0.25	0.25	0.28	0.28				
Nitrite	mg/L				0.016	0.006	0.006	0.003	0.004				
Alkalinity	mg/L				25	25	25	27	27				
OrthoPhosphate-P	mg/L				0.0061	0.0054	0.0053	0.0057	0.0059				
Phosphate-P	mg/L				0.0292	0.0205	0.0114	0.0238	0.0240				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				47	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0016	0.0011	0.0011				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00053	0.00050	0.00051	0.00055	0.00057				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000053	0.0000066	0.0000171	0.0000048	0.0000048				
Calcium Ca	mg/L				16	13	13	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0015	0.0016	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00011	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	5.3	5.4	7.4	7.4				
Manganese Mn	mg/L				0.025	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000008	0.0000008	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00048	0.00041	0.00046	0.00042	0.00042				
Nickel Ni	mg/L				0.0009	0.0007	0.0009	0.0008	0.0008				
Phosphorus P	mg/L				0.033	0.024	0.014	0.027	0.027				
Potassium K	mg/L				4.1	3.3	3.2	3.5	3.5				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.64	0.62	0.61	0.62	0.62				
Silver Ag	mg/L				0.0000078	0.0000052	0.0000078	0.0000064	0.0000065				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.048	0.048				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000102	0.000302	0.000302	0.002002	0.002002				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00007	0.00007	0.00007	0.00008	0.00008				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000039	0.000035	0.000038	0.000046	0.000046				
Vanadium V	mg/L				0.0005	0.0002	0.0006	0.0004	0.0004				
Zinc Zn	mg/L				0.0042	0.0023	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0052	0.0052				

Table I-4-d-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				171	172	166	193	199				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.3	5.7	6.5	6.3	6.3				
Chloride	mg/L				77	74	75	87	91				
Total Ammonia	mg/L				0.009	0.010	0.003	0.010	0.010				
Nitrate	mg/L				0.26	0.24	0.23	0.25	0.26				
Nitrite	mg/L				0.007	0.002	0.001	0.003	0.003				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0071	0.0058	0.0054	0.0055	0.0054				
Phosphate-P	mg/L				0.0302	0.0209	0.0115	0.0236	0.0235				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0010	0.0022	0.0016	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00064	0.00053	0.00049	0.00050	0.00049				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000052	0.0000065	0.0000170	0.0000047	0.0000047				
Calcium Ca	mg/L				14	12	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00027	0.00027				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000008	0.0000008	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00039	0.00033	0.00039	0.00035	0.00035				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.033	0.024	0.014	0.026	0.026				
Potassium K	mg/L				3.7	3.0	2.9	3.2	3.2				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.61	0.60	0.59	0.60	0.60				
Silver Ag	mg/L				0.0000085	0.0000056	0.0000081	0.0000067	0.0000067				
Sodium Na	mg/L				39	34	38	43	45				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000102	0.000302	0.000302	0.002002	0.002002				
Thorium Th	mg/L				0.000003	0.000003	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00009	0.00007	0.00007	0.00007	0.00007				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000039	0.000036	0.000038	0.000047	0.000047				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0020	0.0056	0.0056				
Zirconium Zr	mg/L				0.0052	0.0052	0.0052	0.0052	0.0052				

Table I-4-d-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				194	183	170	186	186				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.5	5.0	5.9	5.5	5.5				
Chloride	mg/L				90	80	76	82	81				
Total Ammonia	mg/L				0.007	0.011	0.004	0.010	0.010				
Nitrate	mg/L				0.23	0.21	0.20	0.19	0.20				
Nitrite	mg/L				0.003	0.003	0.001	0.003	0.003				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0052	0.0042	0.0038	0.0035	0.0034				
Phosphate-P	mg/L				0.0283	0.0193	0.0099	0.0216	0.0215				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0020	0.0014	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00047	0.00038	0.00035	0.00032	0.00031				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000051	0.0000064	0.0000170	0.0000043	0.0000044				
Calcium Ca	mg/L				14	11	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00033	0.00027	0.00033	0.00028	0.00028				
Nickel Ni	mg/L				0.0008	0.0006	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.031	0.022	0.012	0.024	0.023				
Potassium K	mg/L				3.4	2.7	2.6	2.9	2.9				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.59	0.58	0.58	0.57	0.57				
Silver Ag	mg/L				0.0000085	0.0000057	0.0000082	0.0000060	0.0000061				
Sodium Na	mg/L				48	39	41	42	42				
Strontium Sr	mg/L				0.046	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000102	0.000302	0.000302	0.002002	0.002002				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00007	0.00005	0.00005	0.00004	0.00004				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000040	0.000036	0.000039	0.000047	0.000047				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0020	0.0019	0.0054	0.0054				
Zirconium Zr	mg/L				0.0052	0.0052	0.0052	0.0052	0.0052				

Table I-4-d-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				173	168	157	177	176				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.7	4.4	5.3	5.1	5.1				
Chloride	mg/L				76	69	67	76	75				
Total Ammonia	mg/L				0.005	0.009	0.002	0.008	0.008				
Nitrate	mg/L				0.15	0.15	0.15	0.17	0.16				
Nitrite	mg/L				0.002	0.003	0.001	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0032	0.0026	0.0025	0.0025	0.0024				
Phosphate-P	mg/L				0.0263	0.0178	0.0086	0.0207	0.0205				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0019	0.0013	0.0008	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0042				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00029	0.00025	0.00023	0.00024	0.00022				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000042	0.0000057	0.0000162	0.0000039	0.0000038				
Calcium Ca	mg/L				11	9	9	10	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00026	0.00022	0.00029	0.00025	0.00024				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.028	0.019	0.010	0.022	0.022				
Potassium K	mg/L				3.1	2.5	2.4	2.7	2.7				
Selenium Se	mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.56	0.55	0.55	0.56	0.55				
Silver Ag	mg/L				0.0000071	0.0000045	0.0000070	0.0000056	0.0000054				
Sodium Na	mg/L				43	35	37	40	40				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000039	0.000035	0.000038	0.000046	0.000046				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0052	0.0052	0.0052	0.0052	0.0052				

Table I-4-d-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				164	161	150	169	169				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.3	4.1	5.0	4.8	4.8				
Chloride	mg/L				69	65	63	70	70				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.13	0.10	0.08	0.08	0.07				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0022	0.0019	0.0018	0.0017	0.0017				
Phosphate-P	mg/L				0.0253	0.0170	0.0079	0.0198	0.0198				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00021	0.00018	0.00017	0.00016	0.00016				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000041	0.0000052	0.0000156	0.0000030	0.0000030				
Calcium Ca	mg/L				9	8	8	9	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00022	0.00020	0.00026	0.00022	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.018	0.009	0.021	0.021				
Potassium K	mg/L				2.9	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.55	0.54	0.54	0.53	0.54				
Silver Ag	mg/L				0.0000069	0.0000038	0.0000062	0.0000041	0.0000040				
Sodium Na	mg/L				41	33	36	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000003	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti	mg/L				0.0061	0.0061	0.0062	0.0061	0.0061				
Uranium U	mg/L				0.000039	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0052	0.0052				
Zirconium Zr	mg/L				0.0052	0.0051	0.0051	0.0051	0.0051				

Table I-4-d-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake **Water Quality in Little Roberst Lake Outflow**

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				158	157	147	166	166				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.1	3.9	4.9	4.6	4.6				
Chloride	mg/L				66	62	61	68	68				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.05	0.04	0.03	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0015	0.0015	0.0014	0.0014				
Phosphate-P	mg/L				0.0248	0.0166	0.0076	0.0195	0.0195				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00016	0.00014	0.00014	0.00013	0.00013				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000033	0.0000047	0.0000151	0.0000026	0.0000025				
Calcium Ca	mg/L				9	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00020	0.00018	0.00025	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000059	0.0000031	0.0000055	0.0000035	0.0000035				
Sodium Na	mg/L				39	33	35	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-d-C.2
Scenario 3 - Sediment Control Optic

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				155	155	144	165	164				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.9	3.8	4.8	4.6	4.6				
Chloride	mg/L				64	60	59	67	67				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0014	0.0013	0.0013	0.0013	0.0012				
Phosphate-P	mg/L				0.0245	0.0164	0.0074	0.0194	0.0194				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0017	0.0012	0.0006	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00013	0.00012	0.00012	0.00012	0.00012				
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd	mg/L				0.0000029	0.0000043	0.0000149	0.0000024	0.0000023				
Calcium Ca	mg/L				8	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.012	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00019	0.00017	0.00024	0.00021	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.8	2.2	2.2	2.5	2.5				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.53	0.52	0.52	0.53	0.52				
Silver Ag	mg/L				0.0000052	0.0000026	0.0000051	0.0000035	0.0000033				
Sodium Na	mg/L				39	32	34	37	37				
Strontium Sr	mg/L				0.045	0.037	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0062	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000043				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-4-d-C.2
Scenario 3 - Sediment Control Opti

Water Quality in Little Roberst Lake		Water Quality in Little Roberst Lake Outflow										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				154	154	143	163	163			
TSS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.9	3.8	4.8	4.5	4.5			
Chloride	mg/L				63	60	59	66	66			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0012	0.0012	0.0012	0.0011	0.0011			
Phosphate-P	mg/L				0.0243	0.0163	0.0073	0.0193	0.0193			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00012	0.00011	0.00011	0.00011	0.00011			
Boron B	mg/L				0.030	0.020	0.028	0.027	0.027			
Cadmium Cd	mg/L				0.0000027	0.0000042	0.0000147	0.0000022	0.0000022			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2			
Manganese Mn	mg/L				0.024	0.008	0.012	0.008	0.008			
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000006	0.0000006			
Molybdenum Mo	mg/L				0.00019	0.00017	0.00024	0.00020	0.00020			
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.024	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.8	2.2	2.2	2.5	2.5			
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060			
Silicon SiO2	mg/L				0.52	0.52	0.52	0.52	0.52			
Silver Ag	mg/L				0.0000050	0.0000024	0.0000049	0.0000030	0.0000030			
Sodium Na	mg/L				38	32	34	37	37			
Strontium Sr	mg/L				0.045	0.037	0.040	0.046	0.046			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000001	0.000000	0.000000	0.000000	0.000000			
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061			
Uranium U	mg/L				0.000036	0.000032	0.000035	0.000043	0.000043			
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0051	0.0052			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-4-d-C.3
Scenario 3 - Sediment Control Option 4

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	151	153				
TSS				3.9	5.6	5.8	6.7	6.7				
Free CN				0.00008	0.00001	0.00003	0.00003	0.00003				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.09	0.01	0.03	0.03	0.03				
SCN				0.001	0.001	0.002	0.002	0.002				
Sulphate				3.8	3.9	4.3	4.9	5.2				
Chloride				61	62	62	67	69				
Total Ammonia				0.019	0.049	0.024	0.031	0.032				
Nitrate				0.08	0.14	0.20	0.25	0.28				
Nitrite				0.011	0.014	0.014	0.006	0.016				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0023	0.0025	0.0028	0.0034	0.0039				
Phosphate-P				0.0173	0.0188	0.0250	0.0213	0.0218				
Org. Carbon				5.3	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0008	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0005				
Barium Ba				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00003	0.00003				
Bismuth Bi				0.00012	0.00021	0.00028	0.00034	0.00039				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000044	0.0000043	0.0000047	0.0000051				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000008	0.0000008	0.0000008	0.0000009				
Molybdenum Mo				0.00026	0.00027	0.00032	0.00034	0.00038				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.021	0.027	0.024	0.025				
Potassium K				3.2	2.9	3.0	3.1	3.3				
Selenium Se				0.00086	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.54	0.56	0.57	0.59	0.61				
Silver Ag				0.0000049	0.0000063	0.0000068	0.0000073	0.0000076				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000031				
Thorium Th				0.0000016	0.0000027	0.0000034	0.0000037	0.0000041				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000032	0.000041	0.000035	0.000035				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-4-d-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				160	139	143	165	166				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00020		0.00003		0.00003	0.00003			
Total CN				0.004	0.002	0.002	0.002	0.002				
WAD CN				0.0003		0.0000	0.0000	0.0000				
CNO				0.22		0.03	0.03	0.03				
SCN				0.005	0.004	0.004	0.005	0.005				
Sulphate				7.3	6.7	6.9	7.5	7.8				
Chloride				74	73	71	77	78				
Total Ammonia				0.044	0.089	0.016	0.032	0.032				
Nitrate				0.36	0.38	0.41	0.47	0.50				
Nitrite				0.032	0.013	0.015	0.005	0.016				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0073	0.0064	0.0065	0.0071	0.0075				
Phosphate-P				0.0223	0.0228	0.0286	0.0250	0.0254				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0009	0.0013	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0035	0.0033	0.0035	0.0035				
Beryllium Be				0.00004	0.00003	0.00004	0.00004	0.00004				
Bismuth Bi				0.00056	0.00056	0.00060	0.00066	0.00071				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000066	0.0000066	0.0000064	0.0000068	0.0000071				
Calcium Ca				21	18	18	19	20				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0006	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000010	0.0000010	0.0000010	0.0000011				
Molybdenum Mo				0.00060	0.00054	0.00057	0.00060	0.00062				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0009				
Phosphorus P				0.027	0.028	0.034	0.031	0.031				
Potassium K				4.8	4.1	4.1	4.3	4.4				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.69	0.67	0.67	0.69	0.71				
Silver Ag				0.0000079	0.0000087	0.0000089	0.0000095	0.0000097				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.043				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000032				
Thorium Th				0.0000038	0.0000044	0.0000049	0.0000053	0.0000056				
Tin Sn				0.00047	0.00047	0.00048	0.00049	0.00049				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000029	0.000034	0.000042	0.000036	0.000037				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0020	0.0040	0.0037	0.0028	0.0029				
Zirconium Zr				0.0049	0.0050	0.0050	0.0050	0.0050				

Table I-4-d-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				171	148	150	171	172				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00013								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0002								
CNO				0.14								
SCN				0.006	0.005	0.005	0.005	0.005				
Sulphate				8.7	7.6	7.4	7.7	7.7				
Chloride				82	80	78	83	84				
Total Ammonia				0.036	0.061	0.016	0.018	0.019				
Nitrate				0.50	0.48	0.49	0.53	0.54				
Nitrite				0.030	0.010	0.014	0.004	0.005				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0105	0.0091	0.0090	0.0098	0.0101				
Phosphate-P				0.0256	0.0255	0.0311	0.0277	0.0280				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				50	46	46	47	47				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0012	0.0016	0.0035	0.0013	0.0014				
Arsenic As				0.0007	0.0006	0.0005	0.0005	0.0005				
Barium Ba				0.0034	0.0035	0.0034	0.0035	0.0035				
Beryllium Be				0.00005	0.00004	0.00005	0.00005	0.00005				
Bismuth Bi				0.00085	0.00080	0.00082	0.00090	0.00094				
Boron B				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000079	0.0000075	0.0000070	0.0000072	0.0000073				
Calcium Ca				24	20	19	19	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0007	0.0007	0.0014	0.0006	0.0006				
Copper Cu				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00009	0.00007	0.00007	0.00007				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.5	6.7	6.8	6.7	6.7				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000011	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo				0.00073	0.00061	0.00060	0.00059	0.00058				
Nickel Ni				0.0009	0.0010	0.0009	0.0009	0.0009				
Phosphorus P				0.032	0.031	0.037	0.034	0.034				
Potassium K				5.3	4.4	4.3	4.2	4.2				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.74	0.70	0.69	0.70	0.70				
Silver Ag				0.0000097	0.0000101	0.0000101	0.0000106	0.0000107				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.044	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000032	0.000032	0.000032	0.000032	0.000032				
Thorium Th				0.0000052	0.0000055	0.0000058	0.0000062	0.0000064				
Tin Sn				0.00051	0.00051	0.00051	0.00052	0.00053				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0060				
Uranium U				0.000030	0.000035	0.000043	0.000037	0.000038				
Vanadium V				0.0007	0.0002	0.0004	0.0004	0.0004				
Zinc Zn				0.0024	0.0042	0.0039	0.0028	0.0028				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-4-d-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				173	158	169	201	212				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.005	0.004	0.003	0.003	0.003				
Sulphate				7.5	6.4	6.2	6.4	6.3				
Chloride				88	88	90	102	109				
Total Ammonia				0.012	0.016	0.020	0.017	0.018				
Nitrate				0.49	0.45	0.45	0.48	0.49				
Nitrite				0.012	0.002	0.004	0.003	0.003				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0126	0.0100	0.0092	0.0094	0.0092				
Phosphate-P				0.0276	0.0264	0.0314	0.0274	0.0271				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0014	0.0016	0.0035	0.0012	0.0012				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00005	0.00005	0.00004	0.00005	0.00005				
Bismuth Bi				0.00107	0.00085	0.00078	0.00080	0.00078				
Boron B				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000076	0.0000073	0.0000068	0.0000071	0.0000072				
Calcium Ca				20	17	17	17	18				
Chromium Cr				0.001	0.001	0.001	0.001	0.000				
Cobalt Co				0.0006	0.0005	0.0012	0.0005	0.0004				
Copper Cu				0.0016	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00009	0.00006	0.00006	0.00007				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000011	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo				0.00056	0.00047	0.00047	0.00046	0.00045				
Nickel Ni				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P				0.034	0.032	0.036	0.033	0.032				
Potassium K				4.6	3.8	3.7	3.6	3.6				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.69	0.66	0.65	0.66	0.66				
Silver Ag				0.0000110	0.0000109	0.0000107	0.0000112	0.0000112				
Sodium Na				39	37	41	43	47				
Strontium Sr				0.043	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000032	0.000032	0.000032	0.000032	0.000032				
Thorium Th				0.0000064	0.0000065	0.0000068	0.0000073	0.0000076				
Tin Sn				0.00055	0.00052	0.00051	0.00051	0.00051				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000031	0.000036	0.000044	0.000039	0.000039				
Vanadium V				0.0008	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0021	0.0040	0.0036	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0051	0.0051				

Table I-4-d-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				216	179	176	187	186				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.002	0.002	0.002	0.002				
Sulphate				6.0	5.1	5.0	4.9	4.8				
Chloride				112	99	92	92	91				
Total Ammonia				0.009	0.018	0.020	0.017	0.018				
Nitrate				0.43	0.39	0.40	0.37	0.38				
Nitrite				0.003	0.004	0.004	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0088	0.0068	0.0061	0.0055	0.0053				
Phosphate-P				0.0239	0.0232	0.0283	0.0234	0.0233				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0011	0.0013	0.0032	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00005	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00075	0.00057	0.00051	0.00045	0.00044				
Boron B				0.035	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000075	0.0000071	0.0000066	0.0000063	0.0000064				
Calcium Ca				19	16	15	14	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00005	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00043	0.00036	0.00036	0.00032	0.00031				
Nickel Ni				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.029	0.028	0.033	0.027	0.027				
Potassium K				4.0	3.3	3.2	3.0	3.0				
Selenium Se				0.00089	0.00058	0.00062	0.00056	0.00056				
Silicon SiO2				0.65	0.63	0.62	0.60	0.61				
Silver Ag				0.0000111	0.0000109	0.0000108	0.0000099	0.0000099				
Sodium Na				57	46	46	42	42				
Strontium Sr				0.042	0.043	0.037	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000032	0.000032	0.000032	0.000031	0.000031				
Thorium Th				0.0000075	0.0000074	0.0000076	0.0000072	0.0000075				
Tin Sn				0.00051	0.00048	0.00047	0.00046	0.00046				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000033	0.000037	0.000045	0.000038	0.000039				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0017	0.0037	0.0033	0.0022	0.0022				
Zirconium Zr				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-4-d-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				177	150	150	170	167				
TSS				3.9	5.7	5.8	6.8	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.4	3.9	4.0	4.1	4.0				
Chloride				86	79	75	80	78				
Total Ammonia				0.006	0.015	0.017	0.014	0.015				
Nitrate				0.29	0.28	0.29	0.32	0.31				
Nitrite				0.002	0.003	0.003	0.003	0.003				
Alkalinity				28	25	27	27	27				
OrthoPhosphate-P				0.0049	0.0039	0.0036	0.0036	0.0034				
Phosphate-P				0.0200	0.0203	0.0258	0.0216	0.0213				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0011	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00040	0.00031	0.00028	0.00029	0.00027				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000058	0.0000057	0.0000053	0.0000055	0.0000054				
Calcium Ca				14	12	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00030	0.00026	0.00027	0.00026	0.00025				
Nickel Ni				0.0006	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.023	0.023	0.028	0.024	0.024				
Potassium K				3.4	2.8	2.8	2.7	2.7				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.59	0.58	0.57	0.58	0.57				
Silver Ag				0.0000084	0.0000086	0.0000086	0.0000091	0.0000086				
Sodium Na				48	39	40	38	37				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000055	0.0000055	0.0000058	0.0000063	0.0000062				
Tin Sn				0.00045	0.00044	0.00043	0.00044	0.00043				
Titanium Ti				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000030	0.000035	0.000043	0.000038	0.000037				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0014	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr				0.0050	0.0050	0.0050	0.0051	0.0050				

Table I-4-d-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				158	135	137	154	154				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.000				
Sulphate				3.7	3.4	3.4	3.5	3.5				
Chloride				73	70	67	69	69				
Total Ammonia				0.006	0.008	0.013	0.012	0.012				
Nitrate				0.24	0.18	0.16	0.14	0.14				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0030	0.0025	0.0023	0.0021	0.0021				
Phosphate-P				0.0181	0.0189	0.0245	0.0200	0.0200				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0031	0.0030	0.0030	0.0030				
Beryllium Be				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00024	0.00018	0.00017	0.00015	0.00015				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000055	0.0000048	0.0000040	0.0000038	0.0000037				
Calcium Ca				11	10	10	9	9				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0002	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0016	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.3	6.3				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000009	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00023	0.00021	0.00023	0.00020	0.00020				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.020	0.021	0.026	0.021	0.021				
Potassium K				3.1	2.6	2.6	2.5	2.5				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.56	0.55	0.55	0.54	0.54				
Silver Ag				0.0000078	0.0000074	0.0000069	0.0000061	0.0000060				
Sodium Na				43	36	37	34	34				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000056	0.0000042	0.0000038	0.0000033	0.0000032				
Tin Sn				0.00042	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0059	0.0059	0.0060	0.0059	0.0059				
Uranium U				0.000030	0.000034	0.000041	0.000034	0.000034				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-4-d-C.3
Scenario 3 - Sediment Co

Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				148	128	131	148	148				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.3	3.0	3.1	3.2	3.2				
Chloride				67	65	62	65	65				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.09	0.07	0.06	0.05	0.05				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0020	0.0017	0.0016	0.0015	0.0015				
Phosphate-P				0.0171	0.0181	0.0238	0.0194	0.0194				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0005	0.0009	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00002	0.00002	0.00002	0.00001	0.00001				
Bismuth Bi				0.00014	0.00011	0.00010	0.00009	0.00009				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000041	0.0000037	0.0000031	0.0000030	0.0000029				
Calcium Ca				10	9	9	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0013	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00020	0.00018	0.00020	0.00018	0.00018				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.025	0.020	0.020				
Potassium K				2.9	2.5	2.5	2.4	2.4				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.54	0.53	0.53	0.52	0.53				
Silver Ag				0.0000059	0.0000059	0.0000057	0.0000050	0.0000049				
Sodium Na				41	34	35	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000031	0.0000024	0.0000021	0.0000019	0.0000018				
Tin Sn				0.00041	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0059	0.0059	0.0060	0.0059	0.0059				
Uranium U				0.000028	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0032	0.0028	0.0017	0.0018				
Zirconium Zr				0.0050	0.0050	0.0050	0.0049	0.0049				

Table I-4-d-C.3
Scenario 3 - Sediment Co

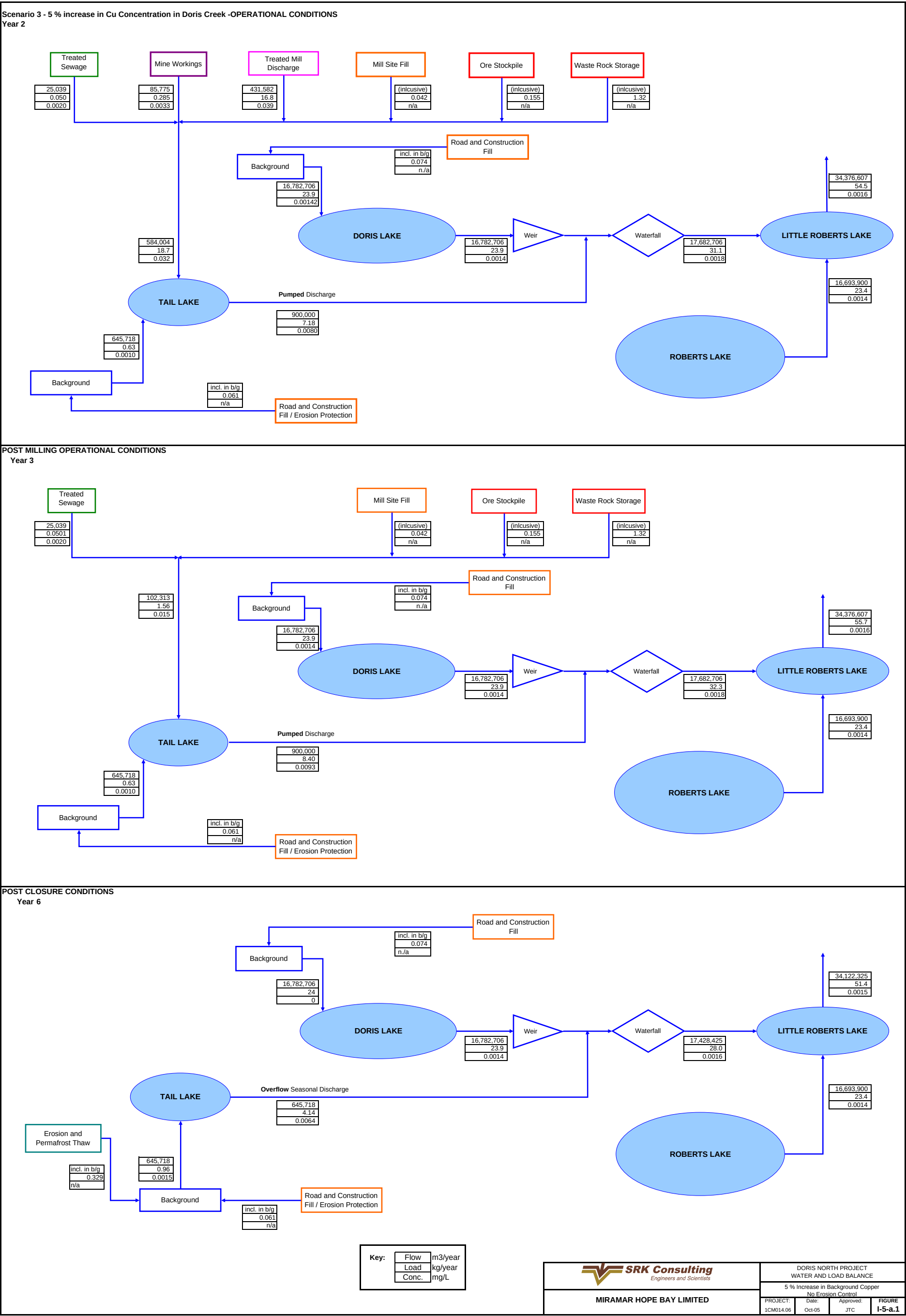
Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				142	123	127	146	145				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.0	2.8	3.0	3.1	3.1				
Chloride				63	62	60	63	63				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0014	0.0013	0.0012	0.0012	0.0012				
Phosphate-P				0.0165	0.0177	0.0234	0.0192	0.0191				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00009	0.00007	0.00007	0.00007	0.00007				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000033	0.0000031	0.0000026	0.0000026	0.0000025				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.4	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00017	0.00017	0.00019	0.00017	0.00017				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.024	0.020	0.019				
Potassium K				2.8	2.4	2.4	2.4	2.3				
Selenium Se				0.00087	0.00056	0.00060	0.00055	0.00054				
Silicon SiO2				0.52	0.52	0.52	0.52	0.52				
Silver Ag				0.0000047	0.0000050	0.0000048	0.0000049	0.0000045				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.039	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000017	0.0000013	0.0000012	0.0000012	0.0000011				
Tin Sn				0.00040	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0059	0.0059	0.0059	0.0060	0.0059				
Uranium U				0.000026	0.000031	0.000039	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0049				

Table I-4-d-C.3
Scenario 3 - Sediment Co

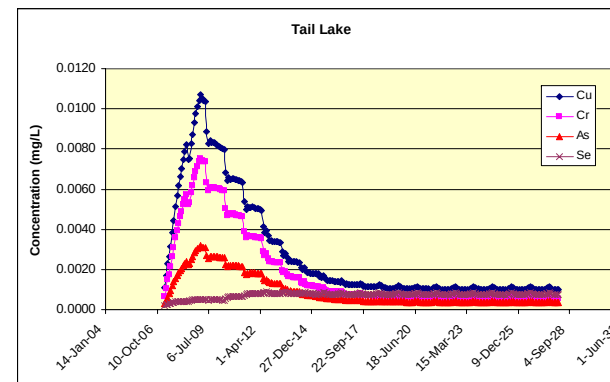
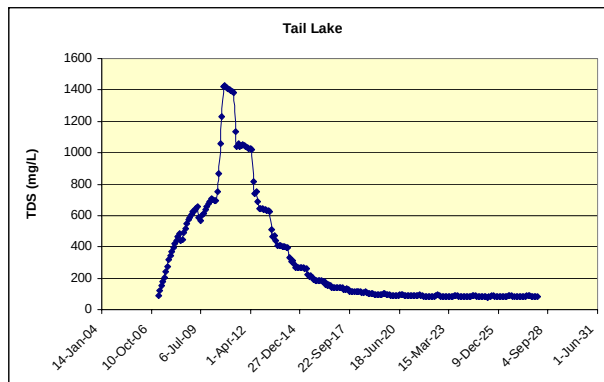
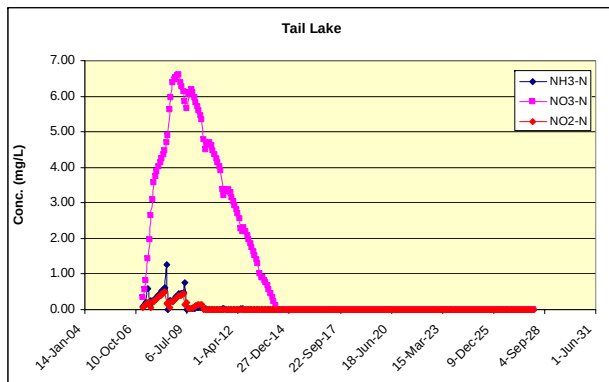
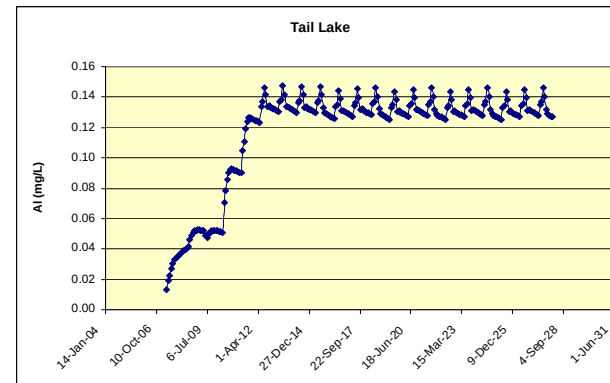
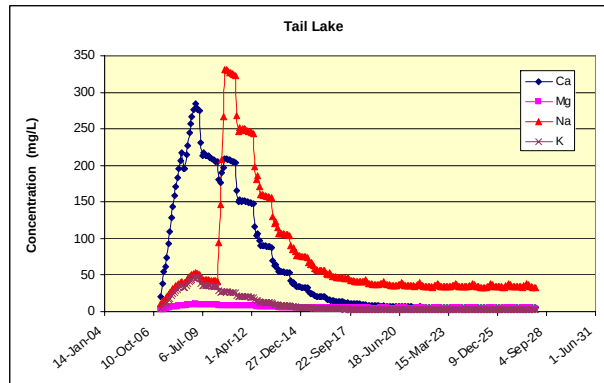
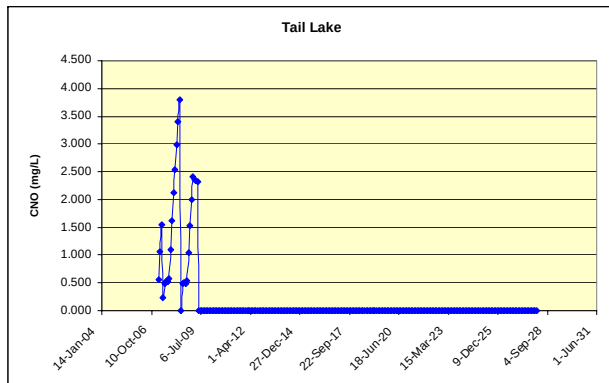
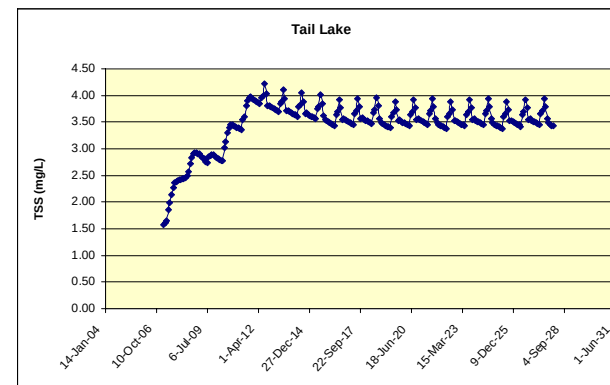
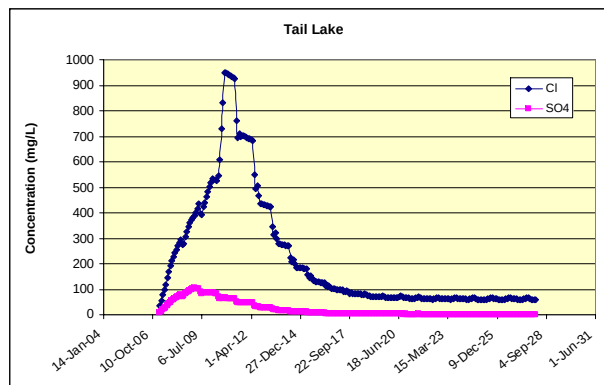
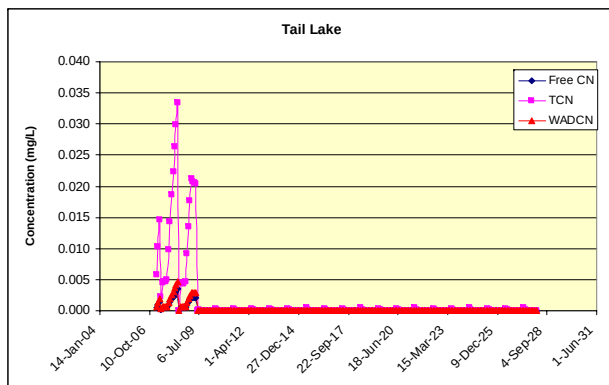
Loadings in Little Robert Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				140	121	125	143	143				
TSS				3.9	5.7	5.8	6.7	6.7				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				2.9	2.8	2.9	3.0	3.0				
Chloride				61	60	58	62	62				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0011	0.0010	0.0010	0.0010	0.0010				
Phosphate-P				0.0162	0.0175	0.0232	0.0189	0.0189				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				44	42	42	43	43				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00006	0.00005	0.00005	0.00005	0.00005				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000029	0.0000028	0.0000023	0.0000023	0.0000023				
Calcium Ca				9	8	8	7	7				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0001	0.0009	0.0001	0.0001				
Copper Cu				0.0012	0.0015	0.0012	0.0015	0.0015				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.4	6.3	6.3				
Manganese Mn				0.006	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00016	0.00016	0.00018	0.00016	0.00016				
Nickel Ni				0.0004	0.0006	0.0005	0.0004	0.0004				
Phosphorus P				0.017	0.018	0.023	0.019	0.019				
Potassium K				2.8	2.4	2.4	2.3	2.3				
Selenium Se				0.00087	0.00056	0.00060	0.00054	0.00054				
Silicon SiO2				0.51	0.51	0.52	0.51	0.51				
Silver Ag				0.0000042	0.0000046	0.0000045	0.0000040	0.0000039				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.039	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000010	0.0000008	0.0000007	0.0000006	0.0000006				
Tin Sn				0.00039	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000030	0.000038	0.000032	0.000031				
Vanadium V				0.0005	0.0001	0.0002	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0017	0.0017				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				



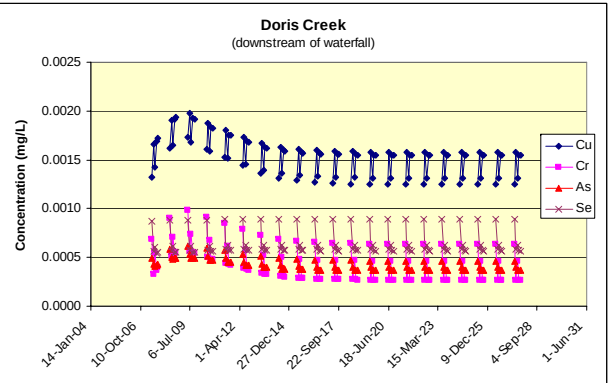
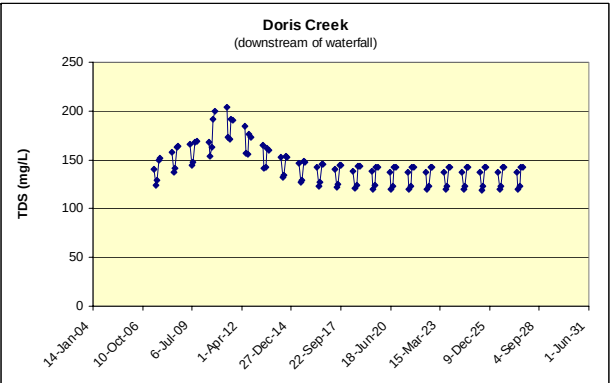
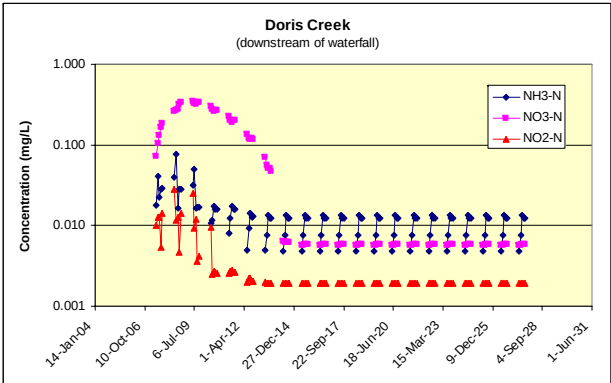
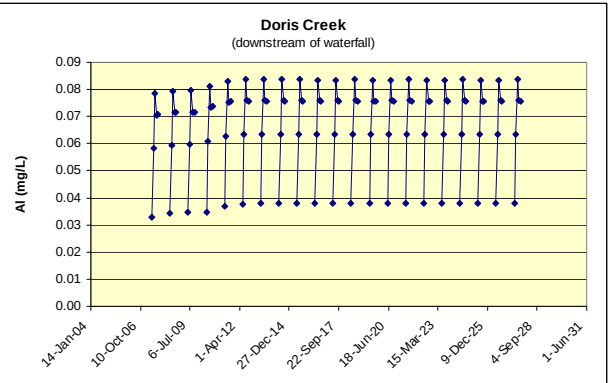
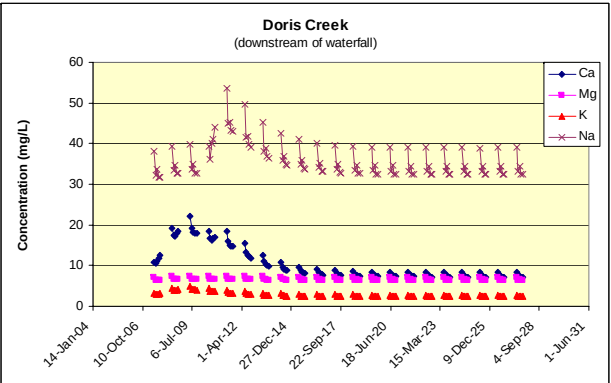
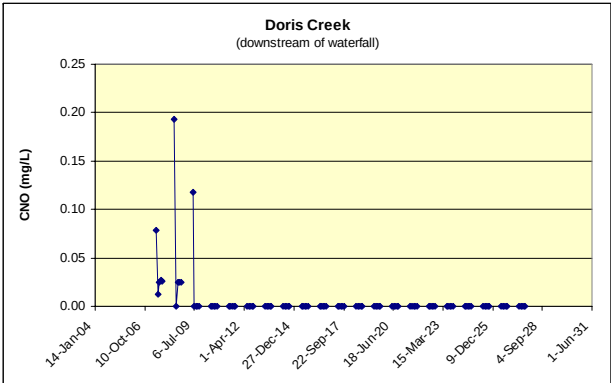
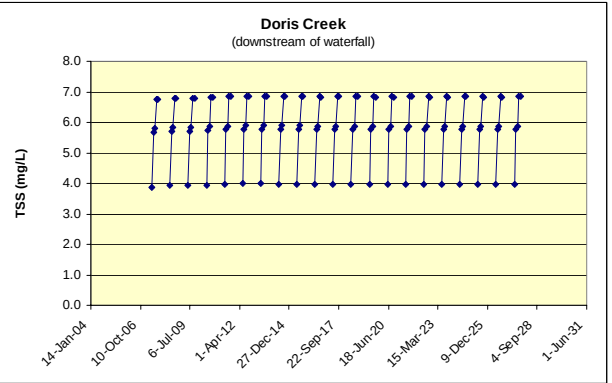
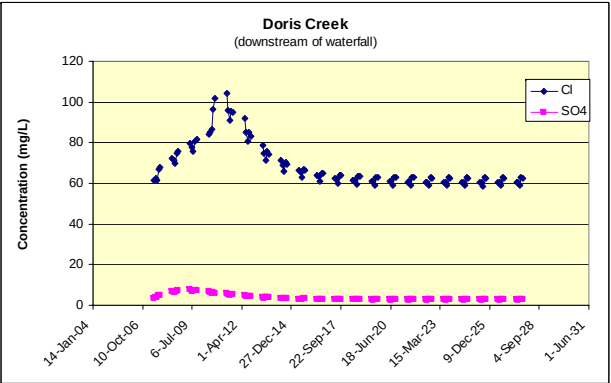
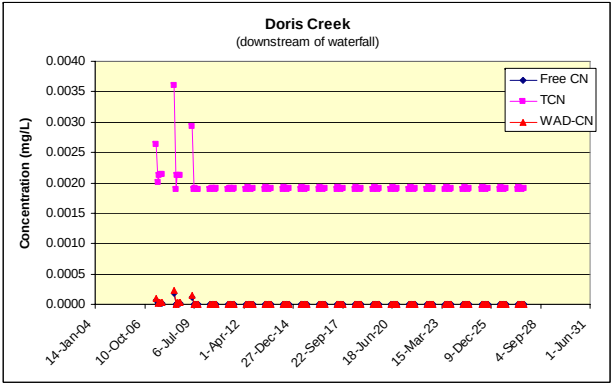
Appendix I

CuBG1 5 % Increase in Background Copper



Appendix I

CuBG1 5 % Increase in Background Copper



Appendix I

Table I-5-a-A.1
5 % increase in Background Copper in Doris Lake

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate 900000 m3/year Degradation Field(age) Tail Lk Cu < CME Year 9							
MMER		CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3		
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1425	203	192	
TSS	mg/L			4.2	6.9	8.1	
Free CN	mg/L		0.005	0.0035	0.00018	0.00009	4%
Total CN	mg/L	1.0		0.033	0.004	0.003	
WAD CN	mg/L			0.0046	0.0002	0.0001	
CNO	mg/L			3.8	0.19	0.10	
SCN	mg/L			0.114	0.006	0.003	
Sulphate	mg/L			105	7.9	6.8	
Chloride	mg/L			951	104	87	
Total Ammonia	mg/L		0.97	1.27	0.076	0.040	8%
Nitrate	mg/L		2.9	6.6	0.34	0.18	12%
Nitrite	mg/L		0.018	0.51	0.028	0.016	155%
Alkalinity	mg/L			62	29	26	
OrthoPhosphate-P	mg/L			0.2038	0.0109	0.0062	
Phosphate-P	mg/L			0.2071	0.0309	0.0293	
Org. Carbon	mg/L			5.5	7.4	7.1	
Hardness CaCO3	mg/L			123	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.15	0.08	0.25	84%
Antimony Sb	mg/L			0.0184	0.0034	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	12%
Barium Ba	mg/L			0.0121	0.0035	0.0054	
Beryllium Be	mg/L			0.00069	0.00004	0.00003	
Bismuth Bi	mg/L			0.01783	0.00092	0.00056	
Boron B	mg/L			0.035	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000064	0.0000063	0.0000162	17%
Calcium Ca	mg/L			284	22	15	
Chromium Cr	mg/L		0.001	0.0075	0.0010	0.001	98%
Cobalt Co	mg/L			0.0119	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.00198	0.0021	99%
Iron Fe	mg/L		0.3	0.16	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00045	0.00008	0.00026	4%
Lithium Li	mg/L			0.0053	0.0029	0.0029	
Magnesium Mg	mg/L			10.3	7.4	7.3	
Manganese Mn	mg/L			0.033	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000117	0.00000117	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0103	0.00066	0.00044	1%
Nickel Ni	mg/L	0.5	0.025	0.009	0.0010	0.0009	4%
Phosphorus P	mg/L			0.292	0.035	0.032	
Potassium K	mg/L			47	5.0	3.9	
Selenium Se	mg/L		0.001	0.00090	0.0009	0.00084	89%
Silicon SiO2	mg/L			4.5	0.70	0.62	
Silver Ag	mg/L		0.0001	0.00012	0.0000080	0.0000069	8%
Sodium Na	mg/L			331	54	46	
Strontium Sr	mg/L			0.100	0.044	0.047	
Tellurium Te	mg/L			0.044	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000046	0.000031	0.0020	4%
Thorium Th	mg/L			0.000063	0.0000043	0.0000022	
Tin Sn	mg/L			0.00281	0.00052	0.00007	
Titanium Ti	mg/L			0.0123	0.0063	0.0063	
Uranium U	mg/L			0.000091	0.000041	0.000045	
Vanadium V	mg/L			0.0039	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.026	0.0041	0.0057	14%
Zirconium Zr	mg/L			0.0051	0.0050	0.0051	

Appendix I

Table I-5-a-A.2
5 % increase in Background Copper in Doris Lake

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	175	203	243	277	316	345	372	397	418
TSS	mg/L	1.6	1.6	1.6	1.9	2.0	2.1	2.3	2.4	2.4	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00141	0.00021	0.00045	0.00048	0.00047	0.00052	0.00101	0.00148	0.00193	0.00231
Total CN	mg/L	0.006	0.010	0.015	0.002	0.004	0.005	0.005	0.005	0.010	0.014	0.019	0.022
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0003	0.0006	0.0006	0.0006	0.0007	0.0013	0.0020	0.0026	0.0031
CNO	mg/L	0.55	1.06	1.55	0.24	0.49	0.52	0.52	0.57	1.11	1.63	2.12	2.54
SCN	mg/L	0.008	0.014	0.021	0.024	0.029	0.036	0.043	0.051	0.057	0.063	0.068	0.073
Sulphate	mg/L	7.5	13.4	19.3	23.3	28.5	35.7	41.9	48.7	54.1	59.0	63.7	67.6
Chloride	mg/L	37	57	77	97	118	145	168	193	211	227	242	255
Total Ammonia	mg/L	0.070	0.133	0.194	0.601	0.119	0.256	0.259	0.252	0.314	0.373	0.429	0.476
Nitrate	mg/L	0.35	0.58	0.80	1.43	1.96	2.65	3.10	3.56	3.73	3.88	4.02	4.12
Nitrite	mg/L	0.054	0.102	0.150	0.197	0.201	0.058	0.228	0.229	0.276	0.321	0.363	0.399
Alkalinity	mg/L	16	18	21	23	26	30	33	37	39	41	43	44
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0318	0.0382	0.0481	0.0565	0.0664	0.0745	0.0820	0.0891	0.0951
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0355	0.0418	0.0518	0.0601	0.0700	0.0780	0.0854	0.0924	0.0983
Org. Carbon	mg/L	3.0	2.9	2.8	3.2	3.4	3.6	3.6	3.6	3.5	3.4	3.3	3.2
Hardness CaCO3	mg/L	23	29	35	39	45	53	60	67	72	77	81	85
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0034	0.0046	0.0056	0.0066	0.0074	0.0078	0.0082	0.0085	0.0088
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0017	0.0018	0.0020	0.0021
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0032	0.0038	0.0046	0.0053	0.0060	0.0066	0.0071	0.0076	0.0080
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00023	0.00027	0.00031	0.00034	0.00037	0.00038	0.00039	0.00040	0.00041
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00320	0.00434	0.00532	0.00625	0.00700	0.00739	0.00773	0.00805	0.00831
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.016	0.018	0.019	0.020	0.021	0.021	0.022
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000154	0.0000195	0.0000241	0.0000282	0.0000321	0.0000347	0.0000371	0.0000393	0.0000412
Calcium Ca	mg/L	21	38	54	62	74	93	110	128	144	158	172	183
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0026	0.0031	0.0039	0.0046	0.0054	0.0060	0.0066	0.0072	0.0076
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0026	0.0031	0.0038	0.0044	0.0051	0.0057	0.0062	0.0066	0.0070
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00013	0.00016	0.00019	0.00022	0.00024	0.00026	0.00027	0.00029	0.00030
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0025	0.0028	0.0031	0.0034	0.0036	0.0038	0.0039	0.0039	0.0040
Magnesium Mg	mg/L	2.5	2.9	3.3	3.9	4.4	5.1	5.7	6.2	6.6	6.8	7.1	7.4
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.009	0.011	0.013	0.015	0.017	0.018	0.020	0.021
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000017	0.0000021	0.0000026	0.0000030	0.0000034	0.0000037	0.0000039	0.0000041	0.0000043
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00220	0.00265	0.00335	0.00393	0.00462	0.00519	0.00571	0.00620	0.00662
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0022	0.0027	0.0034	0.0039	0.0045	0.0050	0.0054	0.0058	0.0062
Phosphorus P	mg/L	0.020	0.033	0.047	0.057	0.069	0.086	0.101	0.117	0.129	0.140	0.151	0.160
Potassium K	mg/L	3.8	6.6	9.3	10.5	12.6	15.8	18.4	21.6	24.1	26.5	28.7	30.5
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00028	0.00031	0.00034	0.00036	0.00038	0.00039	0.00039	0.00040	0.00040
Silicon SiO2	mg/L	0.70	0.92	1.14	1.32	1.54	1.83	2.08	2.35	2.54	2.72	2.89	3.03
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000692	0.0000775	0.0000829	0.0000862	0.0000897	0.0000903	0.0000903	0.0000904	0.0000904
Sodium Na	mg/L	11	13	16	18	20	23	26	29	31	33	35	37
Strontium Sr	mg/L	0.017	0.021	0.026	0.030	0.035	0.041	0.047	0.053	0.057	0.061	0.065	0.068
Tellurium Te	mg/L	0.025	0.024	0.024	0.026	0.028	0.029	0.030	0.030	0.029	0.028	0.028	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000023	0.000025	0.000028	0.000031	0.000033	0.000033	0.000034	0.000035	0.000035
Thorium Th	mg/L				0.000007	0.000011	0.000013	0.000015	0.000016	0.000016	0.000015	0.000015	0.000014
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00054	0.00073	0.00089	0.00104	0.00115	0.00121	0.00125	0.00130	0.00133
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0034	0.0036	0.0038	0.0040	0.0041	0.0040	0.0040	0.0039	0.0038
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000034	0.000039	0.000042	0.000044	0.000045	0.000044	0.000043	0.000042	0.000041
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0017	0.0019	0.0020	0.0021	0.0022	0.0023
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0058	0.0070	0.0088	0.0105	0.0123	0.0136	0.0148	0.0159	0.0169
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0028	0.0030	0.0032	0.0033	0.0033	0.0032	0.0031	0.0030	0.0030

Appendix I

Table I-5-a-A.2
5 % increase in Background Copper

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	443	463	484	443	447	488	514	549	571	589	607	622
TSS	mg/L	2.4	2.4	2.5	2.5	2.6	2.7	2.8	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L	0.00272	0.00309	0.00346		0.00045	0.00045	0.00044	0.00049	0.00095	0.00140	0.00182	0.00219
Total CN	mg/L	0.026	0.030	0.033		0.004	0.004	0.004	0.005	0.009	0.014	0.018	0.021
WAD CN	mg/L	0.0036	0.0041	0.0046		0.0006	0.0006	0.0006	0.0006	0.0013	0.0019	0.0024	0.0029
CNO	mg/L	2.99	3.40	3.80		0.49	0.50	0.49	0.54	1.04	1.54	2.01	2.41
SCN	mg/L	0.078	0.083	0.087	0.078	0.078	0.086	0.091	0.098	0.102	0.107	0.111	0.114
Sulphate	mg/L	72.0	75.8	79.6	72.5	73.4	80.6	85.4	91.6	95.6	99.0	102.3	105.0
Chloride	mg/L	269	282	294	274	280	307	325	347	360	371	381	390
Total Ammonia	mg/L	0.528	0.574	0.619	1.274		0.256	0.244	0.238	0.297	0.353	0.406	0.451
Nitrate	mg/L	4.25	4.36	4.47	4.68	4.90	5.61	5.96	6.38	6.47	6.52	6.57	6.60
Nitrite	mg/L	0.439	0.474	0.509	0.182	0.202	0.043	0.228	0.227	0.272	0.315	0.355	0.389
Alkalinity	mg/L	46	48	49	47	48	52	54	57	59	60	61	62
OrthoPhosphate-P	mg/L	0.1018	0.1076	0.1134	0.1013	0.1017	0.1117	0.1181	0.1271	0.1333	0.1386	0.1437	0.1479
Phosphate-P	mg/L	0.1049	0.1106	0.1164	0.1047	0.1050	0.1151	0.1214	0.1304	0.1365	0.1418	0.1468	0.1509
Org. Carbon	mg/L	3.2	3.1	3.0	3.3	3.5	3.6	3.7	3.6	3.5	3.4	3.4	3.3
Hardness CaCO3	mg/L	89	93	96	89	91	99	104	110	114	117	120	123
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0092	0.0094	0.0097	0.0098	0.0104	0.0114	0.0122	0.0129	0.0132	0.0134	0.0136	0.0137
Arsenic As	mg/L	0.0022	0.0023	0.0024	0.0022	0.0023	0.0025	0.0026	0.0028	0.0029	0.0030	0.0031	0.0032
Barium Ba	mg/L	0.0085	0.0089	0.0093	0.0085	0.0086	0.0094	0.0100	0.0106	0.0111	0.0114	0.0118	0.0121
Beryllium Be	mg/L	0.00042	0.00043	0.00044	0.00045	0.00048	0.00051	0.00054	0.00056	0.00057	0.00058	0.00058	0.00058
Bismuth Bi	mg/L	0.00863	0.00889	0.00915	0.00930	0.00988	0.01086	0.01161	0.01228	0.01253	0.01269	0.01286	0.01298
Boron B	mg/L	0.023	0.023	0.024	0.023	0.025	0.027	0.028	0.029	0.030	0.030	0.031	0.031
Cadmium Cd	mg/L	0.0000433	0.0000452	0.0000470	0.0000450	0.0000465	0.0000511	0.0000543	0.0000578	0.0000597	0.0000612	0.0000626	0.0000638
Calcium Ca	mg/L	196	207	218	195	196	215	227	245	256	266	276	284
Chromium Cr	mg/L	0.005	0.005	0.006	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.007	0.008
Cobalt Co	mg/L	0.0081	0.0086	0.0091	0.0081	0.0082	0.0090	0.0095	0.0103	0.0107	0.0112	0.0115	0.0119
Copper Cu	mg/L	0.0075	0.0079	0.0082	0.0075	0.0075	0.0083	0.0087	0.0093	0.0097	0.0101	0.0104	0.0107
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00031	0.00032	0.00033	0.00033	0.00034	0.00037	0.00039	0.00042	0.00043	0.00044	0.00045	0.00045
Lithium Li	mg/L	0.0041	0.0042	0.0043	0.0042	0.0043	0.0047	0.0049	0.0051	0.0052	0.0052	0.0053	0.0053
Magnesium Mg	mg/L	7.6	7.9	8.1	7.8	8.0	8.7	9.1	9.6	9.8	10.0	10.2	10.3
Manganese Mn	mg/L	0.023	0.024	0.025	0.022	0.023	0.025	0.026	0.028	0.030	0.031	0.032	0.033
Mercury Hg	mg/L	0.0000045	0.0000047	0.0000049	0.0000047	0.0000048	0.0000053	0.0000056	0.0000059	0.0000061	0.0000063	0.0000064	0.0000065
Molybdenum Mo	mg/L	0.00708	0.00749	0.00789	0.00705	0.00709	0.00778	0.00823	0.00886	0.00929	0.00966	0.01001	0.01031
Nickel Ni	mg/L	0.0065	0.0069	0.0072	0.0066	0.0067	0.0073	0.0078	0.0083	0.0087	0.0089	0.0092	0.0095
Phosphorus P	mg/L	0.170	0.179	0.188	0.172	0.174	0.191	0.202	0.217	0.226	0.234	0.241	0.248
Potassium K	mg/L	32.6	34.4	36.3	32.5	32.7	35.9	37.9	40.7	42.7	44.3	45.9	47.2
Selenium Se	mg/L	0.00041	0.00041	0.00041	0.00042	0.00044	0.00047	0.00049	0.00050	0.00051	0.00051	0.00051	0.00051
Silicon SiO2	mg/L	3.19	3.33	3.47	3.22	3.27	3.56	3.75	4.00	4.15	4.26	4.38	4.47
Silver Ag	mg/L	0.0000907	0.0000907	0.0000907	0.0000976	0.0001031	0.0001086	0.0001112	0.0001144	0.0001144	0.0001137	0.0001130	0.0001124
Sodium Na	mg/L	39	40	42	39	39	43	45	48	49	51	52	53
Strontium Sr	mg/L	0.072	0.075	0.078	0.072	0.073	0.080	0.084	0.090	0.093	0.095	0.098	0.100
Tellurium Te	mg/L	0.026	0.026	0.025	0.027	0.028	0.030	0.030	0.031	0.030	0.029	0.028	0.028
Thallium Tl	mg/L	0.000036	0.000036	0.000037	0.000037	0.000039	0.000041	0.000043	0.000045	0.000046	0.000046	0.000046	0.000046
Thorium Th	mg/L	0.000014	0.000014	0.000013	0.000018	0.000020	0.000023	0.000024	0.000025	0.000025	0.000024	0.000023	0.000023
Tin Sn	mg/L	0.00138	0.00141	0.00145	0.00148	0.00159	0.00174	0.00186	0.00197	0.00200	0.00202	0.00204	0.00205
Titanium Ti	mg/L	0.0038	0.0037	0.0036	0.0039	0.0041	0.0043	0.0045	0.0045	0.0045	0.0044	0.0043	0.0042
Uranium U	mg/L	0.000040	0.000039	0.000038	0.000045	0.000049	0.000052	0.000053	0.000054	0.000053	0.000052	0.000050	0.000049
Vanadium V	mg/L	0.0024	0.0025	0.0026	0.0026	0.0027	0.0029	0.0031	0.0033	0.0033	0.0034	0.0035	0.0035
Zinc Zn	mg/L	0.0179	0.0189	0.0198	0.0180	0.0181	0.0199	0.0213	0.0229	0.0238	0.0247	0.0255	0.0261
Zirconium Zr	mg/L	0.0029	0.0028	0.0027	0.0031	0.0032	0.0034	0.0035	0.0035	0.0035	0.0034	0.0033	0.0032

Table I-5-a-A.2
5 % increase in Background Copper

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	630	645	660	587	570	602	614	638	658	674	690	705
TSS	mg/L	2.9	2.8	2.8	2.8	2.7	2.8	2.9	2.9	2.9	2.9	2.8	2.8
Free CN	mg/L	0.00214	0.00213	0.00211									
Total CN	mg/L	0.021	0.021	0.020			0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0029	0.0028	0.0028									
CNO	mg/L	2.36	2.34	2.32									
SCN	mg/L	0.112	0.111	0.110	0.092	0.085	0.086	0.084	0.084	0.084	0.083	0.083	0.082
Sulphate	mg/L	103.4	103.1	102.8	88.4	83.1	85.3	84.7	85.5	85.8	85.5	85.3	85.2
Chloride	mg/L	402	418	434	396	394	424	441	464	484	501	518	534
Total Ammonia	mg/L	0.452	0.458	0.465	0.767		0.025	0.029	0.017	0.028	0.039	0.049	0.059
Nitrate	mg/L	6.39	6.26	6.14	5.83	5.65	6.05	6.11	6.20	6.10	5.96	5.83	5.71
Nitrite	mg/L	0.407	0.429	0.451	0.132	0.188	0.022	0.032	0.032	0.060	0.088	0.116	0.140
Alkalinity	mg/L	61	60	60	54	52	53	52	53	52	52	52	51
OrthoPhosphate-P	mg/L	0.1536	0.1606	0.1678	0.1490	0.1462	0.1573	0.1633	0.1727	0.1815	0.1891	0.1968	0.2038
Phosphate-P	mg/L	0.1565	0.1636	0.1707	0.1524	0.1495	0.1608	0.1666	0.1761	0.1849	0.1925	0.2001	0.2071
Org. Carbon	mg/L	3.3	3.2	3.2	3.5	3.7	3.9	3.9	4.0	4.0	3.9	3.9	3.9
Hardness CaCO3	mg/L	120	120	119	104	99	101	100	100	100	99	98	97
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0139	0.0143	0.0147	0.0141	0.0143	0.0154	0.0161	0.0169	0.0173	0.0177	0.0181	0.0184
Arsenic As	mg/L	0.0031	0.0031	0.0031	0.0027	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Barium Ba	mg/L	0.0118	0.0118	0.0117	0.0101	0.0095	0.0098	0.0097	0.0097	0.0097	0.0097	0.0096	0.0096
Beryllium Be	mg/L	0.00058	0.00059	0.00060	0.00058	0.00059	0.00062	0.00064	0.00065	0.00067	0.00067	0.00068	0.00069
Bismuth Bi	mg/L	0.01321	0.01358	0.01395	0.01347	0.01376	0.01483	0.01554	0.01624	0.01673	0.01710	0.01748	0.01783
Boron B	mg/L	0.031	0.031	0.031	0.029	0.028	0.029	0.030	0.030	0.031	0.031	0.031	0.031
Cadmium Cd	mg/L	0.0000625	0.0000621	0.0000616	0.0000539	0.0000512	0.0000525	0.0000523	0.0000526	0.0000525	0.0000520	0.0000516	0.0000513
Calcium Ca	mg/L	279	276	274	231	214	217	213	213	213	211	209	208
Chromium Cr	mg/L	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0117	0.0116	0.0115	0.0098	0.0091	0.0093	0.0091	0.0092	0.0092	0.0091	0.0090	0.0090
Copper Cu	mg/L	0.0105	0.0104	0.0104	0.0088	0.0083	0.0084	0.0083	0.0083	0.0083	0.0082	0.0082	0.0081
Iron Fe	mg/L	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00045	0.00045	0.00045	0.00041	0.00040	0.00042	0.00042	0.00043	0.00043	0.00044	0.00044	0.00044
Lithium Li	mg/L	0.0052	0.0052	0.0052	0.0049	0.0048	0.0050	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051
Magnesium Mg	mg/L	10.2	10.1	10.1	9.2	8.9	9.3	9.3	9.4	9.4	9.4	9.4	9.4
Manganese Mn	mg/L	0.032	0.032	0.032	0.027	0.025	0.026	0.025	0.025	0.025	0.025	0.025	0.025
Mercury Hg	mg/L	0.0000064	0.0000064	0.0000063	0.0000056	0.0000053	0.0000055	0.0000055	0.0000055	0.0000055	0.0000054	0.0000054	0.0000054
Molybdenum Mo	mg/L	0.01010	0.01003	0.00995	0.00837	0.00775	0.00786	0.00772	0.00772	0.00770	0.00763	0.00757	0.00752
Nickel Ni	mg/L	0.0093	0.0093	0.0093	0.0080	0.0076	0.0078	0.0077	0.0078	0.0078	0.0078	0.0078	0.0078
Phosphorus P	mg/L	0.252	0.259	0.266	0.236	0.230	0.244	0.250	0.260	0.270	0.277	0.285	0.292
Potassium K	mg/L	46.3	45.9	45.6	38.5	35.6	36.2	35.5	35.5	35.4	35.1	34.8	34.5
Selenium Se	mg/L	0.00050	0.00050	0.00049	0.00048	0.00047	0.00049	0.00049	0.00049	0.00049	0.00049	0.00048	0.00048
Silicon SiO2	mg/L	4.39	4.36	4.33	3.78	3.57	3.65	3.62	3.63	3.63	3.59	3.57	3.54
Silver Ag	mg/L	0.0001111	0.0001112	0.0001112	0.0001130	0.0001152	0.0001193	0.0001200	0.0001217	0.0001224	0.0001223	0.0001223	0.0001223
Sodium Na	mg/L	52	52	51	45	43	44	43	44	43	43	43	42
Strontium Sr	mg/L	0.098	0.098	0.097	0.085	0.080	0.082	0.082	0.082	0.082	0.081	0.081	0.080
Tellurium Te	mg/L	0.027	0.027	0.027	0.029	0.030	0.032	0.032	0.033	0.033	0.032	0.032	0.032
Thallium Tl	mg/L	0.000046	0.000045	0.000045	0.000042	0.000042	0.000043	0.000043	0.000044	0.000044	0.000043	0.000043	0.000043
Thorium Th	mg/L	0.000022	0.000022	0.000022	0.000022	0.000023	0.000024	0.000025	0.000026	0.000026	0.000026	0.000025	0.000025
Tin Sn	mg/L	0.00209	0.00214	0.00220	0.00213	0.00219	0.00236	0.00247	0.00258	0.00265	0.00271	0.00276	0.00281
Titanium Ti	mg/L	0.0042	0.0042	0.0041	0.0044	0.0045	0.0048	0.0049	0.0050	0.0050	0.0050	0.0049	0.0049
Uranium U	mg/L	0.000048	0.000048	0.000048	0.000051	0.000053	0.000055	0.000056	0.000057	0.000057	0.000056	0.000056	0.000056
Vanadium V	mg/L	0.0035	0.0035	0.0036	0.0034	0.0033	0.0035	0.0036	0.0037	0.0038	0.0038	0.0039	0.0039
Zinc Zn	mg/L	0.0257	0.0256	0.0254	0.0218	0.0204	0.0209	0.0209	0.0211	0.0211	0.0210	0.0209	0.0208
Zirconium Zr	mg/L	0.0031	0.0031	0.0031	0.0033	0.0035	0.0036	0.0037	0.0038	0.0038	0.0037	0.0037	0.0037

Appendix I

Table I-5-a-A.2
5 % increase in Background Copper

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	700	697	694	753	866	1060	1228	1422	1425	1416	1409	1404
TSS	mg/L	2.8	2.8	2.8	3.0	3.1	3.3	3.4	3.4	3.4	3.4	3.4	3.4
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.081	0.081	0.081	0.067	0.061	0.062	0.061	0.062	0.062	0.061	0.061	0.061
Sulphate	mg/L	84.6	84.3	83.9	69.9	64.4	65.6	64.5	64.8	64.9	64.5	64.2	64.0
Chloride	mg/L	530	528	525	546	609	729	830	948	951	945	940	937
Total Ammonia	mg/L	0.058	0.058	0.058	0.016	0.015	0.007	0.010	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	5.58	5.47	5.35	4.77	4.51	4.65	4.64	4.69	4.60	4.47	4.35	4.24
Nitrite	mg/L	0.139	0.139	0.138		0.005	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	51	51	50	45	44	45	45	46	46	46	45	45
OrthoPhosphate-P	mg/L	0.2023	0.2015	0.2005	0.1665	0.1532	0.1559	0.1531	0.1536	0.1540	0.1530	0.1523	0.1517
Phosphate-P	mg/L	0.2056	0.2047	0.2038	0.1721	0.1593	0.1626	0.1600	0.1607	0.1611	0.1601	0.1593	0.1587
Org. Carbon	mg/L	3.8	3.8	3.8	4.0	4.2	4.4	4.5	4.6	4.6	4.6	4.5	4.5
Hardness CaCO3	mg/L	97	96	96	84	81	83	82	83	83	83	82	82
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Antimony Sb	mg/L	0.0183	0.0182	0.0181	0.0151	0.0139	0.0141	0.0139	0.0139	0.0140	0.0139	0.0138	0.0138
Arsenic As	mg/L	0.0026	0.0026	0.0026	0.0022	0.0021	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Barium Ba	mg/L	0.0095	0.0095	0.0094	0.0081	0.0075	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0076
Beryllium Be	mg/L	0.00068	0.00068	0.00068	0.00060	0.00057	0.00058	0.00057	0.00058	0.00058	0.00058	0.00057	0.00057
Bismuth Bi	mg/L	0.01770	0.01763	0.01754	0.01456	0.01338	0.01363	0.01338	0.01342	0.01345	0.01337	0.01330	0.01326
Boron B	mg/L	0.030	0.030	0.030	0.030	0.031	0.032	0.033	0.033	0.033	0.033	0.033	0.033
Cadmium Cd	mg/L	0.0000510	0.0000507	0.0000505	0.0000452	0.0000435	0.0000451	0.0000453	0.0000458	0.0000459	0.0000457	0.0000454	0.0000453
Calcium Ca	mg/L	206	205	204	180	176	190	197	209	209	208	207	206
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0089	0.0089	0.0089	0.0074	0.0068	0.0069	0.0068	0.0068	0.0068	0.0068	0.0068	0.0067
Copper Cu	mg/L	0.0081	0.0080	0.0080	0.0068	0.0064	0.0066	0.0065	0.0065	0.0065	0.0065	0.0064	0.0064
Iron Fe	mg/L	0.06	0.06	0.06	0.08	0.08	0.09	0.10	0.10	0.10	0.10	0.10	0.10
Lead Pb	mg/L	0.00044	0.00043	0.00043	0.00038	0.00036	0.00037	0.00037	0.00037	0.00037	0.00037	0.00037	0.00037
Lithium Li	mg/L	0.0050	0.0050	0.0050	0.0049	0.0048	0.0050	0.0051	0.0052	0.0052	0.0051	0.0051	0.0051
Magnesium Mg	mg/L	9.3	9.2	9.2	8.6	8.4	8.7	8.7	8.8	8.9	8.8	8.8	8.7
Manganese Mn	mg/L	0.025	0.025	0.025	0.021	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Mercury Hg	mg/L	0.0000053	0.0000053	0.0000053	0.0000066	0.0000071	0.0000076	0.0000080	0.0000081	0.0000082	0.0000081	0.0000081	0.0000080
Molybdenum Mo	mg/L	0.00747	0.00743	0.00740	0.00618	0.00570	0.00581	0.00571	0.00573	0.00575	0.00571	0.00568	0.00566
Nickel Ni	mg/L	0.0077	0.0077	0.0077	0.0065	0.0060	0.0061	0.0060	0.0061	0.0061	0.0060	0.0060	0.0060
Phosphorus P	mg/L	0.290	0.289	0.287	0.241	0.222	0.227	0.223	0.224	0.225	0.223	0.222	0.221
Potassium K	mg/L	34.3	34.2	34.0	28.7	26.6	27.1	26.7	26.9	26.9	26.8	26.6	26.5
Selenium Se	mg/L	0.00048	0.00047	0.00047	0.00056	0.00059	0.00063	0.00065	0.00066	0.00066	0.00066	0.00066	0.00065
Silicon SiO2	mg/L	3.52	3.50	3.49	3.10	2.96	3.05	3.04	3.06	3.07	3.05	3.04	3.03
Silver Ag	mg/L	0.0001215	0.0001209	0.0001204	0.0001185	0.0001183	0.0001214	0.0001206	0.0001215	0.0001217	0.0001210	0.0001204	0.0001199
Sodium Na	mg/L	42	42	42	95	146	208	266	330	331	329	327	326
Strontium Sr	mg/L	0.080	0.079	0.079	0.070	0.067	0.069	0.069	0.070	0.070	0.070	0.069	0.069
Tellurium Te	mg/L	0.032	0.032	0.031	0.033	0.034	0.036	0.037	0.038	0.038	0.037	0.037	0.037
Thallium Tl	mg/L	0.000042	0.000042	0.000042	0.000040	0.000040	0.000041	0.000042	0.000043	0.000043	0.000042	0.000042	0.000042
Thorium Th	mg/L	0.000025	0.000025	0.000025	0.000032	0.000035	0.000038	0.000041	0.000042	0.000042	0.000042	0.000041	0.000041
Tin Sn	mg/L	0.00279	0.00278	0.00277	0.00232	0.00216	0.00221	0.00218	0.00219	0.00220	0.00219	0.00217	0.00217
Titanium Ti	mg/L	0.0049	0.0049	0.0048	0.0063	0.0069	0.0074	0.0077	0.0079	0.0079	0.0078	0.0078	0.0078
Uranium U	mg/L	0.000055	0.000055	0.000055	0.000062	0.000065	0.000069	0.000070	0.000071	0.000071	0.000071	0.000070	0.000070
Vanadium V	mg/L	0.0039	0.0039	0.0039	0.0035	0.0033	0.0034	0.0034	0.0035	0.0035	0.0034	0.0034	0.0034
Zinc Zn	mg/L	0.0207	0.0206	0.0205	0.0173	0.0160	0.0164	0.0164	0.0165	0.0166	0.0165	0.0164	0.0163
Zirconium Zr	mg/L	0.0036	0.0036	0.0036	0.0038	0.0039	0.0042	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043

Table I-5-a-A.2
5 % increase in Background Copper

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1399	1392	1385	1137	1040	1061	1041	1046	1049	1042	1037	1033
TSS	mg/L	3.4	3.4	3.4	3.5	3.6	3.8	3.9	4.0	4.0	3.9	3.9	3.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.061	0.060	0.060	0.048	0.044	0.045	0.044	0.044	0.044	0.044	0.043	0.043
Sulphate	mg/L	63.8	63.5	63.1	51.4	46.8	47.7	46.7	46.9	47.1	46.8	46.5	46.4
Chloride	mg/L	933	929	924	760	695	710	697	701	703	698	694	692
Total Ammonia	mg/L	0.003	0.003	0.003	0.029	0.015	0.008	0.011	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L	4.13	4.01	3.89	3.37	3.20	3.33	3.34	3.39	3.29	3.16	3.04	2.92
Nitrite	mg/L	0.002	0.002	0.002	0.006	0.006	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	45	45	45	40	39	40	40	41	41	41	40	40
OrthoPhosphate-P	mg/L	0.1512	0.1505	0.1497	0.1212	0.1099	0.1119	0.1094	0.1099	0.1102	0.1095	0.1089	0.1085
Phosphate-P	mg/L	0.1581	0.1574	0.1566	0.1300	0.1192	0.1217	0.1195	0.1201	0.1205	0.1197	0.1190	0.1186
Org. Carbon	mg/L	4.5	4.5	4.5	4.6	4.8	5.0	5.1	5.1	5.2	5.1	5.1	5.1
Hardness CaCO3	mg/L	82	81	81	71	68	70	70	70	71	70	70	70
Total Metals													
Aluminum Al	mg/L	0.09	0.09	0.09	0.11	0.11	0.12	0.12	0.13	0.13	0.13	0.13	0.12
Antimony Sb	mg/L	0.0137	0.0137	0.0136	0.0110	0.0100	0.0102	0.0100	0.0100	0.0101	0.0100	0.0100	0.0099
Arsenic As	mg/L	0.0022	0.0021	0.0021	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Barium Ba	mg/L	0.0076	0.0076	0.0075	0.0064	0.0059	0.0061	0.0061	0.0061	0.0061	0.0061	0.0060	0.0060
Beryllium Be	mg/L	0.00057	0.00057	0.00056	0.00050	0.00047	0.00048	0.00048	0.00048	0.00048	0.00048	0.00048	0.00047
Bismuth Bi	mg/L	0.01321	0.01315	0.01308	0.01057	0.00959	0.00976	0.00954	0.00958	0.00961	0.00955	0.00949	0.00946
Boron B	mg/L	0.033	0.032	0.032	0.032	0.032	0.034	0.035	0.035	0.035	0.035	0.035	0.035
Cadmium Cd	mg/L	0.0000451	0.0000449	0.0000447	0.0000399	0.0000383	0.0000399	0.0000402	0.0000408	0.0000410	0.0000407	0.0000405	0.0000403
Calcium Ca	mg/L	206	205	204	166	151	154	150	151	152	151	150	149
Chromium Cr	mg/L	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0067	0.0067	0.0067	0.0054	0.0049	0.0050	0.0049	0.0049	0.0050	0.0049	0.0049	0.0049
Copper Cu	mg/L	0.0064	0.0064	0.0063	0.0054	0.0050	0.0051	0.0051	0.0051	0.0051	0.0051	0.0050	0.0050
Iron Fe	mg/L	0.10	0.10	0.10	0.11	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Lead Pb	mg/L	0.00036	0.00036	0.00036	0.00031	0.00030	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031
Lithium Li	mg/L	0.0051	0.0051	0.0050	0.0049	0.0048	0.0051	0.0051	0.0052	0.0052	0.0052	0.0051	0.0051
Magnesium Mg	mg/L	8.7	8.7	8.6	8.0	7.8	8.2	8.2	8.3	8.4	8.3	8.3	8.2
Manganese Mn	mg/L	0.020	0.020	0.020	0.017	0.015	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Mercury Hg	mg/L	0.0000080	0.0000080	0.0000079	0.0000089	0.0000093	0.0000099	0.0000102	0.0000104	0.0000105	0.0000104	0.0000104	0.0000103
Molybdenum Mo	mg/L	0.00564	0.00561	0.00559	0.00456	0.00416	0.00424	0.00415	0.00417	0.00418	0.00416	0.00413	0.00412
Nickel Ni	mg/L	0.0060	0.0059	0.0059	0.0049	0.0045	0.0046	0.0045	0.0045	0.0046	0.0045	0.0045	0.0045
Phosphorus P	mg/L	0.221	0.220	0.219	0.179	0.164	0.167	0.164	0.165	0.165	0.164	0.163	0.163
Potassium K	mg/L	26.4	26.3	26.2	21.7	19.9	20.4	20.0	20.2	20.2	20.1	20.0	19.9
Selenium Se	mg/L	0.00065	0.00065	0.00065	0.00071	0.00074	0.00078	0.00080	0.00082	0.00082	0.00081	0.00081	0.00081
Silicon SiO2	mg/L	3.02	3.00	2.99	2.65	2.52	2.61	2.61	2.63	2.64	2.62	2.61	2.60
Silver Ag	mg/L	0.0001195	0.0001190	0.0001184	0.0001169	0.0001167	0.0001198	0.0001187	0.0001197	0.0001201	0.0001193	0.0001186	0.0001182
Sodium Na	mg/L	325	324	322	268	246	252	248	250	250	249	247	246
Strontium Sr	mg/L	0.069	0.069	0.068	0.061	0.058	0.060	0.060	0.061	0.061	0.061	0.060	0.060
Tellurium Te	mg/L	0.037	0.037	0.037	0.038	0.039	0.041	0.042	0.042	0.042	0.042	0.042	0.042
Thallium Tl	mg/L	0.000042	0.000042	0.000041	0.000040	0.000039	0.000041	0.000042	0.000042	0.000042	0.000042	0.000042	0.000042
Thorium Th	mg/L	0.000041	0.000041	0.000041	0.000046	0.000048	0.000052	0.000054	0.000055	0.000056	0.000055	0.000055	0.000055
Tin Sn	mg/L	0.00216	0.00215	0.00214	0.00176	0.00162	0.00166	0.00164	0.00165	0.00166	0.00165	0.00164	0.00163
Titanium Ti	mg/L	0.0077	0.0077	0.0077	0.0088	0.0092	0.0098	0.0101	0.0103	0.0103	0.0103	0.0102	0.0102
Uranium U	mg/L	0.000070	0.000070	0.000069	0.000074	0.000077	0.000081	0.000082	0.000084	0.000084	0.000083	0.000083	0.000082
Vanadium V	mg/L	0.0034	0.0034	0.0034	0.0030	0.0029	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
Zinc Zn	mg/L	0.0163	0.0162	0.0161	0.0133	0.0123	0.0126	0.0126	0.0128	0.0128	0.0127	0.0127	0.0126
Zirconium Zr	mg/L	0.0043	0.0042	0.0042	0.0044	0.0044	0.0047	0.0048	0.0049	0.0049	0.0049	0.0048	0.0048

Appendix I

Table I-5-a-A.2
5 % increase in Background Copper

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	1029	1024	1018	816	736	752	691	643	645	641	638	635
TSS	mg/L	3.9	3.9	3.8	4.0	4.0	4.2	4.0	3.8	3.8	3.8	3.8	3.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.043	0.043	0.043	0.033	0.030	0.030	0.027	0.025	0.026	0.025	0.025	0.025
Sulphate	mg/L	46.2	45.9	45.7	36.1	32.4	33.0	30.3	28.2	28.3	28.1	27.9	27.8
Chloride	mg/L	689	686	682	547	495	506	465	433	435	432	430	428
Total Ammonia	mg/L	0.004	0.004	0.004	0.033	0.017	0.009	0.012	0.004	0.004	0.004	0.004	0.004
Nitrate	mg/L	2.81	2.69	2.57	2.26	2.18	2.30	2.19	2.07	1.97	1.85	1.73	1.62
Nitrite	mg/L	0.002	0.002	0.002	0.006	0.006	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Alkalinity	mg/L	40	40	40	36	35	36	34	32	32	32	32	32
OrthoPhosphate-P	mg/L	0.1081	0.1075	0.1069	0.0838	0.0747	0.0760	0.0694	0.0645	0.0647	0.0643	0.0640	0.0637
Phosphate-P	mg/L	0.1181	0.1175	0.1169	0.0953	0.0864	0.0884	0.0812	0.0756	0.0759	0.0754	0.0750	0.0747
Org. Carbon	mg/L	5.1	5.0	5.0	5.1	5.2	5.5	5.2	4.9	4.9	4.9	4.8	4.8
Hardness CaCO3	mg/L	69	69	69	60	57	60	56	52	53	52	52	52
Total Metals													
Aluminum Al	mg/L	0.12	0.12	0.12	0.13	0.14	0.15	0.14	0.13	0.13	0.13	0.13	0.13
Antimony Sb	mg/L	0.0099	0.0098	0.0098	0.0077	0.0069	0.0070	0.0064	0.0060	0.0060	0.0059	0.0059	0.0059
Arsenic As	mg/L	0.0018	0.0018	0.0018	0.0015	0.0014	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Barium Ba	mg/L	0.0060	0.0060	0.0059	0.0050	0.0046	0.0048	0.0044	0.0042	0.0042	0.0041	0.0041	0.0041
Beryllium Be	mg/L	0.00047	0.00047	0.00047	0.00041	0.00039	0.00040	0.00037	0.00035	0.00035	0.00035	0.00035	0.00034
Bismuth Bi	mg/L	0.00942	0.00938	0.00932	0.00729	0.00649	0.00660	0.00603	0.00561	0.00562	0.00559	0.00556	0.00553
Boron B	mg/L	0.035	0.034	0.034	0.034	0.034	0.035	0.034	0.032	0.032	0.032	0.032	0.031
Cadmium Cd	mg/L	0.0000401	0.0000399	0.0000397	0.0000354	0.0000340	0.0000356	0.0000338	0.0000319	0.0000320	0.0000318	0.0000316	0.0000315
Calcium Ca	mg/L	149	148	147	116	104	106	97	90	91	90	90	89
Chromium Cr	mg/L	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0049	0.0048	0.0048	0.0038	0.0034	0.0035	0.0032	0.0029	0.0030	0.0029	0.0029	0.0029
Copper Cu	mg/L	0.0050	0.0050	0.0050	0.0042	0.0038	0.0040	0.0037	0.0034	0.0034	0.0034	0.0034	0.0034
Iron Fe	mg/L	0.13	0.13	0.13	0.14	0.14	0.15	0.15	0.14	0.14	0.14	0.14	0.14
Lead Pb	mg/L	0.00030	0.00030	0.00030	0.00026	0.00025	0.00026	0.00024	0.00023	0.00023	0.00022	0.00022	0.00022
Lithium Li	mg/L	0.0051	0.0051	0.0051	0.0049	0.0048	0.0051	0.0048	0.0045	0.0046	0.0045	0.0045	0.0045
Magnesium Mg	mg/L	8.2	8.2	8.1	7.6	7.4	7.8	7.3	6.9	6.9	6.9	6.8	6.8
Manganese Mn	mg/L	0.016	0.016	0.015	0.013	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011
Mercury Hg	mg/L	0.0000103	0.0000102	0.0000102	0.0000108	0.0000111	0.0000117	0.0000113	0.0000107	0.0000107	0.0000107	0.0000106	0.0000106
Molybdenum Mo	mg/L	0.00410	0.00408	0.00406	0.00323	0.00290	0.00296	0.00271	0.00252	0.00253	0.00251	0.00250	0.00249
Nickel Ni	mg/L	0.0045	0.0044	0.0044	0.0036	0.0033	0.0033	0.0031	0.0029	0.0029	0.0029	0.0028	0.0028
Phosphorus P	mg/L	0.162	0.161	0.160	0.129	0.116	0.118	0.109	0.101	0.102	0.101	0.100	0.100
Potassium K	mg/L	19.8	19.7	19.6	15.9	14.5	14.8	13.7	12.8	12.8	12.7	12.6	12.6
Selenium Se	mg/L	0.00080	0.00080	0.00079	0.00084	0.00085	0.00090	0.00087	0.00082	0.00082	0.00081	0.00081	0.00081
Silicon SiO2	mg/L	2.59	2.58	2.56	2.28	2.17	2.25	2.12	1.98	1.99	1.98	1.97	1.96
Silver Ag	mg/L	0.0001177	0.0001171	0.0001165	0.0001155	0.0001152	0.0001184	0.0001098	0.0001026	0.0001029	0.0001022	0.0001017	0.0001013
Sodium Na	mg/L	245	244	243	198	181	186	171	160	160	159	158	158
Strontium Sr	mg/L	0.060	0.060	0.059	0.053	0.050	0.052	0.049	0.046	0.047	0.046	0.046	0.046
Tellurium Te	mg/L	0.042	0.041	0.041	0.042	0.042	0.044	0.043	0.040	0.040	0.040	0.040	0.040
Thallium Tl	mg/L	0.000041	0.000041	0.000041	0.000039	0.000039	0.000041	0.000039	0.000036	0.000036	0.000036	0.000036	0.000036
Thorium Th	mg/L	0.000055	0.000054	0.000054	0.000057	0.000058	0.000063	0.000061	0.000058	0.000058	0.000058	0.000057	0.000057
Tin Sn	mg/L	0.00163	0.00162	0.00161	0.00129	0.00118	0.00122	0.00113	0.00105	0.00106	0.00105	0.00104	0.00104
Titanium Ti	mg/L	0.0101	0.0101	0.0100	0.0108	0.0111	0.0118	0.0113	0.0107	0.0107	0.0107	0.0106	0.0106
Uranium U	mg/L	0.000082	0.000082	0.000081	0.000085	0.000087	0.000091	0.000086	0.000081	0.000081	0.000081	0.000080	0.000080
Vanadium V	mg/L	0.0030	0.0030	0.0030	0.0027	0.0026	0.0027	0.0025	0.0023	0.0024	0.0023	0.0023	0.0023
Zinc Zn	mg/L	0.0126	0.0125	0.0124	0.0101	0.0092	0.0094	0.0090	0.0085	0.0085	0.0084	0.0084	0.0083
Zirconium Zr	mg/L	0.0048	0.0048	0.0047	0.0048	0.0048	0.0051	0.0049	0.0046	0.0046	0.0046	0.0046	0.0045

Appendix I

Table I-5-a-A.2
5 % increase in Background Copper

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	633	630	626	509	463	474	437	407	409	406	404	402
TSS	mg/L	3.7	3.7	3.7	3.8	3.9	4.1	3.9	3.7	3.7	3.7	3.7	3.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.025	0.025	0.025	0.019	0.017	0.017	0.016	0.015	0.015	0.015	0.015	0.015
Sulphate	mg/L	27.7	27.6	27.4	21.7	19.5	19.9	18.3	17.0	17.0	16.9	16.8	16.8
Chloride	mg/L	426	424	422	344	314	322	297	277	278	276	274	273
Total Ammonia	mg/L	0.004	0.004	0.004	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.51	1.40	1.29	1.00	0.89	0.91	0.83	0.77	0.66	0.55	0.44	0.33
Nitrite	mg/L	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	31	31	31	29	29	30	29	27	27	27	27	26
OrthoPhosphate-P	mg/L	0.0635	0.0631	0.0628	0.0492	0.0439	0.0447	0.0408	0.0379	0.0381	0.0378	0.0376	0.0374
Phosphate-P	mg/L	0.0744	0.0740	0.0736	0.0615	0.0562	0.0577	0.0532	0.0496	0.0497	0.0494	0.0491	0.0489
Org. Carbon	mg/L	4.8	4.8	4.7	4.9	5.0	5.3	5.0	4.7	4.7	4.7	4.7	4.7
Hardness CaCO3	mg/L	51	51	51	46	45	47	44	42	42	42	41	41
Total Metals													
Aluminum Al	mg/L	0.13	0.13	0.13	0.14	0.14	0.15	0.14	0.13	0.13	0.13	0.13	0.13
Antimony Sb	mg/L	0.0059	0.0058	0.0058	0.0045	0.0041	0.0042	0.0038	0.0036	0.0036	0.0035	0.0035	0.0035
Arsenic As	mg/L	0.0013	0.0013	0.0013	0.0011	0.0010	0.0011	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009
Barium Ba	mg/L	0.0041	0.0041	0.0040	0.0035	0.0033	0.0034	0.0032	0.0030	0.0030	0.0030	0.0030	0.0030
Beryllium Be	mg/L	0.00034	0.00034	0.00034	0.00030	0.00029	0.00029	0.00027	0.00025	0.00025	0.00025	0.00025	0.00025
Bismuth Bi	mg/L	0.00551	0.00549	0.00545	0.00425	0.00378	0.00384	0.00350	0.00325	0.00326	0.00324	0.00322	0.00321
Boron B	mg/L	0.031	0.031	0.031	0.031	0.030	0.032	0.031	0.029	0.029	0.029	0.029	0.028
Cadmium Cd	mg/L	0.0000313	0.0000312	0.0000310	0.0000258	0.0000237	0.0000244	0.0000226	0.0000211	0.0000211	0.0000210	0.0000209	0.0000208
Calcium Ca	mg/L	89	89	88	70	63	64	59	55	55	54	54	54
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0029	0.0029	0.0029	0.0023	0.0020	0.0021	0.0019	0.0018	0.0018	0.0018	0.0017	0.0017
Copper Cu	mg/L	0.0034	0.0033	0.0033	0.0029	0.0027	0.0028	0.0026	0.0024	0.0024	0.0024	0.0024	0.0024
Iron Fe	mg/L	0.14	0.14	0.14	0.15	0.15	0.16	0.15	0.15	0.15	0.14	0.14	0.14
Lead Pb	mg/L	0.00022	0.00022	0.00022	0.00019	0.00017	0.00018	0.00017	0.00015	0.00015	0.00015	0.00015	0.00015
Lithium Li	mg/L	0.0045	0.0044	0.0044	0.0044	0.0044	0.0046	0.0044	0.0041	0.0041	0.0041	0.0041	0.0041
Magnesium Mg	mg/L	6.8	6.7	6.7	6.5	6.4	6.7	6.4	6.0	6.0	6.0	6.0	5.9
Manganese Mn	mg/L	0.011	0.011	0.010	0.009	0.008	0.009	0.008	0.008	0.008	0.008	0.008	0.008
Mercury Hg	mg/L	0.0000105	0.0000105	0.0000104	0.0000108	0.0000109	0.0000115	0.0000111	0.0000104	0.0000104	0.0000104	0.0000103	0.0000103
Molybdenum Mo	mg/L	0.00248	0.00247	0.00245	0.00197	0.00178	0.00182	0.00167	0.00155	0.00156	0.00155	0.00154	0.00153
Nickel Ni	mg/L	0.0028	0.0028	0.0028	0.0023	0.0021	0.0022	0.0020	0.0019	0.0019	0.0019	0.0018	0.0018
Phosphorus P	mg/L	0.100	0.099	0.099	0.078	0.070	0.071	0.065	0.061	0.061	0.060	0.060	0.060
Potassium K	mg/L	12.5	12.5	12.4	10.3	9.5	9.7	9.0	8.4	8.4	8.4	8.3	8.3
Selenium Se	mg/L	0.00080	0.00080	0.00079	0.00083	0.00084	0.00088	0.00085	0.00080	0.00080	0.00079	0.00079	0.00079
Silicon SiO2	mg/L	1.95	1.94	1.93	1.76	1.69	1.76	1.65	1.55	1.55	1.54	1.54	1.53
Silver Ag	mg/L	0.0001009	0.0001004	0.0000999	0.0000989	0.0000981	0.0001000	0.0000915	0.0000851	0.0000854	0.0000848	0.0000843	0.0000840
Sodium Na	mg/L	157	156	155	130	120	124	115	107	107	107	106	106
Strontium Sr	mg/L	0.046	0.045	0.045	0.042	0.040	0.042	0.040	0.038	0.038	0.038	0.037	0.037
Tellurium Te	mg/L	0.039	0.039	0.039	0.040	0.041	0.043	0.041	0.039	0.039	0.039	0.038	0.038
Thallium Tl	mg/L	0.000036	0.000036	0.000035	0.000034	0.000033	0.000035	0.000033	0.000031	0.000031	0.000031	0.000030	0.000030
Thorium Th	mg/L	0.000057	0.000057	0.000056	0.000053	0.000052	0.000054	0.000051	0.000048	0.000048	0.000048	0.000048	0.000047
Tin Sn	mg/L	0.00104	0.00103	0.00102	0.00082	0.00076	0.00078	0.00073	0.00068	0.00068	0.00068	0.00067	0.00067
Titanium Ti	mg/L	0.0105	0.0105	0.0104	0.0111	0.0113	0.0120	0.0116	0.0109	0.0109	0.0109	0.0108	0.0108
Uranium U	mg/L	0.000080	0.000079	0.000079	0.000077	0.000077	0.000079	0.000073	0.000069	0.000069	0.000068	0.000068	0.000068
Vanadium V	mg/L	0.0023	0.0023	0.0023	0.0021	0.0021	0.0022	0.0020	0.0019	0.0019	0.0019	0.0019	0.0019
Zinc Zn	mg/L	0.0083	0.0083	0.0082	0.0067	0.0061	0.0063	0.0062	0.0058	0.0058	0.0058	0.0058	0.0057
Zirconium Zr	mg/L	0.0045	0.0045	0.0045	0.0045	0.0045	0.0047	0.0045	0.0042	0.0042	0.0042	0.0042	0.0042

Appendix I

Table I-5-a-A.2
5 % increase in Background Copper

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	400	398	396	329	304	312	289	269	270	269	267	266
TSS	mg/L	3.6	3.6	3.6	3.8	3.8	4.0	3.9	3.7	3.7	3.6	3.6	3.6
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.014	0.014	0.014	0.011	0.010	0.010	0.009	0.008	0.008	0.008	0.008	0.008
Sulphate	mg/L	16.7	16.6	16.5	13.2	12.0	12.2	11.3	10.5	10.5	10.4	10.4	10.3
Chloride	mg/L	272	271	269	225	208	214	199	185	186	185	184	183
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	0.23	0.12	0.01	0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	26	26	26	25	25	27	25	24	24	24	24	24
OrthoPhosphate-P	mg/L	0.0373	0.0371	0.0369	0.0290	0.0259	0.0264	0.0241	0.0224	0.0225	0.0223	0.0222	0.0221
Phosphate-P	mg/L	0.0487	0.0485	0.0482	0.0417	0.0386	0.0398	0.0369	0.0344	0.0345	0.0342	0.0341	0.0339
Org. Carbon	mg/L	4.6	4.6	4.6	4.8	4.9	5.2	4.9	4.6	4.6	4.6	4.6	4.6
Hardness CaCO3	mg/L	41	41	41	38	38	40	38	35	36	35	35	35
Total Metals													
Aluminum Al	mg/L	0.13	0.13	0.13	0.14	0.14	0.15	0.14	0.13	0.13	0.13	0.13	0.13
Antimony Sb	mg/L	0.0035	0.0035	0.0035	0.0027	0.0024	0.0025	0.0023	0.0021	0.0022	0.0021	0.0021	0.0021
Arsenic As	mg/L	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Barium Ba	mg/L	0.0030	0.0029	0.0029	0.0026	0.0025	0.0026	0.0025	0.0023	0.0023	0.0023	0.0023	0.0023
Beryllium Be	mg/L	0.00024	0.00024	0.00024	0.00023	0.00022	0.00023	0.00021	0.00019	0.00019	0.00019	0.00019	0.00019
Bismuth Bi	mg/L	0.00320	0.00318	0.00316	0.00246	0.00219	0.00222	0.00203	0.00188	0.00189	0.00187	0.00186	0.00186
Boron B	mg/L	0.028	0.028	0.028	0.028	0.028	0.030	0.029	0.027	0.027	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000207	0.0000206	0.0000205	0.0000176	0.0000164	0.0000170	0.0000158	0.0000148	0.0000148	0.0000147	0.0000146	0.0000146
Calcium Ca	mg/L	54	53	53	43	38	39	36	34	34	34	33	33
Chromium Cr	mg/L	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0017	0.0017	0.0017	0.0014	0.0012	0.0013	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Copper Cu	mg/L	0.0024	0.0024	0.0023	0.0021	0.0020	0.0021	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018
Iron Fe	mg/L	0.14	0.14	0.14	0.15	0.15	0.16	0.16	0.15	0.15	0.15	0.15	0.15
Lead Pb	mg/L	0.00015	0.00015	0.00015	0.00013	0.00013	0.00013	0.00012	0.00011	0.00011	0.00011	0.00011	0.00011
Lithium Li	mg/L	0.0041	0.0040	0.0040	0.0041	0.0041	0.0043	0.0041	0.0039	0.0039	0.0039	0.0039	0.0038
Magnesium Mg	mg/L	5.9	5.9	5.9	5.8	5.8	6.1	5.9	5.5	5.5	5.5	5.5	5.4
Manganese Mn	mg/L	0.008	0.008	0.008	0.007	0.006	0.007	0.006	0.006	0.006	0.006	0.006	0.006
Mercury Hg	mg/L	0.0000102	0.0000102	0.0000101	0.0000106	0.0000107	0.0000113	0.0000109	0.0000102	0.0000103	0.0000102	0.0000101	0.0000101
Molybdenum Mo	mg/L	0.00153	0.00152	0.00151	0.00123	0.00112	0.00115	0.00106	0.00099	0.00099	0.00098	0.00098	0.00097
Nickel Ni	mg/L	0.0018	0.0018	0.0018	0.0015	0.0014	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Phosphorus P	mg/L	0.060	0.059	0.059	0.048	0.043	0.044	0.040	0.037	0.037	0.037	0.037	0.036
Potassium K	mg/L	8.3	8.2	8.2	7.0	6.5	6.8	6.3	5.9	5.9	5.9	5.8	5.8
Selenium Se	mg/L	0.00078	0.00078	0.00077	0.00081	0.00082	0.00087	0.00083	0.00078	0.00078	0.00078	0.00078	0.00077
Silicon SiO2	mg/L	1.52	1.52	1.51	1.43	1.39	1.46	1.38	1.30	1.30	1.29	1.28	1.28
Silver Ag	mg/L	0.0000837	0.0000833	0.0000828	0.0000857	0.0000864	0.0000880	0.0000806	0.0000749	0.0000751	0.0000746	0.0000742	0.0000739
Sodium Na	mg/L	105	105	104	90	84	87	82	76	76	76	76	75
Strontium Sr	mg/L	0.037	0.037	0.037	0.035	0.035	0.036	0.035	0.033	0.033	0.033	0.032	0.032
Tellurium Te	mg/L	0.038	0.038	0.038	0.039	0.040	0.042	0.040	0.038	0.038	0.038	0.038	0.037
Thallium Tl	mg/L	0.000030	0.000030	0.000030	0.000030	0.000029	0.000031	0.000029	0.000027	0.000028	0.000027	0.000027	0.000027
Thorium Th	mg/L	0.000047	0.000047	0.000047	0.000046	0.000045	0.000047	0.000045	0.000042	0.000042	0.000042	0.000042	0.000042
Tin Sn	mg/L	0.00067	0.00066	0.00066	0.00054	0.00051	0.00053	0.00049	0.00046	0.00046	0.00046	0.00046	0.00046
Titanium Ti	mg/L	0.0107	0.0107	0.0106	0.0113	0.0115	0.0122	0.0117	0.0110	0.0111	0.0110	0.0109	0.0109
Uranium U	mg/L	0.000067	0.000067	0.000067	0.000068	0.000068	0.000070	0.000066	0.000061	0.000061	0.000061	0.000061	0.000060
Vanadium V	mg/L	0.0019	0.0019	0.0018	0.0018	0.0018	0.0019	0.0017	0.0016	0.0016	0.0016	0.0016	0.0016
Zinc Zn	mg/L	0.0057	0.0057	0.0056	0.0047	0.0043	0.0045	0.0045	0.0043	0.0043	0.0042	0.0042	0.0042
Zirconium Zr	mg/L	0.0042	0.0041	0.0041	0.0042	0.0042	0.0045	0.0043	0.0040	0.0040	0.0040	0.0040	0.0040

Appendix I

Table I-5-a-A.2
5 % increase in Background Copper

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	265	264	262	225	211	218	203	190	185	184	183	182
TSS	mg/L	3.6	3.6	3.6	3.7	3.8	4.0	3.9	3.6	3.5	3.5	3.5	3.5
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.008	0.008	0.008	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005
Sulphate	mg/L	10.3	10.3	10.2	8.3	7.6	7.8	7.2	6.7	6.6	6.5	6.5	6.4
Chloride	mg/L	182	181	180	156	147	152	142	132	129	129	128	127
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00				
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	23	23	23	23	23	25	24	22	22	21	21	21
OrthoPhosphate-P	mg/L	0.0220	0.0219	0.0218	0.0173	0.0155	0.0158	0.0145	0.0134	0.0131	0.0130	0.0130	0.0129
Phosphate-P	mg/L	0.0338	0.0336	0.0334	0.0302	0.0284	0.0294	0.0274	0.0255	0.0250	0.0248	0.0247	0.0246
Org. Carbon	mg/L	4.6	4.5	4.5	4.7	4.9	5.1	4.9	4.6	4.5	4.4	4.4	4.4
Hardness CaCO3	mg/L	35	35	35	33	34	36	34	32	31	31	31	31
Total Metals													
Aluminum Al	mg/L	0.13	0.13	0.13	0.14	0.14	0.15	0.14	0.13	0.13	0.13	0.13	0.13
Antimony Sb	mg/L	0.0021	0.0021	0.0021	0.0016	0.0015	0.0015	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013
Arsenic As	mg/L	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005
Barium Ba	mg/L	0.0023	0.0023	0.0023	0.0021	0.0020	0.0022	0.0021	0.0019	0.0019	0.0019	0.0019	0.0019
Beryllium Be	mg/L	0.00019	0.00019	0.00019	0.00018	0.00018	0.00019	0.00017	0.00016	0.00015	0.00015	0.00015	0.00015
Bismuth Bi	mg/L	0.00185	0.00184	0.00183	0.00142	0.00126	0.00129	0.00117	0.00109	0.00106	0.00105	0.00105	0.00104
Boron B	mg/L	0.027	0.027	0.026	0.027	0.027	0.029	0.028	0.026	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000145	0.0000144	0.0000144	0.0000128	0.0000122	0.0000127	0.0000119	0.0000111	0.0000109	0.0000108	0.0000107	0.0000107
Calcium Ca	mg/L	33	33	33	27	24	25	23	22	21	21	21	21
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0010	0.0010	0.0010	0.0008	0.0008	0.0008	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006
Copper Cu	mg/L	0.0018	0.0018	0.0018	0.0017	0.0016	0.0017	0.0016	0.0015	0.0014	0.0014	0.0014	0.0014
Iron Fe	mg/L	0.14	0.14	0.14	0.15	0.15	0.16	0.16	0.15	0.15	0.14	0.14	0.14
Lead Pb	mg/L	0.00011	0.00011	0.00011	0.00010	0.00010	0.00010	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008
Lithium Li	mg/L	0.0038	0.0038	0.0038	0.0039	0.0040	0.0042	0.0040	0.0038	0.0037	0.0036	0.0036	0.0036
Magnesium Mg	mg/L	5.4	5.4	5.4	5.4	5.5	5.8	5.5	5.2	5.1	5.1	5.0	5.0
Manganese Mn	mg/L	0.006	0.006	0.006	0.005	0.005	0.006	0.005	0.005	0.005	0.005	0.005	0.005
Mercury Hg	mg/L	0.0000101	0.0000100	0.0000100	0.0000105	0.0000106	0.0000112	0.0000108	0.0000101	0.0000099	0.0000098	0.0000098	0.0000097
Molybdenum Mo	mg/L	0.00097	0.00097	0.00096	0.00081	0.00074	0.00077	0.00071	0.00066	0.00064	0.00064	0.00064	0.00063
Nickel Ni	mg/L	0.0013	0.0013	0.0012	0.0011	0.0010	0.0011	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009
Phosphorus P	mg/L	0.036	0.036	0.036	0.030	0.027	0.027	0.025	0.023	0.023	0.023	0.022	0.022
Potassium K	mg/L	5.8	5.8	5.7	5.1	4.8	5.0	4.7	4.4	4.3	4.3	4.3	4.2
Selenium Se	mg/L	0.00077	0.00077	0.00076	0.00080	0.00082	0.00086	0.00082	0.00077	0.00076	0.00075	0.00075	0.00075
Silicon SiO2	mg/L	1.27	1.27	1.26	1.24	1.22	1.29	1.22	1.15	1.12	1.11	1.11	1.10
Silver Ag	mg/L	0.0000736	0.0000733	0.0000729	0.0000780	0.0000796	0.0000811	0.0000742	0.0000689	0.0000674	0.0000669	0.0000666	0.0000663
Sodium Na	mg/L	75	75	74	67	64	66	62	58	57	57	56	56
Strontium Sr	mg/L	0.032	0.032	0.032	0.031	0.031	0.033	0.032	0.030	0.029	0.029	0.029	0.029
Tellurium Te	mg/L	0.037	0.037	0.037	0.039	0.039	0.042	0.040	0.037	0.037	0.036	0.036	0.036
Thallium Tl	mg/L	0.000027	0.000027	0.000027	0.000027	0.000027	0.000029	0.000027	0.000026	0.000025	0.000025	0.000025	0.000025
Thorium Th	mg/L	0.000041	0.000041	0.000041	0.000041	0.000041	0.000043	0.000041	0.000039	0.000038	0.000038	0.000037	0.000037
Tin Sn	mg/L	0.00045	0.00045	0.00045	0.00037	0.00036	0.00038	0.00036	0.00034	0.00033	0.00033	0.00032	0.00032
Titanium Ti	mg/L	0.0108	0.0108	0.0107	0.0114	0.0116	0.0123	0.0118	0.0111	0.0108	0.0108	0.0107	0.0107
Uranium U	mg/L	0.000060	0.000060	0.000060	0.000062	0.000063	0.000065	0.000061	0.000057	0.000056	0.000055	0.000055	0.000055
Vanadium V	mg/L	0.0016	0.0016	0.0016	0.0016	0.0016	0.0017	0.0016	0.0015	0.0014	0.0014	0.0014	0.0014
Zinc Zn	mg/L	0.0042	0.0042	0.0041	0.0035	0.0033	0.0035	0.0035	0.0034	0.0033	0.0033	0.0033	0.0032
Zirconium Zr	mg/L	0.0039	0.0039	0.0039	0.0040	0.0041	0.0043	0.0041	0.0039	0.0038	0.0038	0.0038	0.0037

Appendix I

Table I-5-a-A.2
5 % increase in Background Copper

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	182	181	180	162	155	161	152	142	142	142	141
TSS	mg/L	3.5	3.5	3.4	3.6	3.7	3.9	3.8	3.6	3.6	3.5	3.5
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.005	0.005	0.005	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Sulphate	mg/L	6.4	6.4	6.4	5.3	5.0	5.1	4.8	4.5	4.5	4.5	4.4
Chloride	mg/L	127	126	126	113	109	114	107	101	101	100	100
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	21	21	21	21	22	23	22	21	21	21	21
OrthoPhosphate-P	mg/L	0.0129	0.0128	0.0127	0.0103	0.0093	0.0096	0.0088	0.0082	0.0082	0.0082	0.0081
Phosphate-P	mg/L	0.0245	0.0244	0.0242	0.0230	0.0221	0.0230	0.0216	0.0202	0.0203	0.0201	0.0200
Org. Carbon	mg/L	4.4	4.4	4.3	4.6	4.7	5.0	4.8	4.5	4.5	4.5	4.4
Hardness CaCO3	mg/L	31	30	30	30	31	33	31	29	29	29	29
Total Metals												
Aluminum Al	mg/L	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.13	0.13	0.13	0.13
Antimony Sb	mg/L	0.0013	0.0013	0.0013	0.0010	0.0009	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008
Arsenic As	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Barium Ba	mg/L	0.0019	0.0018	0.0018	0.0018	0.0017	0.0019	0.0018	0.0017	0.0017	0.0017	0.0017
Beryllium Be	mg/L	0.00015	0.00015	0.00015	0.00016	0.00016	0.00016	0.00015	0.00014	0.00014	0.00014	0.00013
Bismuth Bi	mg/L	0.00104	0.00103	0.00103	0.00081	0.00072	0.00073	0.00067	0.00062	0.00062	0.00062	0.00062
Boron B	mg/L	0.025	0.025	0.025	0.026	0.026	0.028	0.027	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000106	0.0000106	0.0000105	0.0000099	0.0000096	0.0000100	0.0000095	0.0000089	0.0000089	0.0000089	0.0000088
Calcium Ca	mg/L	21	21	20	17	16	17	15	14	14	14	14
Chromium Cr	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Co	mg/L	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004
Copper Cu	mg/L	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013
Iron Fe	mg/L	0.14	0.14	0.14	0.15	0.15	0.16	0.16	0.15	0.15	0.15	0.15
Lead Pb	mg/L	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00007	0.00007	0.00007
Lithium Li	mg/L	0.0036	0.0036	0.0036	0.0037	0.0038	0.0040	0.0039	0.0036	0.0036	0.0036	0.0036
Magnesium Mg	mg/L	5.0	5.0	4.9	5.1	5.2	5.5	5.3	5.0	5.0	5.0	4.9
Manganese Mn	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004
Mercury Hg	mg/L	0.0000097	0.0000097	0.0000096	0.0000102	0.0000103	0.0000110	0.0000105	0.0000099	0.0000100	0.0000099	0.0000098
Molybdenum Mo	mg/L	0.00063	0.00063	0.00063	0.00055	0.00052	0.00053	0.00050	0.00047	0.00047	0.00046	0.00046
Nickel Ni	mg/L	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007
Phosphorus P	mg/L	0.022	0.022	0.022	0.019	0.017	0.018	0.016	0.015	0.015	0.015	0.015
Potassium K	mg/L	4.2	4.2	4.2	3.9	3.8	4.0	3.8	3.5	3.5	3.5	3.5
Selenium Se	mg/L	0.00074	0.00074	0.00073	0.00078	0.00080	0.00084	0.00081	0.00076	0.00076	0.00076	0.00075
Silicon SiO2	mg/L	1.10	1.09	1.09	1.10	1.11	1.17	1.12	1.05	1.05	1.05	1.04
Silver Ag	mg/L	0.0000660	0.0000657	0.0000654	0.0000721	0.0000743	0.0000757	0.0000694	0.0000646	0.0000648	0.0000644	0.0000640
Sodium Na	mg/L	56	56	55	52	51	53	51	48	48	47	47
Strontium Sr	mg/L	0.029	0.028	0.028	0.028	0.029	0.030	0.029	0.028	0.028	0.028	0.027
Tellurium Te	mg/L	0.036	0.036	0.035	0.038	0.038	0.040	0.039	0.037	0.037	0.036	0.036
Thallium Tl	mg/L	0.000025	0.000024	0.000024	0.000025	0.000025	0.000027	0.000026	0.000024	0.000024	0.000024	0.000024
Thorium Th	mg/L	0.000037	0.000037	0.000037	0.000038	0.000038	0.000040	0.000039	0.000036	0.000037	0.000036	0.000036
Tin Sn	mg/L	0.00032	0.00032	0.00032	0.00027	0.00027	0.00029	0.00028	0.00026	0.00026	0.00026	0.00026
Titanium Ti	mg/L	0.0106	0.0106	0.0105	0.0112	0.0114	0.0121	0.0116	0.0110	0.0110	0.0109	0.0109
Uranium U	mg/L	0.000055	0.000054	0.000054	0.000058	0.000059	0.000061	0.000057	0.000054	0.000054	0.000054	0.000053
Vanadium V	mg/L	0.0014	0.0014	0.0014	0.0015	0.0015	0.0015	0.0015	0.0014	0.0014	0.0014	0.0014
Zinc Zn	mg/L	0.0032	0.0032	0.0032	0.0028	0.0027	0.0028	0.0029	0.0028	0.0028	0.0028	0.0028
Zirconium Zr	mg/L	0.0037	0.0037	0.0037	0.0039	0.0039	0.0042	0.0040	0.0038	0.0038	0.0037	0.0037

Table I-5-a-A.3
5 % increase in Background Copper in Doris Lake

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	117442	101191	86370	86389	83223	78530	81148	81148	73295
TSS	183	177	183	1239	684	340	374	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18322	17073	15398	15297	14794	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	71033	57308	58169	52618	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15548	12106	8338	8342	7360	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1169.21	313.34	327.47	86.46				
Hardness CaCO3	14992	14508	14992	26182	22174	16924	16997	15649	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.31	12.08	9.25	8.83	5.92	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.00	1.75	1.73	1.63	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.30	7.38	4.50	4.73	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42156	42167	41158	39993	40732	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.32	1.27	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.53	11.67	9.31	9.41	6.00	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.84	1.15	0.69	0.74	0.55	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2866	2086	1460	1467	1203	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7119	7035	6794	6630	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	963	772	631	633	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11746	9521	7310	7355	6673	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.74	8.39	2.64	3.30	0.89	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.42	1.22	0.46	0.55	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.10	1.04	0.35	0.44	0.13				

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	116850	100888	86288	86263	83189	78530	81148	81148	73295
TSS	183	177	183	1222	677	337	371	234	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18312	17067	15396	15294	14793	13840	14302	14302	12918
Chloride	49110	47526	49110	82204	70932	57280	58130	52608	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15413	12027	8316	8315	7353	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2090.17	1151.53	308.42	322.20	85.05				
Hardness CaCO3	14992	14508	14992	26004	22066	16894	16957	15638	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.22	12.05	9.21	8.81	5.91	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.47	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.28	2.00	1.75	1.72	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.24	7.35	4.49	4.72	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42128	42152	41152	39986	40730	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.31	1.26	1.11	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.30	11.58	9.24	9.35	5.98	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.82	1.14	0.69	0.73	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2844	2075	1456	1462	1202	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7111	7031	6792	6628	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	958	770	630	632	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11661	9473	7295	7336	6668	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.47	8.26	2.60	3.25	0.87	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.38	1.21	0.46	0.55	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.07	1.03	0.34	0.43	0.12				

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	87089	70282	55773	56721	52694	49028	50662	50662	45759
TSS				1038	490	153	192	51				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5613	3989	2357	2666	1768	1247	1289	1289	1164
Chloride	49110	47526	49110	82136	70892	57270	58118	52605	47526	49110	49110	44357
Total Ammonia	25	24	25	153	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1036	654	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				8650	5068	1380	1603	423				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2076.09	1144.50	306.67	320.56	84.67				
Hardness CaCO3				11419	7030	1891	2436	643				
Total Metals												
Aluminum Al	0.81	0.78	0.81	12.68	6.55	4.76	4.27	1.90	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.55	3.32	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.27	0.18	0.09	0.10	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.81	0.49	0.25	0.27	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.20	0.13	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.52	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.40	4.71	2.11	2.35	1.15	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	3019	1818	884	1002	488	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.38	0.30	0.16	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.28	0.19	0.11	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.43	0.25	0.09	0.10	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	16.26	6.72	4.64	4.84	1.49	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.41	0.73	0.28	0.34	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1888	1099	489	525	239	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.89	0.56	0.40	0.49	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.65	0.43	0.24	0.26	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	33	29	25	25	24	22	23	23	21
Potassium K	25	24	25	647	355	120	170	66	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.16	0.08	0.02	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	395	203	75	92	34	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5483	3110	947	1192	325	12	12	12	11
Strontium Sr	0	0	0	9	5	2	3	1	0	0	0	0
Tellurium Te				17.32	8.19	2.56	3.21	0.85				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.55	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.32	1.16	0.42	0.51	0.18	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.88	0.59	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.2	0.8	0.5	1.0	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.93	0.94	0.31	0.39	0.11				

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				416562	397989	383369	385980	380265				
TSS				1695	801	251	315	83				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				834	510	144	237	67				
Chloride				258108	245307	234750	236056	231890				
Total Ammonia				61	37	16	22	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8716	5109	1392	1618	428				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2091.77	1153.64	309.38	323.63	85.54				
Hardness CaCO3				11505	7087	1908	2460	650				
Total Metals												
Aluminum Al				66.35	31.19	11.81	13.32	3.64				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.59	0.33	0.14	0.15	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.21	6.41	2.11	2.53	0.70				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				24866	23643	22789	22885	22443				
Chromium Cr				0.26	0.19	0.07	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.52	0.27	0.07	0.09	0.02				
Iron Fe				70.39	32.10	12.41	14.65	3.90				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.71	0.81	0.26	0.32	0.09				
Magnesium Mg				2195	1130	394	438	116				
Manganese Mn				1.61	0.75	0.32	0.43	0.11				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1144	566	164	232	62				
Selenium Se				0.39	0.19	0.06	0.07	0.02				
Silicon SiO2				499	243	79	100	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				141476	133588	128026	128665	126370				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.45	8.25	2.58	3.24	0.86				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.31	2.51	0.79	0.99	0.26				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.68	0.32	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.96	0.95	0.31	0.39	0.11				

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				38810	20016	5222	7870	2081				
TSS				1716	811	254	319	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				842	515	145	240	68				
Chloride				28048	15095	4413	5739	1517				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8820	5171	1410	1640	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2116.90	1167.61	313.33	327.93	86.70				
Hardness CaCO3				11643	7172	1932	2492	659				
Total Metals												
Aluminum Al				67.10	31.54	11.94	13.48	3.68				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.60	0.33	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.34	6.48	2.14	2.55	0.70				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2620	1382	520	617	170				
Chromium Cr				0.26	0.19	0.07	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.52	0.27	0.07	0.09	0.02				
Iron Fe				71.22	32.48	12.57	14.84	3.95				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.73	0.82	0.26	0.33	0.09				
Magnesium Mg				2221	1144	399	444	118				
Manganese Mn				1.63	0.76	0.32	0.43	0.12				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1157	573	166	235	62				
Selenium Se				0.39	0.19	0.06	0.07	0.02				
Silicon SiO2				504	245	80	101	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16122	8140	2512	3162	836				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.66	8.35	2.62	3.29	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.37	2.54	0.80	1.00	0.27				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.69	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.98	0.96	0.32	0.40	0.11				

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				39331	20286	5296	7936	2083				
TSS				1739	822	258	322	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				851	520	147	242	68				
Chloride				28425	15299	4475	5787	1519				
Total Ammonia				61	38	16	22	7				
Nitrate				470	291	123	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8939	5241	1430	1653	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2145.33	1183.35	317.77	330.68	86.79				
Hardness CaCO3				11799	7269	1960	2513	660				
Total Metals												
Aluminum Al				67.94	31.92	12.09	13.58	3.69				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.27	0.15	0.05	0.06	0.02				
Barium Ba				0.61	0.33	0.15	0.16	0.04				
Beryllium Be				0.09	0.05	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.49	6.56	2.17	2.57	0.70				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2651	1399	527	621	170				
Chromium Cr				0.27	0.19	0.07	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.53	0.27	0.07	0.09	0.02				
Iron Fe				72.16	32.91	12.74	14.96	3.95				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.76	0.83	0.26	0.33	0.09				
Magnesium Mg				2251	1159	405	447	118				
Manganese Mn				1.65	0.77	0.33	0.44	0.12				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.27	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1173	581	168	237	62				
Selenium Se				0.40	0.19	0.06	0.07	0.02				
Silicon SiO2				510	248	81	101	28				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16339	8250	2548	3188	837				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.90	8.47	2.65	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.01	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.44	2.58	0.81	1.01	0.27				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.69	0.33	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				2.00	0.98	0.32	0.40	0.11				

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				39368	20305	5301	7944	2085				
TSS				1741	823	258	322	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				705	430	109	193	51				
Chloride				28452	15313	4480	5792	1520				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8947	5245	1431	1655	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2147.36	1184.47	318.08	331.00	86.87				
Hardness CaCO3				11810	7276	1961	2516	660				
Total Metals												
Aluminum Al				63.71	29.29	10.99	12.16	3.19				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.59	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.51	5.95	1.91	2.24	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2402	1244	461	538	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.50	0.26	0.07	0.08	0.02				
Iron Fe				71.23	32.32	12.49	14.64	3.84				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.82	0.26	0.32	0.08				
Magnesium Mg				2227	1144	398	439	115				
Manganese Mn				1.63	0.75	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1168	577	167	235	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				463	219	69	86	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16348	8254	2549	3189	837				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.90	8.46	2.65	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				5.43	2.57	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.65	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.85	0.27	0.33	0.09				

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				39404	20324	5306	7952	2087				
TSS				1742	824	258	322	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	430	109	193	51				
Chloride				28478	15327	4484	5798	1522				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8956	5250	1433	1657	435				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2149.33	1185.55	318.39	331.31	86.95				
Hardness CaCO3				11821	7283	1963	2518	661				
Total Metals												
Aluminum Al				63.77	29.32	11.00	12.17	3.19				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.59	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.52	5.95	1.91	2.24	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2404	1245	462	538	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.07	0.08	0.02				
Iron Fe				71.30	32.35	12.50	14.65	3.85				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.82	0.26	0.32	0.08				
Magnesium Mg				2229	1146	399	440	115				
Manganese Mn				1.63	0.75	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1169	578	167	235	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				463	219	69	86	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16363	8261	2551	3192	838				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.91	8.47	2.65	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				5.43	2.57	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.85	0.27	0.33	0.09				

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				39439	20342	5311	7959	2089				
TSS				1744	824	258	323	85				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				706	431	109	193	51				
Chloride				28503	15341	4488	5803	1523				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8963	5255	1434	1658	435				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2151.23	1186.60	318.68	331.61	87.02				
Hardness CaCO3				11832	7289	1965	2520	661				
Total Metals												
Aluminum Al				63.83	29.35	11.01	12.18	3.20				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.60	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.53	5.96	1.91	2.24	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2407	1246	462	539	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.51	0.26	0.07	0.08	0.02				
Iron Fe				71.36	32.38	12.52	14.67	3.85				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.82	0.26	0.32	0.08				
Magnesium Mg				2231	1147	399	440	115				
Manganese Mn				1.63	0.75	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.25	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1170	578	167	236	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				464	219	69	86	23				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16378	8269	2554	3195	839				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.93	8.48	2.66	3.32	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.06	0.02	0.02	0.01				
Titanium Ti				5.44	2.57	0.81	1.01	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.66	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.86	0.27	0.33	0.09				

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				39372	20307	5302	7945	2085				
TSS				1741	823	258	322	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				705	430	109	193	51				
Chloride				28454	15315	4480	5793	1520				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8948	5246	1431	1655	434				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				8	3	1	1	0				
Org. Carbon				2147.55	1184.57	318.11	331.03	86.88				
Hardness CaCO3				11812	7277	1962	2516	660				
Total Metals												
Aluminum Al				63.72	29.30	10.99	12.16	3.19				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.59	0.33	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.51	5.95	1.91	2.24	0.59				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2402	1244	461	538	141				
Chromium Cr				0.25	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.50	0.26	0.07	0.08	0.02				
Iron Fe				71.24	32.33	12.49	14.64	3.84				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.74	0.82	0.26	0.32	0.08				
Magnesium Mg				2228	1145	398	439	115				
Manganese Mn				1.63	0.75	0.32	0.43	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1168	577	167	235	62				
Selenium Se				0.38	0.18	0.05	0.06	0.02				
Silicon SiO2				463	219	69	86	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16350	8255	2549	3190	837				
Strontium Sr				12	6	2	3	1				
Tellurium Te				17.90	8.46	2.65	3.31	0.87				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				5.43	2.57	0.80	1.00	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.65	0.31	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.81	0.85	0.27	0.33	0.09				

Appendix I

Table I-5-a-B.1
5 % increase in Background Copper in Doris Creek

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate		900000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year			9		
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1425	203	192	
TSS	mg/L			4.2	6.9	8.1	
Free CN	mg/L		0.005	0.0035	0.00018	0.00009	4%
Total CN	mg/L	1.0		0.033	0.004	0.003	
WAD CN	mg/L			0.0046	0.0002	0.0001	
CNO	mg/L			3.8	0.19	0.10	
SCN	mg/L			0.114	0.006	0.003	
Sulphate	mg/L			105	7.9	6.8	
Chloride	mg/L			951	104	87	
Total Ammonia	mg/L		0.97	1.27	0.076	0.040	8%
Nitrate	mg/L		2.9	6.6	0.34	0.18	12%
Nitrite	mg/L		0.018	0.51	0.028	0.016	155%
Alkalinity	mg/L			62	29	26	
OrthoPhosphate-P	mg/L			0.2038	0.0109	0.0062	
Phosphate-P	mg/L			0.2071	0.0309	0.0293	
Org. Carbon	mg/L			5.5	7.4	7.1	
Hardness CaCO3	mg/L			123	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.15	0.08	0.25	84%
Antimony Sb	mg/L			0.0184	0.0034	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	12%
Barium Ba	mg/L			0.0121	0.0035	0.0054	
Beryllium Be	mg/L			0.00069	0.00004	0.00003	
Bismuth Bi	mg/L			0.01783	0.00092	0.00056	
Boron B	mg/L			0.035	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000064	0.0000063	0.0000162	17%
Calcium Ca	mg/L			284	22	15	
Chromium Cr	mg/L		0.001	0.0075	0.001	0.001	98%
Cobalt Co	mg/L			0.0119	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0020	0.0021	99%
Iron Fe	mg/L		0.3	0.16	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00045	0.00008	0.00026	4%
Lithium Li	mg/L			0.0053	0.0029	0.0029	
Magnesium Mg	mg/L			10.3	7.4	7.3	
Manganese Mn	mg/L			0.033	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000117	0.0000012	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0103	0.00066	0.00044	1%
Nickel Ni	mg/L	0.5	0.025	0.009	0.0010	0.0009	4%
Phosphorus P	mg/L			0.292	0.035	0.032	
Potassium K	mg/L			47	5.0	3.9	
Selenium Se	mg/L		0.001	0.00090	0.00089	0.00084	89%
Silicon SiO2	mg/L			4.5	0.70	0.62	
Silver Ag	mg/L		0.0001	0.00012	0.0000080	0.0000069	8%
Sodium Na	mg/L			331	54	46	
Strontium Sr	mg/L			0.100	0.044	0.047	
Tellurium Te	mg/L			0.044	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000046	0.000031	0.002001	4%
Thorium Th	mg/L			0.000063	0.0000043	0.0000022	
Tin Sn	mg/L			0.00281	0.00052	0.00007	
Titanium Ti	mg/L			0.0123	0.0063	0.0063	
Uranium U	mg/L			0.000091	0.000041	0.000045	
Vanadium V	mg/L			0.0039	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.026	0.0041	0.0057	14%
Zirconium Zr	mg/L			0.0051	0.0050	0.0051	

Table I-5-a-B.2
5 % increase in Background Copper in Doris Creek

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	129	150	152				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00007	0.00001	0.00002	0.00002	0.00002				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.08	0.01	0.03	0.03	0.03				
SCN	mg/L				0.001	0.001	0.001	0.002	0.002				
Sulphate	mg/L				3.7	3.8	4.2	4.7	5.0				
Chloride	mg/L				61	62	62	67	68				
Total Ammonia	mg/L				0.018	0.041	0.022	0.028	0.029				
Nitrate	mg/L				0.07	0.10	0.13	0.17	0.19				
Nitrite	mg/L				0.010	0.013	0.013	0.005	0.014				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0021	0.0023	0.0027	0.0032	0.0036				
Phosphate-P	mg/L				0.0173	0.0188	0.0249	0.0211	0.0216				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	44	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0010	0.0029	0.0007	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00011	0.00019	0.00025	0.00030	0.00035				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000037	0.0000039	0.0000037	0.0000039	0.0000041				
Calcium Ca	mg/L				11	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0017	0.0014	0.0017	0.0017				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.4	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00025	0.00026	0.00031	0.00032	0.00035				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.019	0.020	0.027	0.023	0.024				
Potassium K	mg/L				3.2	2.8	2.9	3.0	3.2				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.55	0.56	0.58	0.59				
Silver Ag	mg/L				0.0000046	0.0000055	0.0000056	0.0000059	0.0000061				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti	mg/L				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0049	0.0049				

Appendix I

Table I-5-a-B.2
5 % increase in Background

Water Quality in DORIS CRI/Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				158	138	141	162	164				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00018		0.00002	0.00002	0.00002				
Total CN	mg/L				0.004	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0002		0.0000	0.0000	0.0000				
CNO	mg/L				0.19		0.02	0.03	0.02				
SCN	mg/L				0.004	0.004	0.004	0.004	0.005				
Sulphate	mg/L				6.7	6.3	6.5	7.0	7.2				
Chloride	mg/L				72	71	70	75	76				
Total Ammonia	mg/L				0.039	0.076	0.016	0.028	0.028				
Nitrate	mg/L				0.26	0.27	0.28	0.32	0.33				
Nitrite	mg/L				0.028	0.012	0.013	0.005	0.014				
Alkalinity	mg/L				29	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0065	0.0059	0.0059	0.0064	0.0067				
Phosphate-P	mg/L				0.0216	0.0223	0.0281	0.0244	0.0247				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0008	0.0013	0.0032	0.0010	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0033	0.0034	0.0034				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00050	0.00051	0.00053	0.00058	0.00062				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000056	0.0000054	0.0000050	0.0000053	0.0000054				
Calcium Ca	mg/L				19	17	17	18	19				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0005	0.0013	0.0005	0.0006				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00055	0.00050	0.00053	0.00055	0.00057				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.026	0.026	0.032	0.029	0.029				
Potassium K	mg/L				4.5	4.0	3.9	4.0	4.2				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2	mg/L				0.66	0.65	0.65	0.66	0.67				
Silver Ag	mg/L				0.0000065	0.0000070	0.0000069	0.0000072	0.0000073				
Sodium Na	mg/L				39	33	35	33	33				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00046	0.00046	0.00046	0.00047	0.00048				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0019	0.0039	0.0036	0.0026	0.0027				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Appendix I

Table I-5-a-B.2
5 % increase in Background

Water Quality in DORIS CRI/Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				166	145	148	168	169				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00011								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.12								
SCN	mg/L				0.006	0.005	0.004	0.004	0.004				
Sulphate	mg/L				7.9	7.1	7.0	7.2	7.2				
Chloride	mg/L				80	78	76	81	82				
Total Ammonia	mg/L				0.032	0.050	0.016	0.017	0.017				
Nitrate	mg/L				0.34	0.33	0.32	0.34	0.34				
Nitrite	mg/L				0.025	0.009	0.012	0.004	0.004				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0093	0.0083	0.0082	0.0087	0.0090				
Phosphate-P	mg/L				0.0243	0.0247	0.0304	0.0267	0.0270				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				49	46	45	47	47				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0011	0.0015	0.0034	0.0012	0.0013				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0033	0.0035	0.0033	0.0034	0.0034				
Beryllium Be	mg/L				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi	mg/L				0.00074	0.00072	0.00073	0.00079	0.00082				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000063	0.0000059	0.0000053	0.0000054	0.0000053				
Calcium Ca	mg/L				22	19	18	18	18				
Chromium Cr	mg/L				0.001	0.001	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0006	0.0006	0.0013	0.0005	0.0005				
Copper Cu	mg/L				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00066	0.00057	0.00057	0.00055	0.00054				
Nickel Ni	mg/L				0.0009	0.0010	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.030	0.029	0.035	0.031	0.032				
Potassium K	mg/L				5.0	4.3	4.1	4.1	4.0				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.70	0.67	0.66	0.67	0.67				
Silver Ag	mg/L				0.0000075	0.0000077	0.0000075	0.0000077	0.0000078				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00049	0.00049	0.00049	0.00050	0.00051				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0022	0.0041	0.0037	0.0027	0.0027				
Zirconium Zr	mg/L				0.0049	0.0049	0.0050	0.0050	0.0050				

Appendix I

Table I-5-a-B.2
5 % increase in Background

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				168	153	163	192	200				
TSS	mg/L				3.9	5.7	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.004	0.003	0.003	0.003	0.003				
Sulphate	mg/L				7.0	6.2	6.0	6.2	6.1				
Chloride	mg/L				84	85	87	96	102				
Total Ammonia	mg/L				0.011	0.012	0.017	0.016	0.016				
Nitrate	mg/L				0.30	0.27	0.26	0.27	0.27				
Nitrite	mg/L				0.010	0.002	0.003	0.003	0.003				
Alkalinity	mg/L				29	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0109	0.0092	0.0085	0.0086	0.0085				
Phosphate-P	mg/L				0.0260	0.0257	0.0309	0.0268	0.0267				
Org. Carbon	mg/L				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0013	0.0016	0.0034	0.0012	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00004	0.00004	0.00003	0.00004	0.00004				
Bismuth Bi	mg/L				0.00092	0.00077	0.00071	0.00073	0.00071				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000057	0.0000055	0.0000049	0.0000050	0.0000050				
Calcium Ca	mg/L				18	17	16	17	17				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00053	0.00046	0.00046	0.00045	0.00044				
Nickel Ni	mg/L				0.0008	0.0009	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.031	0.030	0.035	0.031	0.030				
Potassium K	mg/L				4.4	3.8	3.6	3.6	3.6				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.66	0.64	0.63	0.64	0.64				
Silver Ag	mg/L				0.0000080	0.0000080	0.0000077	0.0000079	0.0000078				
Sodium Na	mg/L				39	36	40	41	44				
Strontium Sr	mg/L				0.043	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000004	0.000004				
Tin Sn	mg/L				0.00052	0.00050	0.00049	0.00050	0.00049				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0061	0.0061				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0019	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-5-a-B.2
5 % increase in Background

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				203	173	172	192	191				
TSS	mg/L				4.0	5.8	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.9	5.2	5.1	5.3	5.2				
Chloride	mg/L				104	96	91	95	95				
Total Ammonia	mg/L				0.008	0.012	0.017	0.016	0.016				
Nitrate	mg/L				0.23	0.20	0.19	0.20	0.20				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0083	0.0069	0.0063	0.0064	0.0063				
Phosphate-P	mg/L				0.0236	0.0236	0.0288	0.0247	0.0246				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0010	0.0013	0.0032	0.0010	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00070	0.00057	0.00052	0.00053	0.00052				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000054	0.0000052	0.0000046	0.0000047	0.0000047				
Calcium Ca	mg/L				18	16	15	15	15				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000011	0.0000011	0.0000011	0.0000012				
Molybdenum Mo	mg/L				0.00043	0.00038	0.00038	0.00037	0.00036				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.027	0.032	0.027	0.027				
Potassium K	mg/L				4.0	3.4	3.3	3.3	3.2				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.63	0.62	0.61	0.61	0.61				
Silver Ag	mg/L				0.0000079	0.0000079	0.0000076	0.0000078	0.0000077				
Sodium Na	mg/L				54	45	45	43	43				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000004	0.000004	0.000004	0.000004	0.000004				
Tin Sn	mg/L				0.00049	0.00047	0.00047	0.00047	0.00047				
Titanium Ti	mg/L				0.0061	0.0061	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000029	0.000034	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0037	0.0033	0.0023	0.0023				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-5-a-B.2
5 % increase in Background

Water Quality in DORIS CRI/Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				185	157	156	176	173				
TSS	mg/L				4.0	5.8	5.9	6.9	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.001				
Sulphate	mg/L				5.0	4.4	4.3	4.5	4.4				
Chloride	mg/L				92	85	81	85	83				
Total Ammonia	mg/L				0.005	0.009	0.014	0.013	0.013				
Nitrate	mg/L				0.14	0.12	0.12	0.12	0.12				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0062	0.0050	0.0045	0.0046	0.0042				
Phosphate-P	mg/L				0.0216	0.0218	0.0272	0.0230	0.0226				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0008	0.0012	0.0030	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00050	0.00040	0.00036	0.00036	0.00034				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000044	0.0000042	0.0000036	0.0000037	0.0000036				
Calcium Ca	mg/L				16	13	13	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0014	0.0017	0.0015	0.0017	0.0017				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo	mg/L				0.00036	0.00031	0.00032	0.00030	0.00029				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.024	0.024	0.029	0.025	0.024				
Potassium K	mg/L				3.7	3.1	3.0	3.0	2.9				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.61	0.59	0.58	0.59	0.58				
Silver Ag	mg/L				0.0000067	0.0000068	0.0000065	0.0000067	0.0000062				
Sodium Na	mg/L				50	42	42	40	39				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000030	0.000030	0.000031	0.000030				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00046	0.00045	0.00044	0.00044	0.00044				
Titanium Ti	mg/L				0.0062	0.0062	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0015	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-5-a-B.2
5 % increase in Background

Water Quality in DORIS CRI/Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				165	141	142	162	160				
TSS	mg/L				4.0	5.8	5.9	6.9	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.1	3.7	3.7	3.8	3.8				
Chloride	mg/L				79	75	72	76	74				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.07	0.06	0.05	0.05	0.05				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0039	0.0032	0.0029	0.0030	0.0028				
Phosphate-P	mg/L				0.0194	0.0201	0.0256	0.0214	0.0212				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0006	0.0010	0.0029	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00031	0.00024	0.00022	0.00022	0.00021				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000040	0.0000037	0.0000031	0.0000031	0.0000030				
Calcium Ca	mg/L				13	11	10	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0002	0.0009	0.0002	0.0002				
Copper Cu	mg/L				0.0014	0.0017	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo	mg/L				0.00027	0.00025	0.00026	0.00024	0.00024				
Nickel Ni	mg/L				0.0005	0.0007	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.021	0.021	0.026	0.022	0.022				
Potassium K	mg/L				3.3	2.8	2.8	2.7	2.7				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.57	0.56	0.56	0.56	0.56				
Silver Ag	mg/L				0.0000059	0.0000060	0.0000056	0.0000057	0.0000053				
Sodium Na	mg/L				45	38	39	37	36				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00043	0.00042	0.00042	0.00042	0.00042				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000028	0.000032	0.000040	0.000034	0.000033				
Vanadium V	mg/L				0.0006	0.0002	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-5-a-B.2
5 % increase in Background

Water Quality in DORIS CRI/Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				153	132	134	154	152				
TSS	mg/L				4.0	5.8	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.000				
Sulphate	mg/L				3.5	3.2	3.3	3.5	3.4				
Chloride	mg/L				71	69	66	70	69				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	27	26				
OrthoPhosphate-P	mg/L				0.0026	0.0022	0.0020	0.0021	0.0019				
Phosphate-P	mg/L				0.0181	0.0191	0.0247	0.0205	0.0204				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				45	43	42	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0031	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00019	0.00015	0.00014	0.00014	0.00013				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000034	0.0000033	0.0000027	0.0000028	0.0000027				
Calcium Ca	mg/L				11	10	9	9	9				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0016	0.0014	0.0016	0.0016				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.5	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00023	0.00021	0.00023	0.00021	0.00021				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.019	0.025	0.021	0.021				
Potassium K	mg/L				3.1	2.7	2.6	2.6	2.5				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.54				
Silver Ag	mg/L				0.0000050	0.0000053	0.0000050	0.0000051	0.0000047				
Sodium Na	mg/L				43	36	37	35	35				
Strontium Sr	mg/L				0.040	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00041	0.00041	0.00041	0.00041	0.00040				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000027	0.000032	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-5-a-B.2
5 % increase in Background

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				146	127	129	149	148				
TSS	mg/L				4.0	5.8	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				3.2	3.0	3.1	3.2	3.2				
Chloride	mg/L				67	65	63	67	67				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				27	25	27	26	26				
OrthoPhosphate-P	mg/L				0.0018	0.0016	0.0015	0.0015	0.0014				
Phosphate-P	mg/L				0.0174	0.0185	0.0242	0.0200	0.0199				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				45	42	42	44	43				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0004	0.0009	0.0028	0.0005	0.0005				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00012	0.00010	0.00009	0.00009	0.00009				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000031	0.0000030	0.0000025	0.0000025	0.0000025				
Calcium Ca	mg/L				10	9	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00020	0.00019	0.00021	0.00019	0.00019				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.017	0.018	0.024	0.020	0.020				
Potassium K	mg/L				3.0	2.6	2.5	2.5	2.5				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000045	0.0000049	0.0000047	0.0000048	0.0000044				
Sodium Na	mg/L				41	35	36	34	34				
Strontium Sr	mg/L				0.040	0.041	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.050	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000027	0.000031	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr	mg/L				0.0049	0.0050	0.0050	0.0050	0.0050				

Appendix I

Table I-5-a-B.2
5 % increase in Background

Water Quality in DORIS CRI/Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				142	123	127	146	145			
TSS	mg/L				4.0	5.8	5.9	6.8	6.8			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.0	2.8	3.0	3.1	3.1			
Chloride	mg/L				64	63	61	65	65			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				27	25	27	26	26			
OrthoPhosphate-P	mg/L				0.0014	0.0012	0.0012	0.0012	0.0012			
Phosphate-P	mg/L				0.0169	0.0181	0.0239	0.0197	0.0196			
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0			
Hardness CaCO3	mg/L				45	42	42	43	43			
Total Metals												
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08			
Antimony Sb	mg/L				0.0004	0.0008	0.0027	0.0005	0.0005			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0028	0.0031	0.0029	0.0030	0.0030			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00008	0.00007	0.00007	0.00007	0.00006			
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023			
Cadmium Cd	mg/L				0.0000029	0.0000029	0.0000024	0.0000024	0.0000024			
Calcium Ca	mg/L				9	8	8	8	8			
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0013	0.0016	0.0013	0.0016	0.0016			
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.2	6.5	6.5	6.4	6.4			
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011			
Molybdenum Mo	mg/L				0.00018	0.00017	0.00020	0.00018	0.00018			
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005			
Phosphorus P	mg/L				0.017	0.018	0.024	0.019	0.019			
Potassium K	mg/L				2.9	2.5	2.5	2.4	2.4			
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057			
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53			
Silver Ag	mg/L				0.0000041	0.0000046	0.0000044	0.0000045	0.0000042			
Sodium Na	mg/L				40	34	35	33	33			
Strontium Sr	mg/L				0.040	0.041	0.035	0.039	0.039			
Tellurium Te	mg/L				0.049	0.049	0.049	0.050	0.049			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002			
Tin Sn	mg/L				0.00040	0.00039	0.00039	0.00039	0.00039			
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063			
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000033	0.000033			
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002			
Zinc Zn	mg/L				0.0010	0.0031	0.0028	0.0018	0.0018			
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0049			

Table I-5-a-B.3
5 % increase in Background Copper in Doris Creek

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1067282	582990	255475	380358	134249				
TSS				29412	26658	11480	17122	5980				
Free CN				0.54	0.05	0.05	0.06	0.02				
Total CN				20	9	4	5	2				
WAD CN				0.72	0.07	0.06	0.08	0.03				
CNO				598	56	50	68	23				
SCN				8	6	3	5	2				
Sulphate				27786	17788	8271	11848	4413				
Chloride				464801	293082	121925	169140	60070				
Total Ammonia				134	194	45	72	25				
Nitrate				541	486	258	420	167				
Nitrite				76	59	25	14	12				
Alkalinity				205804	118783	53417	67679	23755				
OrthoPhosphate-P				16	11	5	8	3				
Phosphate-P				131	88	49	54	19				
Org. Carbon				40657	23628	14442	12491	4361				
Hardness CaCO3				340740	200110	84450	112733	39631				
Total Metals												
Aluminum Al				249	274	155	179	63				
Antimony Sb				3.3	4.5	5.8	1.8	0.7				
Arsenic As				3.7	2.0	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.12	0.08	0.04	0.05	0.02				
Bismuth Bi				0.85	0.92	0.50	0.77	0.31				
Boron B				252	104	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				82196	49799	21851	29750	11110				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.20	1.23	1.99	0.69	0.27				
Copper Cu				10	8	3	4	2				
Iron Fe				378	566	163	223	78				
Lead Pb				0.18	0.32	0.09	0.12	0.04				
Lithium Li				21	13	6	7	3				
Magnesium Mg				53824	30218	12900	16256	5697				
Manganese Mn				50	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.88	1.21	0.61	0.82	0.31				
Nickel Ni				3.65	3.09	1.15	1.48	0.54				
Phosphorus P				140	96	53	59	21				
Potassium K				23893	13325	5795	7669	2797				
Selenium Se				6.57	2.63	1.20	1.39	0.49				
Silicon SiO2				4092	2583	1110	1459	520				
Silver Ag				0.04	0.03	0.01	0.01	0.01				
Sodium Na				288735	151885	66693	80357	28167				
Strontium Sr				302	195	71	102	36				
Tellurium Te				369	229	97	124	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.01	1.93	0.83	1.09	0.39				
Titanium Ti				44	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.27	0.47	0.58	0.54	0.20				
Zinc Zn				8.48	15.56	6.08	5.26	1.91				
Zirconium Zr				37	23	10	13	4				

Solute Loadings in DORI!Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1193986	646953	280067	411878	144899				
TSS				29723	26811	11539	17197	6005				
Free CN				1.33		0.05	0.06	0.02				
Total CN				27	9	4	5	2				
WAD CN				1.78		0.06	0.08	0.03				
CNO				1468		50	64	22				
SCN				34	19	8	11	4				
Sulphate				51086	29555	12794	17645	6372				
Chloride				548851	335441	138190	189984	67110				
Total Ammonia				299	355	33	72	25				
Nitrate				1954	1264	555	801	295				
Nitrite				215	55	25	12	12				
Alkalinity				216891	124360	55557	70421	24682				
OrthoPhosphate-P				49	28	12	16	6				
Phosphate-P				164	105	56	62	22				
Org. Carbon				40723	23653	14451	12502	4365				
Hardness CaCO3				364530	212103	89056	118635	41625				
Total Metals												
Aluminum Al				259	279	157	181	63				
Antimony Sb				6.4	6.1	6.4	2.6	0.9				
Arsenic As				4.4	2.4	0.9	1.2	0.4				
Barium Ba				24	16	7	9	3				
Beryllium Be				0.23	0.14	0.06	0.08	0.03				
Bismuth Bi				3.77	2.37	1.06	1.48	0.55				
Boron B				258	107	46	58	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.00				
Calcium Ca				145203	81666	34110	45461	16419				
Chromium Cr				7	2	1	1	0				
Cobalt Co				3.85	2.57	2.50	1.35	0.50				
Copper Cu				12	9	3	5	2				
Iron Fe				387	570	164	225	79				
Lead Pb				0.28	0.36	0.11	0.14	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55675	31147	13257	16713	5851				
Manganese Mn				57	98	27	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.17	2.37	1.06	1.39	0.51				
Nickel Ni				5.71	4.13	1.55	2.00	0.72				
Phosphorus P				195	123	64	73	26				
Potassium K				34287	18582	7817	10261	3672				
Selenium Se				6.64	2.66	1.21	1.41	0.49				
Silicon SiO2				4992	3037	1284	1682	596				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				298830	156972	68647	82861	29013				
Strontium Sr				322	205	75	107	37				
Tellurium Te				369	230	97	124	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.46	2.15	0.92	1.20	0.42				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.00	0.84	0.72	0.72	0.26				
Zinc Zn				14.24	18.47	7.20	6.69	2.40				
Zirconium Zr				37	23	10	13	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1261662	681499	292482	426578	149434				
TSS				29860	26875	11557	17213	6008				
Free CN				0.81								
Total CN				22	9	4	5	2				
WAD CN				1.08								
CNO				895								
SCN				42	22	9	11	4				
Sulphate				60015	33355	13778	18249	6343				
Chloride				602630	364704	149703	205087	72333				
Total Ammonia				239	234	33	42	15				
Nitrate				2600	1539	630	858	302				
Nitrite				193	43	24	9	4				
Alkalinity				220975	126063	55960	70592	24617				
OrthoPhosphate-P				70	39	16	22	8				
Phosphate-P				185	116	60	68	24				
Org. Carbon				40808	23708	14474	12533	4376				
Hardness CaCO3				373087	215605	89852	118899	41447				
Total Metals												
Aluminum Al				264	281	158	182	63				
Antimony Sb				8.3	7.1	6.8	3.1	1.1				
Arsenic As				4.7	2.5	1.0	1.3	0.4				
Barium Ba				25	16	7	9	3				
Beryllium Be				0.30	0.17	0.07	0.10	0.03				
Bismuth Bi				5.62	3.37	1.45	1.99	0.73				
Boron B				260	108	47	58	20				
Cadmium Cd				0.05	0.03	0.01	0.01	0.00				
Calcium Ca				167061	90321	35938	45738	15782				
Chromium Cr				7	3	1	1	0				
Cobalt Co				4.80	2.95	2.59	1.38	0.48				
Copper Cu				13	9	3	5	2				
Iron Fe				390	572	165	225	79				
Lead Pb				0.32	0.38	0.12	0.15	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56445	31493	13355	16792	5862				
Manganese Mn				60	99	28	28	10				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.97	2.69	1.12	1.40	0.48				
Nickel Ni				6.51	4.47	1.64	2.05	0.72				
Phosphorus P				225	139	69	80	28				
Potassium K				37881	20004	8116	10301	3565				
Selenium Se				6.67	2.68	1.22	1.41	0.49				
Silicon SiO2				5323	3171	1315	1694	590				
Silver Ag				0.06	0.04	0.01	0.02	0.01				
Sodium Na				302483	158474	68992	82984	28941				
Strontium Sr				330	208	75	107	37				
Tellurium Te				370	230	97	124	43				
Thallium Tl				0.24	0.15	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.75	2.31	0.98	1.27	0.45				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.39	1.03	0.79	0.80	0.28				
Zinc Zn				16.41	19.38	7.43	6.82	2.38				
Zirconium Zr				37	23	10	13	4				

Solute Loadings in DORI!Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1274946	721254	322324	485729	177051				
TSS				29846	26937	11595	17271	6031				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				31	16	6	8	3				
Sulphate				52711	28933	11891	15714	5433				
Chloride				637970	400559	171358	244468	89860				
Total Ammonia				82	54	34	40	14				
Nitrate				2296	1284	515	677	236				
Nitrite				72	12	5	7	2				
Alkalinity				217262	124098	55197	69634	24296				
OrthoPhosphate-P				83	43	17	22	8				
Phosphate-P				197	121	61	68	24				
Org. Carbon				41037	23836	14526	12606	4402				
Hardness CaCO3				364263	210909	88019	116574	40664				
Total Metals												
Aluminum Al				264	286	161	186	65				
Antimony Sb				9.6	7.3	6.8	2.9	1.0				
Arsenic As				4.5	2.4	0.9	1.2	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.32	0.17	0.07	0.09	0.03				
Bismuth Bi				7.01	3.63	1.41	1.84	0.63				
Boron B				260	108	47	58	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.00				
Calcium Ca				140110	78130	32093	42163	15054				
Chromium Cr				7	2	1	1	0				
Cobalt Co				3.77	2.38	2.36	1.08	0.37				
Copper Cu				12	9	3	5	2				
Iron Fe				389	577	168	230	80				
Lead Pb				0.32	0.38	0.11	0.14	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				56100	31340	13297	16719	5836				
Manganese Mn				57	98	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.98	2.16	0.92	1.14	0.39				
Nickel Ni				5.89	4.10	1.48	1.84	0.64				
Phosphorus P				233	140	68	77	27				
Potassium K				33412	17663	7205	9137	3170				
Selenium Se				6.67	2.70	1.23	1.43	0.50				
Silicon SiO2				5000	3009	1253	1616	563				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				298820	170422	79361	104153	38985				
Strontium Sr				323	204	74	105	37				
Tellurium Te				372	231	97	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.02	0.01	0.01	0.00				
Tin Sn				3.97	2.36	0.98	1.26	0.44				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.49	1.06	0.79	0.79	0.28				
Zinc Zn				14.50	18.31	6.99	6.24	2.18				
Zirconium Zr				38	23	10	13	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1541691	813060	339828	485832	168636				
TSS				30071	27060	11644	17336	6054				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				23	12	4	6	2				
Sulphate				44717	24505	10112	13396	4632				
Chloride				791863	451706	180101	242039	83872				
Total Ammonia				61	57	34	40	14				
Nitrate				1734	950	383	506	177				
Nitrite				19	13	5	7	2				
Alkalinity				215039	122849	54693	68989	24073				
OrthoPhosphate-P				63	32	12	16	6				
Phosphate-P				179	111	57	63	22				
Org. Carbon				41289	23973	14581	12679	4428				
Hardness CaCO3				358583	207734	86741	114925	40094				
Total Metals												
Aluminum Al				279	295	164	191	67				
Antimony Sb				7.9	6.3	6.4	2.4	0.8				
Arsenic As				4.3	2.3	0.9	1.1	0.4				
Barium Ba				23	16	6	8	3				
Beryllium Be				0.28	0.15	0.06	0.08	0.03				
Bismuth Bi				5.29	2.68	1.03	1.34	0.46				
Boron B				261	109	47	58	20				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				139823	74678	29565	37532	12954				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.92	1.91	2.17	0.84	0.29				
Copper Cu				12	8	3	4	2				
Iron Fe				405	585	171	234	82				
Lead Pb				0.29	0.36	0.11	0.13	0.05				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55872	31210	13244	16652	5813				
Manganese Mn				55	97	27	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				3.28	1.77	0.76	0.93	0.32				
Nickel Ni				5.21	3.72	1.33	1.64	0.57				
Phosphorus P				207	125	63	70	24				
Potassium K				30399	15994	6533	8263	2868				
Selenium Se				6.73	2.73	1.24	1.45	0.51				
Silicon SiO2				4806	2901	1209	1559	544				
Silver Ag				0.06	0.04	0.02	0.02	0.01				
Sodium Na				406975	211748	89526	109871	38159				
Strontium Sr				319	202	73	104	36				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.03	0.02	0.01	0.01	0.00				
Tin Sn				3.73	2.22	0.92	1.19	0.41				
Titanium Ti				46	29	12	16	5				
Uranium U				0.22	0.16	0.08	0.09	0.03				
Vanadium V				5.30	0.96	0.75	0.74	0.26				
Zinc Zn				12.81	17.37	6.61	5.74	2.01				
Zirconium Zr				38	24	10	13	4				

Solute Loadings in DORI!Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1399996	736169	309262	446003	152880				
TSS				30262	27162	11682	17389	6060				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				16	8	3	4	1				
Sulphate				37808	20741	8614	11445	3870				
Chloride				698310	400921	159913	215744	73442				
Total Ammonia				37	44	28	32	11				
Nitrate				1034	568	231	311	104				
Nitrite				15	10	4	5	2				
Alkalinity				213171	121816	54279	68462	23792				
OrthoPhosphate-P				47	23	9	12	4				
Phosphate-P				164	103	54	58	20				
Org. Carbon				41502	24086	14624	12739	4433				
Hardness CaCO3				353807	205108	85695	113578	39467				
Total Metals												
Aluminum Al				286	298	165	192	67				
Antimony Sb				6.4	5.5	6.0	2.0	0.7				
Arsenic As				4.1	2.1	0.8	1.1	0.4				
Barium Ba				23	15	6	8	3				
Beryllium Be				0.22	0.11	0.05	0.06	0.02				
Bismuth Bi				3.81	1.88	0.71	0.92	0.30				
Boron B				261	108	47	58	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				117702	62651	24782	31299	10520				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.19	1.51	2.01	0.63	0.21				
Copper Cu				11	8	3	4	1				
Iron Fe				417	592	174	237	83				
Lead Pb				0.24	0.33	0.09	0.12	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55651	31083	13191	16587	5770				
Manganese Mn				53	96	26	26	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.70	1.45	0.63	0.77	0.26				
Nickel Ni				4.61	3.39	1.20	1.47	0.50				
Phosphorus P				181	111	57	62	21				
Potassium K				27855	14612	5983	7547	2581				
Selenium Se				6.77	2.75	1.25	1.45	0.51				
Silicon SiO2				4586	2777	1159	1494	515				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				376450	195171	82929	101288	34698				
Strontium Sr				315	200	72	103	36				
Tellurium Te				376	233	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.50	2.09	0.87	1.12	0.39				
Titanium Ti				47	29	12	16	6				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.10	0.84	0.70	0.68	0.23				
Zinc Zn				11.27	16.51	6.26	5.30	1.83				
Zirconium Zr				38	23	10	13	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1248766	662777	281717	410152	141449				
TSS				30204	27135	11672	17375	6056				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				10	5	2	2	1				
Sulphate				30757	17299	7317	9753	3329				
Chloride				597981	352231	141640	191961	65858				
Total Ammonia				37	36	26	31	11				
Nitrate				539	267	101	131	42				
Nitrite				15	9	4	5	2				
Alkalinity				209859	120211	53677	67680	23542				
OrthoPhosphate-P				30	15	6	8	2				
Phosphate-P				147	94	51	54	19				
Org. Carbon				41401	24038	14606	12716	4425				
Hardness CaCO3				346994	201804	84456	111967	38952				
Total Metals												
Aluminum Al				289	299	166	193	67				
Antimony Sb				4.8	4.8	5.8	1.6	0.6				
Arsenic As				3.9	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.17	0.09	0.03	0.05	0.01				
Bismuth Bi				2.32	1.15	0.44	0.57	0.18				
Boron B				259	108	47	58	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				94898	51549	20607	25859	8783				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.44	1.14	1.87	0.45	0.15				
Copper Cu				10	8	3	4	1				
Iron Fe				420	593	174	238	83				
Lead Pb				0.21	0.32	0.09	0.11	0.04				
Lithium Li				22	14	6	7	3				
Magnesium Mg				55108	30817	13090	16456	5728				
Manganese Mn				52	95	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.08	1.15	0.52	0.62	0.21				
Nickel Ni				3.98	3.09	1.08	1.32	0.45				
Phosphorus P				157	99	52	56	19				
Potassium K				25077	13264	5477	6888	2371				
Selenium Se				6.77	2.75	1.25	1.45	0.50				
Silicon SiO2				4342	2652	1110	1430	494				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				342695	178792	76781	93288	32147				
Strontium Sr				309	197	71	102	35				
Tellurium Te				375	233	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.27	1.98	0.83	1.06	0.37				
Titanium Ti				47	29	12	16	6				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				4.84	0.71	0.65	0.61	0.21				
Zinc Zn				9.65	15.71	5.96	4.90	1.70				
Zirconium Zr				38	23	10	13	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1160065	619856	265634	389221	134781				
TSS				30170	27119	11666	17368	6053				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				6	3	1	1	0				
Sulphate				26559	15267	6555	8762	3014				
Chloride				539136	323757	130970	178076	61435				
Total Ammonia				36	36	26	31	11				
Nitrate				48	29	12	16	6				
Nitrite				14	9	4	5	2				
Alkalinity				207915	119274	53326	67224	23396				
OrthoPhosphate-P				20	10	4	5	2				
Phosphate-P				137	90	49	52	18				
Org. Carbon				41342	24010	14596	12703	4421				
Hardness CaCO3				342996	199872	83733	111027	38653				
Total Metals												
Aluminum Al				289	299	166	193	67				
Antimony Sb				3.9	4.3	5.6	1.4	0.5				
Arsenic As				3.7	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.07	0.03	0.04	0.01				
Bismuth Bi				1.44	0.72	0.28	0.36	0.12				
Boron B				258	107	46	58	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				81417	45024	18161	22677	7769				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.99	0.93	1.79	0.34	0.11				
Copper Cu				10	8	3	4	1				
Iron Fe				421	594	175	238	83				
Lead Pb				0.18	0.30	0.08	0.10	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54780	30659	13031	16379	5703				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.71	0.98	0.46	0.53	0.18				
Nickel Ni				3.61	2.90	1.01	1.23	0.43				
Phosphorus P				141	91	49	53	18				
Potassium K				23446	12475	5181	6503	2249				
Selenium Se				6.76	2.74	1.24	1.45	0.50				
Silicon SiO2				4179	2573	1081	1392	482				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				322893	169212	73192	88617	30659				
Strontium Sr				306	196	71	101	35				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.13	1.91	0.80	1.03	0.36				
Titanium Ti				47	29	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.67	0.63	0.62	0.57	0.19				
Zinc Zn				8.65	15.23	5.78	4.66	1.63				
Zirconium Zr				38	23	10	13	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1108369	594915	256302	377079	130917				
TSS				30149	27109	11663	17364	6052				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				3	2	1	1	0				
Sulphate				24113	14086	6114	8187	2831				
Chloride				504839	307210	124779	170022	58872				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	11	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				206781	118729	53123	66961	23312				
OrthoPhosphate-P				14	7	3	4	1				
Phosphate-P				132	87	48	51	18				
Org. Carbon				41307	23994	14590	12695	4418				
Hardness CaCO3				340666	198751	83314	110483	38479				
Total Metals												
Aluminum Al				289	299	166	193	67				
Antimony Sb				3.4	4.1	5.5	1.3	0.4				
Arsenic As				3.6	1.9	0.7	1.0	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.11	0.06	0.02	0.03	0.01				
Bismuth Bi				0.92	0.47	0.18	0.24	0.08				
Boron B				258	107	46	57	20				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				73560	41233	16743	20830	7182				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.73	0.80	1.75	0.28	0.10				
Copper Cu				10	8	3	4	1				
Iron Fe				422	594	175	239	83				
Lead Pb				0.17	0.30	0.08	0.10	0.03				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54588	30567	12997	16335	5689				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.50	0.88	0.42	0.48	0.17				
Nickel Ni				3.39	2.80	0.97	1.18	0.41				
Phosphorus P				133	87	48	50	18				
Potassium K				22495	12016	5010	6280	2177				
Selenium Se				6.75	2.74	1.24	1.45	0.50				
Silicon SiO2				4083	2527	1063	1369	475				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				311351	163647	71109	85909	29797				
Strontium Sr				304	195	70	100	35				
Tellurium Te				374	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.05	1.87	0.79	1.01	0.35				
Titanium Ti				47	29	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.57	0.58	0.60	0.55	0.19				
Zinc Zn				8.07	14.95	5.67	4.53	1.58				
Zirconium Zr				37	23	10	13	4				

Solute Loadings in DORI!Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1076599	579734	250656	369727	128593				
TSS				30103	27086	11654	17352	6048				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				2	1	0	0	0				
Sulphate				22632	13380	5851	7845	2722				
Chloride				483699	297108	121022	165127	57325				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	11	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				205911	118308	52965	66754	23247				
OrthoPhosphate-P				10	6	2	3	1				
Phosphate-P				128	85	47	50	17				
Org. Carbon				41242	23961	14578	12679	4413				
Hardness CaCO3				339008	197952	83015	110092	38356				
Total Metals												
Aluminum Al				287	298	165	192	67				
Antimony Sb				3.1	3.9	5.4	1.2	0.4				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				0.61	0.33	0.13	0.17	0.06				
Boron B				257	107	46	57	20				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				68803	38962	15899	19732	6834				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.58	0.73	1.72	0.24	0.08				
Copper Cu				10	7	3	4	1				
Iron Fe				421	593	174	238	83				
Lead Pb				0.16	0.29	0.08	0.10	0.03				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54426	30488	12967	16296	5677				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.37	0.81	0.39	0.45	0.16				
Nickel Ni				3.25	2.73	0.95	1.15	0.40				
Phosphorus P				127	84	47	49	17				
Potassium K				21902	11732	4904	6142	2134				
Selenium Se				6.74	2.73	1.24	1.45	0.50				
Silicon SiO2				4017	2495	1052	1354	470				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				304103	160177	69819	84227	29265				
Strontium Sr				303	194	70	100	35				
Tellurium Te				373	232	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.00	1.85	0.78	1.00	0.35				
Titanium Ti				47	29	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.50	0.54	0.59	0.53	0.18				
Zinc Zn				7.71	14.77	5.61	4.44	1.56				
Zirconium Zr				37	23	10	13	4				

Appendix I

Table I-5-a-C.1
5 % increase in Background Copper in Doris Creek

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate 900000 m3/year Degradation Field(age) Tail Lk Cu < CME Year 9							
MMER		CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3		
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8		
TDS	mg/L			1425	203	192	
TSS	mg/L			4.2	6.9	8.1	
Free CN	mg/L		0.005	0.0035	0.00018	0.00009	4%
Total CN	mg/L	1.0		0.033	0.004	0.003	
WAD CN	mg/L			0.0046	0.0002	0.0001	
CNO	mg/L			3.8	0.19	0.10	
SCN	mg/L			0.114	0.006	0.003	
Sulphate	mg/L			105	7.9	6.8	
Chloride	mg/L			951	104	87	
Total Ammonia	mg/L		0.97	1.27	0.076	0.040	8%
Nitrate	mg/L		2.9	6.6	0.34	0.18	12%
Nitrite	mg/L		0.018	0.51	0.028	0.016	155%
Alkalinity	mg/L			62	29	26	
OrthoPhosphate-P	mg/L			0.2038	0.0109	0.0062	
Phosphate-P	mg/L			0.2071	0.0309	0.0293	
Org. Carbon	mg/L			5.5	7.4	7.1	
Hardness CaCO3	mg/L			123	49	47	
Total Metals							
Aluminum Al	mg/L		0.1	0.15	0.08	0.25	84%
Antimony Sb	mg/L			0.0184	0.0034	0.0021	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	12%
Barium Ba	mg/L			0.0121	0.0035	0.0054	
Beryllium Be	mg/L			0.00069	0.00004	0.00003	
Bismuth Bi	mg/L			0.01783	0.00092	0.00056	
Boron B	mg/L			0.035	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000064	0.0000063	0.0000162	17%
Calcium Ca	mg/L			284	22	15	
Chromium Cr	mg/L		0.001	0.0075	0.001	0.001	98%
Cobalt Co	mg/L			0.0119	0.0013	0.0006	
Copper Cu	mg/L	0.3	0.002	0.011	0.0020	0.0021	99%
Iron Fe	mg/L		0.3	0.16	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00045	0.00008	0.00026	4%
Lithium Li	mg/L			0.0053	0.0029	0.0029	
Magnesium Mg	mg/L			10.3	7.4	7.3	
Manganese Mn	mg/L			0.033	0.021	0.025	
Mercury Hg	mg/L		0.0001	0.0000117	0.0000012	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0103	0.00066	0.00044	1%
Nickel Ni	mg/L	0.5	0.025	0.009	0.0010	0.0009	4%
Phosphorus P	mg/L			0.292	0.035	0.032	
Potassium K	mg/L			47	5.0	3.9	
Selenium Se	mg/L		0.001	0.00090	0.00089	0.00084	89%
Silicon SiO2	mg/L			4.5	0.70	0.62	
Silver Ag	mg/L		0.0001	0.00012	0.0000080	0.0000069	8%
Sodium Na	mg/L			331	54	46	
Strontium Sr	mg/L			0.100	0.044	0.047	
Tellurium Te	mg/L			0.044	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000046	0.000031	0.002001	4%
Thorium Th	mg/L			0.000063	0.0000043	0.0000022	
Tin Sn	mg/L			0.00281	0.00052	0.00007	
Titanium Ti	mg/L			0.0123	0.0063	0.0063	
Uranium U	mg/L			0.000091	0.000041	0.000045	
Vanadium V	mg/L			0.0039	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.026	0.0041	0.0057	14%
Zirconium Zr	mg/L			0.0051	0.0050	0.0051	

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper in Doris Creek

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				154	155	145	166	167				
TSS	mg/L				7.0	8.0	4.1	5.1	5.1				
Free CN	mg/L				0.00004	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.04	0.01	0.01	0.01	0.01				
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.3	5.4	5.4	5.5				
Chloride	mg/L				63	61	60	69	69				
Total Ammonia	mg/L				0.012	0.022	0.005	0.015	0.015				
Nitrate	mg/L				0.04	0.06	0.06	0.09	0.10				
Nitrite	mg/L				0.006	0.007	0.006	0.004	0.008				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0017	0.0018	0.0020	0.0023	0.0025				
Phosphate-P	mg/L				0.0248	0.0169	0.0081	0.0204	0.0206				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0005				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00014	0.00019	0.00022	0.00024	0.00027				
Boron B	mg/L				0.030	0.020	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000048	0.0000154	0.0000030	0.0000031				
Calcium Ca	mg/L				9	8	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0028	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00023	0.00022	0.00030	0.00028	0.00030				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.025	0.018	0.009	0.021	0.022				
Potassium K	mg/L				2.9	2.4	2.5	2.9	2.9				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.53	0.54	0.54	0.55	0.56				
Silver Ag	mg/L				0.0000052	0.0000029	0.0000055	0.0000040	0.0000040				
Sodium Na	mg/L				38	31	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00002	0.00002	0.00002	0.00003				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0053	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				163	162	152	173	173				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00009		0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001		0.0000	0.0000	0.0000				
CNO	mg/L				0.10		0.01	0.01	0.01				
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.9	5.6	6.6	6.6	6.7				
Chloride	mg/L				69	65	64	73	74				
Total Ammonia	mg/L				0.023	0.040	0.002	0.015	0.015				
Nitrate	mg/L				0.14	0.14	0.14	0.17	0.17				
Nitrite	mg/L				0.016	0.007	0.006	0.003	0.008				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0040	0.0037	0.0037	0.0039	0.0041				
Phosphate-P	mg/L				0.0270	0.0187	0.0097	0.0220	0.0222				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0020	0.0014	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00034	0.00035	0.00036	0.00039	0.00041				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000041	0.0000055	0.0000161	0.0000037	0.0000038				
Calcium Ca	mg/L				13	12	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00039	0.00035	0.00042	0.00040	0.00041				
Nickel Ni	mg/L				0.0008	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.029	0.021	0.012	0.024	0.025				
Potassium K	mg/L				3.6	3.0	3.0	3.4	3.5				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00061	0.00061				
Silicon SiO2	mg/L				0.59	0.59	0.59	0.60	0.60				
Silver Ag	mg/L				0.0000061	0.0000036	0.0000061	0.0000046	0.0000047				
Sodium Na	mg/L				38	32	35	37	37				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00004	0.00004	0.00004	0.00005	0.00005				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0040	0.0021	0.0020	0.0056	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				167	165	155	176	176				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L				0.00006								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.06								
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.5	6.0	6.8	6.7	6.7				
Chloride	mg/L				72	68	67	76	77				
Total Ammonia	mg/L				0.019	0.027	0.002	0.009	0.009				
Nitrate	mg/L				0.18	0.17	0.16	0.18	0.18				
Nitrite	mg/L				0.014	0.006	0.005	0.003	0.003				
Alkalinity	mg/L				25	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0054	0.0049	0.0048	0.0051	0.0053				
Phosphate-P	mg/L				0.0285	0.0200	0.0109	0.0232	0.0234				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	41	43	47	47				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0021	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0054	0.0037	0.0047	0.0044	0.0044				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00047	0.00045	0.00046	0.00049	0.00051				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000044	0.0000058	0.0000162	0.0000038	0.0000038				
Calcium Ca	mg/L				15	13	12	13	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0005	0.0006	0.0006	0.0004	0.0004				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0021	0.0021				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.025	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00044	0.00038	0.00044	0.00040	0.00040				
Nickel Ni	mg/L				0.0009	0.0007	0.0008	0.0008	0.0008				
Phosphorus P	mg/L				0.031	0.022	0.013	0.026	0.026				
Potassium K	mg/L				3.9	3.2	3.1	3.4	3.4				
Selenium Se	mg/L				0.00065	0.00038	0.00083	0.00061	0.00061				
Silicon SiO2	mg/L				0.62	0.60	0.60	0.60	0.60				
Silver Ag	mg/L				0.0000067	0.0000040	0.0000064	0.0000049	0.0000049				
Sodium Na	mg/L				39	32	35	37	37				
Strontium Sr	mg/L				0.047	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00006	0.00006	0.00006	0.00006	0.00007				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0041	0.0022	0.0021	0.0057	0.0057				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				168	170	163	188	192				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				6.0	5.5	6.4	6.2	6.1				
Chloride	mg/L				75	72	73	84	87				
Total Ammonia	mg/L				0.008	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.16	0.14	0.13	0.14	0.14				
Nitrite	mg/L				0.006	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0062	0.0054	0.0050	0.0051	0.0050				
Phosphate-P	mg/L				0.0293	0.0205	0.0112	0.0233	0.0232				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				46	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0009	0.0021	0.0015	0.0010	0.0010				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0044	0.0044				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00056	0.00048	0.00045	0.00046	0.00045				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000042	0.0000055	0.0000160	0.0000036	0.0000036				
Calcium Ca	mg/L				13	11	11	12	13				
Chromium Cr	mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co	mg/L				0.0004	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00037	0.00033	0.00038	0.00035	0.00035				
Nickel Ni	mg/L				0.0008	0.0007	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.032	0.023	0.013	0.025	0.025				
Potassium K	mg/L				3.6	2.9	2.9	3.2	3.2				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.60	0.59	0.58	0.58	0.58				
Silver Ag	mg/L				0.0000069	0.0000041	0.0000065	0.0000050	0.0000049				
Sodium Na	mg/L				38	33	37	41	43				
Strontium Sr	mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00007	0.00006	0.00006	0.00006	0.00006				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0040	0.0021	0.0020	0.0055	0.0055				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				186	180	167	188	187				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.4	5.0	5.9	5.7	5.7				
Chloride	mg/L				85	78	75	84	83				
Total Ammonia	mg/L				0.007	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.12	0.11	0.10	0.11	0.11				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0049	0.0042	0.0039	0.0039	0.0039				
Phosphate-P	mg/L				0.0281	0.0194	0.0101	0.0222	0.0221				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0020	0.0014	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00044	0.00038	0.00035	0.00036	0.00035				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000040	0.0000054	0.0000159	0.0000034	0.0000035				
Calcium Ca	mg/L				13	11	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000008	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00033	0.00028	0.00034	0.00031	0.00030				
Nickel Ni	mg/L				0.0008	0.0006	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.030	0.021	0.012	0.024	0.024				
Potassium K	mg/L				3.4	2.7	2.7	3.0	3.0				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.58	0.57	0.57	0.57	0.57				
Silver Ag	mg/L				0.0000069	0.0000041	0.0000065	0.0000049	0.0000049				
Sodium Na	mg/L				46	38	40	43	42				
Strontium Sr	mg/L				0.046	0.038	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00005	0.00004	0.00005	0.00004				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0063	0.0063				
Uranium U	mg/L				0.000038	0.000034	0.000037	0.000045	0.000045				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0020	0.0019	0.0054	0.0054				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				177	171	159	180	178				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				5.0	4.6	5.5	5.3	5.2				
Chloride	mg/L				79	72	70	78	77				
Total Ammonia	mg/L				0.005	0.006	0.000	0.007	0.007				
Nitrate	mg/L				0.07	0.07	0.06	0.07	0.06				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0038	0.0032	0.0030	0.0030	0.0028				
Phosphate-P	mg/L				0.0271	0.0185	0.0093	0.0213	0.0211				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0007	0.0019	0.0013	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00034	0.00029	0.00027	0.00027	0.00026				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000035	0.0000049	0.0000154	0.0000029	0.0000029				
Calcium Ca	mg/L				12	10	9	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00029	0.00025	0.00031	0.00027	0.00027				
Nickel Ni	mg/L				0.0008	0.0006	0.0007	0.0007	0.0006				
Phosphorus P	mg/L				0.028	0.019	0.010	0.022	0.022				
Potassium K	mg/L				3.2	2.6	2.5	2.8	2.8				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00062	0.00061				
Silicon SiO2	mg/L				0.57	0.56	0.56	0.56	0.56				
Silver Ag	mg/L				0.0000063	0.0000035	0.0000059	0.0000044	0.0000041				
Sodium Na	mg/L				44	36	38	41	40				
Strontium Sr	mg/L				0.046	0.038	0.040	0.047	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0003				
Zinc Zn	mg/L				0.0038	0.0019	0.0018	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				166	163	152	172	171				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.000	0.000	0.000				
Sulphate	mg/L				4.5	4.2	5.2	5.0	4.9				
Chloride	mg/L				72	67	65	73	73				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.04	0.03	0.02	0.03	0.03				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0026	0.0023	0.0021	0.0022	0.0021				
Phosphate-P	mg/L				0.0259	0.0176	0.0085	0.0205	0.0204				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0006	0.0018	0.0013	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00024	0.00021	0.00020	0.00020	0.00019				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000032	0.0000046	0.0000151	0.0000026	0.0000026				
Calcium Ca	mg/L				10	8	8	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.2	5.3	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00024	0.00022	0.00028	0.00024	0.00024				
Nickel Ni	mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.027	0.018	0.009	0.021	0.021				
Potassium K	mg/L				3.0	2.4	2.4	2.7	2.7				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00062	0.00061				
Silicon SiO2	mg/L				0.55	0.55	0.54	0.55	0.54				
Silver Ag	mg/L				0.0000058	0.0000031	0.0000055	0.0000039	0.0000036				
Sodium Na	mg/L				41	34	37	39	39				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0037	0.0018	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				160	159	148	168	168				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.2	4.0	5.0	4.8	4.7				
Chloride	mg/L				68	64	62	71	70				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0020	0.0018	0.0017	0.0017	0.0016				
Phosphate-P	mg/L				0.0253	0.0171	0.0080	0.0200	0.0200				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00018	0.00016	0.00016	0.00016	0.00015				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000030	0.0000044	0.0000149	0.0000024	0.0000024				
Calcium Ca	mg/L				9	8	8	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.2	5.3	7.3	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00022	0.00020	0.00026	0.00023	0.00022				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.9	2.4	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000054	0.0000027	0.0000052	0.0000036	0.0000034				
Sodium Na	mg/L				40	33	36	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				157	156	146	166	165				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate	mg/L				4.0	3.9	4.9	4.6	4.6				
Chloride	mg/L				66	62	61	69	69				
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0016	0.0015	0.0014	0.0014	0.0014				
Phosphate-P	mg/L				0.0249	0.0168	0.0077	0.0198	0.0197				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0012	0.0007	0.0006				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00015	0.00014	0.00013	0.00013	0.00013				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000028	0.0000043	0.0000148	0.0000023	0.0000023				
Calcium Ca	mg/L				9	7	7	8	8				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001				
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00021	0.00019	0.00025	0.00022	0.00021				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6				
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag	mg/L				0.0000051	0.0000025	0.0000050	0.0000034	0.0000032				
Sodium Na	mg/L				39	33	35	38	38				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-a-C.2
5 % increase in Background Copper

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				155	154	144	164	164			
TSS	mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate	mg/L				3.9	3.8	4.8	4.6	4.6			
Chloride	mg/L				64	61	60	68	68			
Total Ammonia	mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate	mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity	mg/L				24	24	25	26	26			
OrthoPhosphate-P	mg/L				0.0013	0.0013	0.0012	0.0013	0.0012			
Phosphate-P	mg/L				0.0246	0.0166	0.0076	0.0196	0.0196			
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3	mg/L				44	39	41	45	45			
Total Metals												
Aluminum Al	mg/L				0.25	0.12	0.19	0.15	0.15			
Antimony Sb	mg/L				0.0004	0.0017	0.0012	0.0006	0.0006			
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba	mg/L				0.0051	0.0034	0.0045	0.0042	0.0042			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00013	0.00012	0.00012	0.00012	0.00012			
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027			
Cadmium Cd	mg/L				0.0000027	0.0000042	0.0000148	0.0000023	0.0000022			
Calcium Ca	mg/L				8	7	7	8	8			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu	mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.1	5.1	5.3	7.2	7.2			
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009			
Molybdenum Mo	mg/L				0.00020	0.00018	0.00025	0.00021	0.00021			
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P	mg/L				0.025	0.016	0.007	0.019	0.019			
Potassium K	mg/L				2.8	2.3	2.3	2.6	2.6			
Selenium Se	mg/L				0.00066	0.00039	0.00084	0.00061	0.00061			
Silicon SiO2	mg/L				0.53	0.53	0.53	0.53	0.53			
Silver Ag	mg/L				0.0000049	0.0000024	0.0000048	0.0000032	0.0000031			
Sodium Na	mg/L				39	32	35	37	37			
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046			
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063			
Uranium U	mg/L				0.000037	0.000033	0.000035	0.000044	0.000044			
Vanadium V	mg/L				0.0005	0.0001	0.0005	0.0003	0.0003			
Zinc Zn	mg/L				0.0035	0.0017	0.0016	0.0052	0.0052			
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-5-a-C.3
5 % increase in Background Copper in Doris Creek

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	129	150	152				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00007	0.00001	0.00002	0.00002	0.00002				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.08	0.01	0.03	0.03	0.03				
SCN				0.001	0.001	0.001	0.002	0.002				
Sulphate				3.7	3.8	4.2	4.7	5.0				
Chloride				61	62	62	67	68				
Total Ammonia				0.018	0.041	0.022	0.028	0.029				
Nitrate				0.07	0.10	0.13	0.17	0.19				
Nitrite				0.010	0.013	0.013	0.005	0.014				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0021	0.0023	0.0027	0.0032	0.0036				
Phosphate-P				0.0173	0.0188	0.0249	0.0211	0.0216				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	44	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0010	0.0029	0.0007	0.0008				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00011	0.00019	0.00025	0.00030	0.00035				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000037	0.0000039	0.0000037	0.0000039	0.0000041				
Calcium Ca				11	11	11	12	13				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0013	0.0017	0.0014	0.0017	0.0017				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.4	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000008	0.0000008				
Molybdenum Mo				0.00025	0.00026	0.00031	0.00032	0.00035				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.019	0.020	0.027	0.023	0.024				
Potassium K				3.2	2.8	2.9	3.0	3.2				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.54	0.55	0.56	0.58	0.59				
Silver Ag				0.0000046	0.0000055	0.0000056	0.0000059	0.0000061				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000020	0.0000021	0.0000023	0.0000024				
Tin Sn				0.00040	0.00041	0.00042	0.00043	0.00044				
Titanium Ti				0.0058	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0031	0.0021	0.0022				
Zirconium Zr				0.0049	0.0049	0.0049	0.0049	0.0049				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				158	138	141	162	164				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00018		0.00002	0.00002	0.00002				
Total CN				0.004	0.002	0.002	0.002	0.002				
WAD CN				0.0002		0.0000	0.0000	0.0000				
CNO				0.19		0.02	0.03	0.02				
SCN				0.004	0.004	0.004	0.004	0.005				
Sulphate				6.7	6.3	6.5	7.0	7.2				
Chloride				72	71	70	75	76				
Total Ammonia				0.039	0.076	0.016	0.028	0.028				
Nitrate				0.26	0.27	0.28	0.32	0.33				
Nitrite				0.028	0.012	0.013	0.005	0.014				
Alkalinity				29	26	28	28	28				
OrthoPhosphate-P				0.0065	0.0059	0.0059	0.0064	0.0067				
Phosphate-P				0.0216	0.0223	0.0281	0.0244	0.0247				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0008	0.0013	0.0032	0.0010	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0033	0.0034	0.0034				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00050	0.00051	0.00053	0.00058	0.00062				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000056	0.0000054	0.0000050	0.0000053	0.0000054				
Calcium Ca				19	17	17	18	19				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0005	0.0005	0.0013	0.0005	0.0006				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00055	0.00050	0.00053	0.00055	0.00057				
Nickel Ni				0.0008	0.0009	0.0008	0.0008	0.0008				
Phosphorus P				0.026	0.026	0.032	0.029	0.029				
Potassium K				4.5	4.0	3.9	4.0	4.2				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2				0.66	0.65	0.65	0.66	0.67				
Silver Ag				0.0000065	0.0000070	0.0000069	0.0000072	0.0000073				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000023	0.0000025	0.0000026	0.0000027	0.0000028				
Tin Sn				0.00046	0.00046	0.00046	0.00047	0.00048				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0019	0.0039	0.0036	0.0026	0.0027				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				166	145	148	168	169				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00011								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001								
CNO				0.12								
SCN				0.006	0.005	0.004	0.004	0.004				
Sulphate				7.9	7.1	7.0	7.2	7.2				
Chloride				80	78	76	81	82				
Total Ammonia				0.032	0.050	0.016	0.017	0.017				
Nitrate				0.34	0.33	0.32	0.34	0.34				
Nitrite				0.025	0.009	0.012	0.004	0.004				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0093	0.0083	0.0082	0.0087	0.0090				
Phosphate-P				0.0243	0.0247	0.0304	0.0267	0.0270				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				49	46	45	47	47				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0011	0.0015	0.0034	0.0012	0.0013				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0033	0.0035	0.0033	0.0034	0.0034				
Beryllium Be				0.00004	0.00004	0.00004	0.00004	0.00004				
Bismuth Bi				0.00074	0.00072	0.00073	0.00079	0.00082				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000063	0.0000059	0.0000053	0.0000054	0.0000053				
Calcium Ca				22	19	18	18	18				
Chromium Cr				0.001	0.001	0.001	0.001	0.001				
Cobalt Co				0.0006	0.0006	0.0013	0.0005	0.0005				
Copper Cu				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000010	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00066	0.00057	0.00057	0.00055	0.00054				
Nickel Ni				0.0009	0.0010	0.0008	0.0008	0.0008				
Phosphorus P				0.030	0.029	0.035	0.031	0.032				
Potassium K				5.0	4.3	4.1	4.1	4.0				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.70	0.67	0.66	0.67	0.67				
Silver Ag				0.0000075	0.0000077	0.0000075	0.0000077	0.0000078				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000027	0.0000027	0.0000028	0.0000028	0.0000029				
Tin Sn				0.00049	0.00049	0.00049	0.00050	0.00051				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000028	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0022	0.0041	0.0037	0.0027	0.0027				
Zirconium Zr				0.0049	0.0049	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				168	153	163	192	200				
TSS				3.9	5.7	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.004	0.003	0.003	0.003	0.003				
Sulphate				7.0	6.2	6.0	6.2	6.1				
Chloride				84	85	87	96	102				
Total Ammonia				0.011	0.012	0.017	0.016	0.016				
Nitrate				0.30	0.27	0.26	0.27	0.27				
Nitrite				0.010	0.002	0.003	0.003	0.003				
Alkalinity				29	26	28	27	27				
OrthoPhosphate-P				0.0109	0.0092	0.0085	0.0086	0.0085				
Phosphate-P				0.0260	0.0257	0.0309	0.0268	0.0267				
Org. Carbon				5.4	5.1	7.3	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0013	0.0016	0.0034	0.0012	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00004	0.00004	0.00003	0.00004	0.00004				
Bismuth Bi				0.00092	0.00077	0.00071	0.00073	0.00071				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000057	0.0000055	0.0000049	0.0000050	0.0000050				
Calcium Ca				18	17	16	17	17				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0005	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0016	0.0019	0.0016	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00006	0.00006				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00053	0.00046	0.00046	0.00045	0.00044				
Nickel Ni				0.0008	0.0009	0.0007	0.0007	0.0007				
Phosphorus P				0.031	0.030	0.035	0.031	0.030				
Potassium K				4.4	3.8	3.6	3.6	3.6				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.66	0.64	0.63	0.64	0.64				
Silver Ag				0.0000080	0.0000080	0.0000077	0.0000079	0.0000078				
Sodium Na				39	36	40	41	44				
Strontium Sr				0.043	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000029	0.0000032	0.0000034	0.0000035	0.0000037				
Tin Sn				0.00052	0.00050	0.00049	0.00050	0.00049				
Titanium Ti				0.0059	0.0060	0.0060	0.0061	0.0061				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0019	0.0039	0.0035	0.0025	0.0025				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				203	173	172	192	191				
TSS				4.0	5.8	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.002	0.002	0.002	0.002				
Sulphate				5.9	5.2	5.1	5.3	5.2				
Chloride				104	96	91	95	95				
Total Ammonia				0.008	0.012	0.017	0.016	0.016				
Nitrate				0.23	0.20	0.19	0.20	0.20				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0083	0.0069	0.0063	0.0064	0.0063				
Phosphate-P				0.0236	0.0236	0.0288	0.0247	0.0246				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0010	0.0013	0.0032	0.0010	0.0009				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0031	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00070	0.00057	0.00052	0.00053	0.00052				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000054	0.0000052	0.0000046	0.0000047	0.0000047				
Calcium Ca				18	16	15	15	15				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000011	0.0000011	0.0000011	0.0000012				
Molybdenum Mo				0.00043	0.00038	0.00038	0.00037	0.00036				
Nickel Ni				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.027	0.027	0.032	0.027	0.027				
Potassium K				4.0	3.4	3.3	3.3	3.2				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.63	0.62	0.61	0.61	0.61				
Silver Ag				0.0000079	0.0000079	0.0000076	0.0000078	0.0000077				
Sodium Na				54	45	45	43	43				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000037	0.0000039	0.0000040	0.0000042	0.0000043				
Tin Sn				0.00049	0.00047	0.00047	0.00047	0.00047				
Titanium Ti				0.0061	0.0061	0.0062	0.0062	0.0062				
Uranium U				0.000029	0.000034	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0017	0.0037	0.0033	0.0023	0.0023				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				185	157	156	176	173				
TSS				4.0	5.8	5.9	6.9	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.001				
Sulphate				5.0	4.4	4.3	4.5	4.4				
Chloride				92	85	81	85	83				
Total Ammonia				0.005	0.009	0.014	0.013	0.013				
Nitrate				0.14	0.12	0.12	0.12	0.12				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0062	0.0050	0.0045	0.0046	0.0042				
Phosphate-P				0.0216	0.0218	0.0272	0.0230	0.0226				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	43	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0008	0.0012	0.0030	0.0008	0.0008				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00050	0.00040	0.00036	0.00036	0.00034				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000044	0.0000042	0.0000036	0.0000037	0.0000036				
Calcium Ca				16	13	13	12	12				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0014	0.0017	0.0015	0.0017	0.0017				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo				0.00036	0.00031	0.00032	0.00030	0.00029				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.024	0.024	0.029	0.025	0.024				
Potassium K				3.7	3.1	3.0	3.0	2.9				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.61	0.59	0.58	0.59	0.58				
Silver Ag				0.0000067	0.0000068	0.0000065	0.0000067	0.0000062				
Sodium Na				50	42	42	40	39				
Strontium Sr				0.042	0.043	0.037	0.041	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000030	0.000030	0.000031	0.000030				
Thorium Th				0.0000027	0.0000029	0.0000030	0.0000032	0.0000031				
Tin Sn				0.00046	0.00045	0.00044	0.00044	0.00044				
Titanium Ti				0.0062	0.0062	0.0063	0.0063	0.0063				
Uranium U				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0015	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				165	141	142	162	160				
TSS				4.0	5.8	5.9	6.9	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				4.1	3.7	3.7	3.8	3.8				
Chloride				79	75	72	76	74				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.07	0.06	0.05	0.05	0.05				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0039	0.0032	0.0029	0.0030	0.0028				
Phosphate-P				0.0194	0.0201	0.0256	0.0214	0.0212				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0006	0.0010	0.0029	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00031	0.00024	0.00022	0.00022	0.00021				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000040	0.0000037	0.0000031	0.0000031	0.0000030				
Calcium Ca				13	11	10	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0002	0.0009	0.0002	0.0002				
Copper Cu				0.0014	0.0017	0.0014	0.0016	0.0016				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000012	0.0000011				
Molybdenum Mo				0.00027	0.00025	0.00026	0.00024	0.00024				
Nickel Ni				0.0005	0.0007	0.0005	0.0005	0.0005				
Phosphorus P				0.021	0.021	0.026	0.022	0.022				
Potassium K				3.3	2.8	2.8	2.7	2.7				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.57	0.56	0.56	0.56	0.56				
Silver Ag				0.0000059	0.0000060	0.0000056	0.0000057	0.0000053				
Sodium Na				45	38	39	37	36				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000029	0.0000027	0.0000026	0.0000027	0.0000026				
Tin Sn				0.00043	0.00042	0.00042	0.00042	0.00042				
Titanium Ti				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U				0.000028	0.000032	0.000040	0.000034	0.000033				
Vanadium V				0.0006	0.0002	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

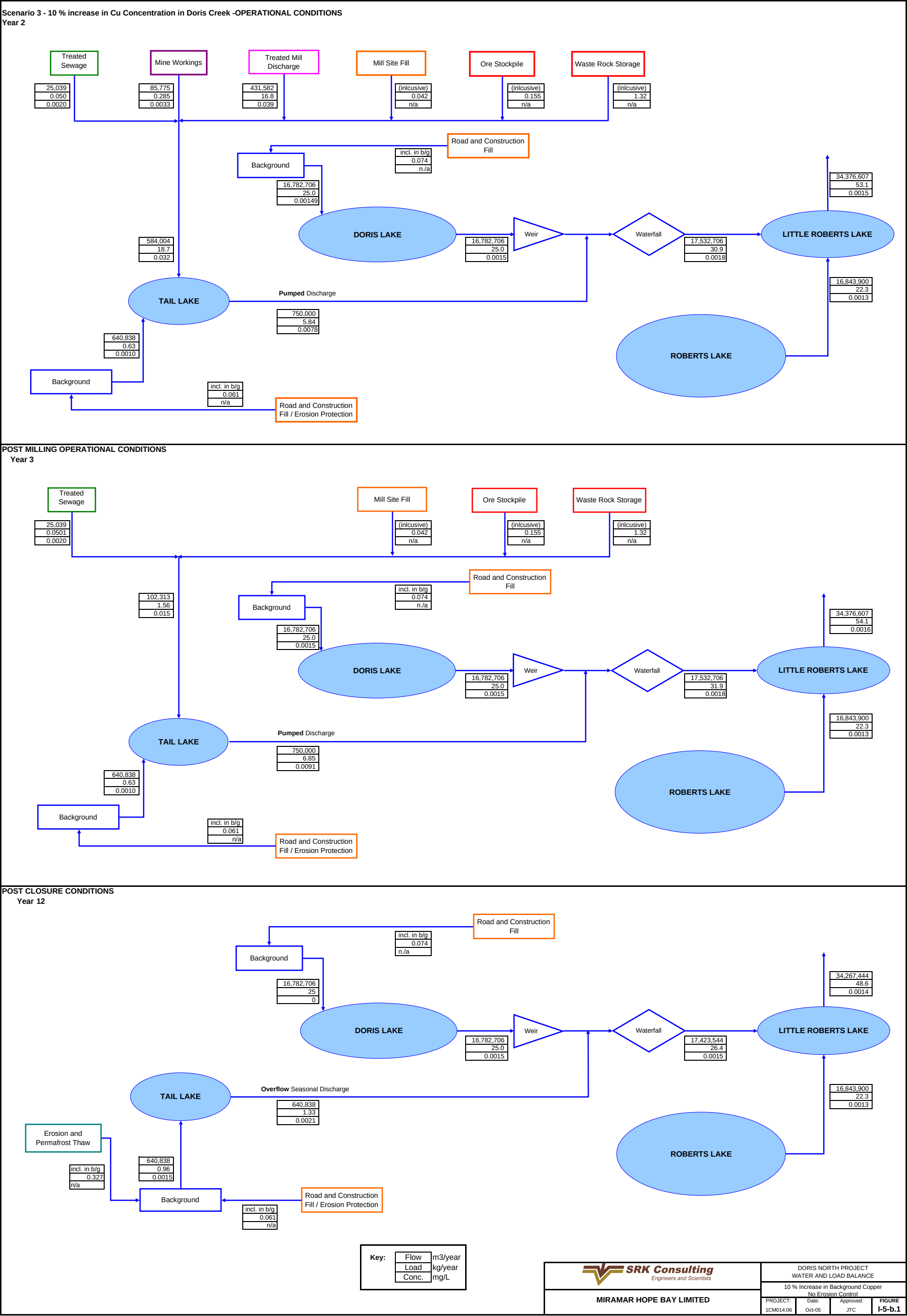
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				153	132	134	154	152				
TSS				4.0	5.8	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.000				
Sulphate				3.5	3.2	3.3	3.5	3.4				
Chloride				71	69	66	70	69				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				27	25	27	27	26				
OrthoPhosphate-P				0.0026	0.0022	0.0020	0.0021	0.0019				
Phosphate-P				0.0181	0.0191	0.0247	0.0205	0.0204				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				45	43	42	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0005	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0031	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00019	0.00015	0.00014	0.00014	0.00013				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000034	0.0000033	0.0000027	0.0000028	0.0000027				
Calcium Ca				11	10	9	9	9				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0016	0.0014	0.0016	0.0016				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.5	6.6	6.5	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00023	0.00021	0.00023	0.00021	0.00021				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.019	0.025	0.021	0.021				
Potassium K				3.1	2.7	2.6	2.6	2.5				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.55	0.55	0.55	0.55	0.54				
Silver Ag				0.0000050	0.0000053	0.0000050	0.0000051	0.0000047				
Sodium Na				43	36	37	35	35				
Strontium Sr				0.040	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000024	0.0000023	0.0000023	0.0000024	0.0000023				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00040				
Titanium Ti				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U				0.000027	0.000032	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				146	127	129	149	148				
TSS				4.0	5.8	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.2	3.0	3.1	3.2	3.2				
Chloride				67	65	63	67	67				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0018	0.0016	0.0015	0.0015	0.0014				
Phosphate-P				0.0174	0.0185	0.0242	0.0200	0.0199				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				45	42	42	44	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0004	0.0009	0.0028	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00012	0.00010	0.00009	0.00009	0.00009				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000031	0.0000030	0.0000025	0.0000025	0.0000025				
Calcium Ca				10	9	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.5	6.6	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00020	0.00019	0.00021	0.00019	0.00019				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.017	0.018	0.024	0.020	0.020				
Potassium K				3.0	2.6	2.5	2.5	2.5				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.54	0.54	0.54	0.54	0.54				
Silver Ag				0.0000045	0.0000049	0.0000047	0.0000048	0.0000044				
Sodium Na				41	35	36	34	34				
Strontium Sr				0.040	0.041	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.050	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000021	0.0000021	0.0000021	0.0000022	0.0000021				
Tin Sn				0.00040	0.00040	0.00040	0.00040	0.00040				
Titanium Ti				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U				0.000027	0.000031	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0032	0.0029	0.0018	0.0018				
Zirconium Zr				0.0049	0.0050	0.0050	0.0050	0.0050				

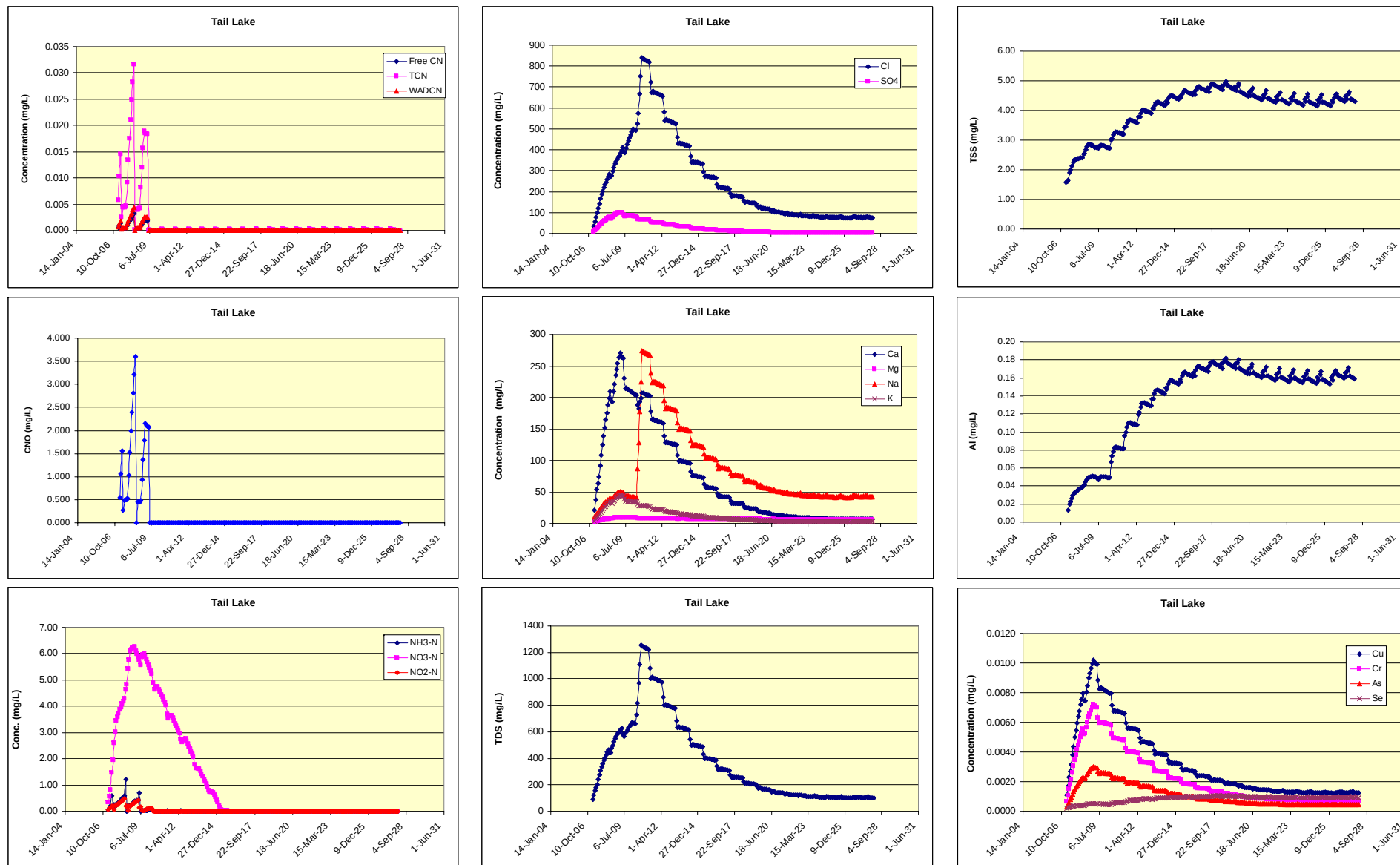
Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				142	123	127	146	145				
TSS				4.0	5.8	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.000	0.000	0.000	0.000	0.000				
Sulphate				3.0	2.8	3.0	3.1	3.1				
Chloride				64	63	61	65	65				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				27	25	27	26	26				
OrthoPhosphate-P				0.0014	0.0012	0.0012	0.0012	0.0012				
Phosphate-P				0.0169	0.0181	0.0239	0.0197	0.0196				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				45	42	42	43	43				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0004	0.0008	0.0027	0.0005	0.0005				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0031	0.0029	0.0030	0.0030				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00008	0.00007	0.00007	0.00007	0.00006				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000029	0.0000029	0.0000024	0.0000024	0.0000024				
Calcium Ca				9	8	8	8	8				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0013	0.0016	0.0013	0.0016	0.0016				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0029	0.0029	0.0029				
Magnesium Mg				7.2	6.5	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00018	0.00017	0.00020	0.00018	0.00018				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.017	0.018	0.024	0.019	0.019				
Potassium K				2.9	2.5	2.5	2.4	2.4				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.53	0.53	0.53	0.53	0.53				
Silver Ag				0.0000041	0.0000046	0.0000044	0.0000045	0.0000042				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.040	0.041	0.035	0.039	0.039				
Tellurium Te				0.049	0.049	0.049	0.050	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000019	0.0000019	0.0000019	0.0000021	0.0000020				
Tin Sn				0.00040	0.00039	0.00039	0.00039	0.00039				
Titanium Ti				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U				0.000026	0.000031	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0031	0.0028	0.0018	0.0018				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0049				



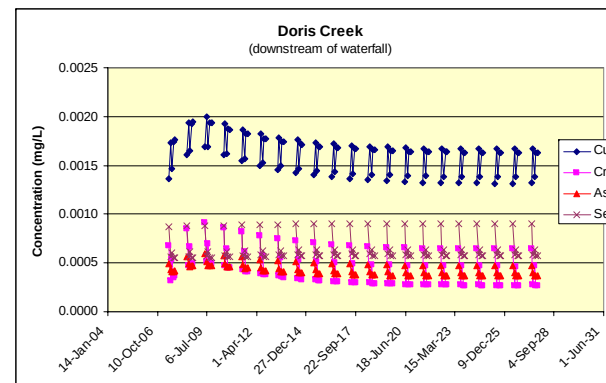
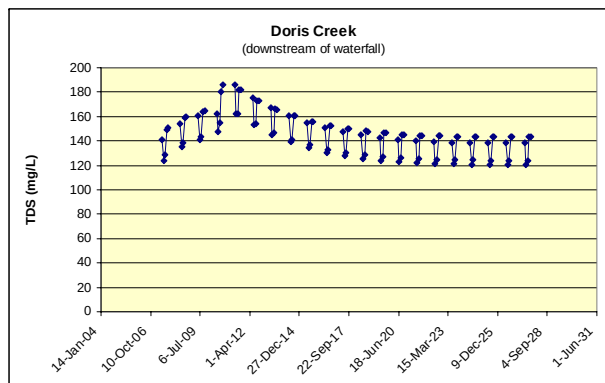
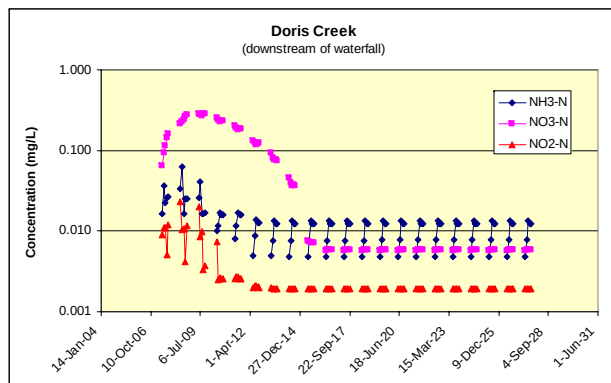
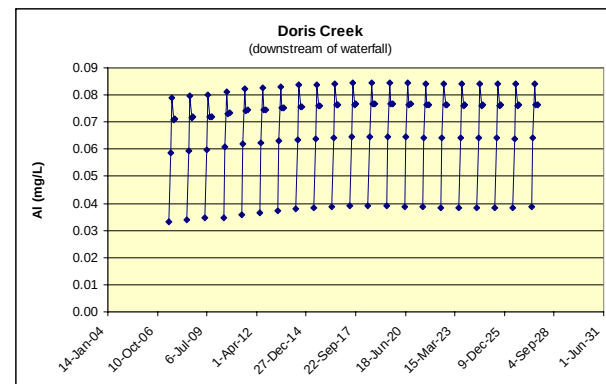
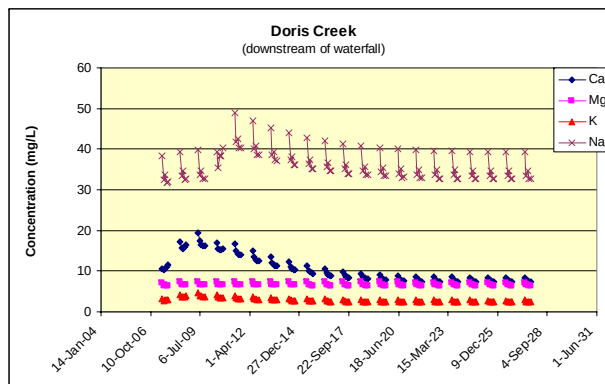
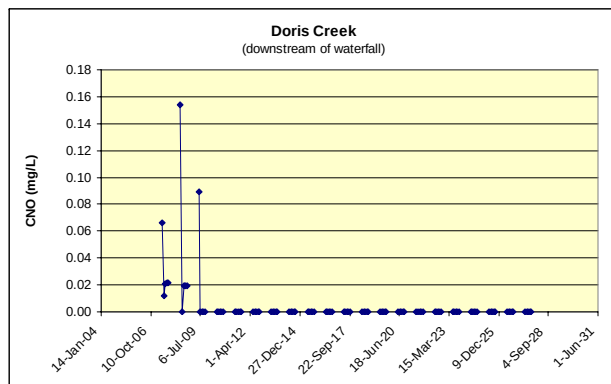
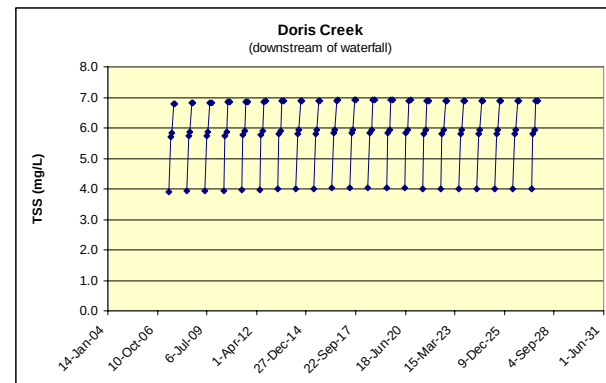
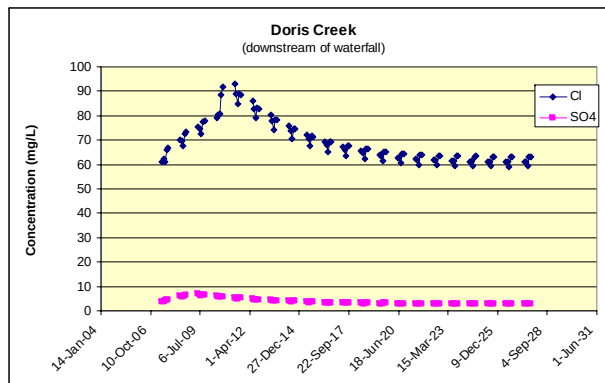
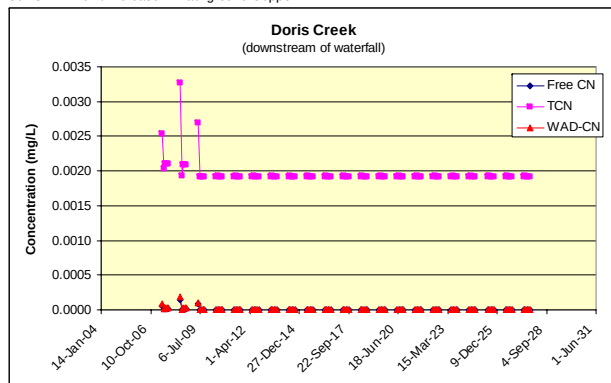
Appendix I

CuBG 2 10 % Increase in Background Copper



Appendix I

CuBG 2 10 % Increase in Background Copper



Appendix I

Table I-5-b-A.1
10 % increase in Background Copper in Doris Lake

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)
Discharge rate 750000 m3/year						
Degradation Field(age) Tail Lk Cu < CME Year		13				
MMER		CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration						
pH		6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L		1253	186	184	
TSS	mg/L		5.0	6.9	8.1	
Free CN	mg/L	0.005	0.0033	0.00014	0.00007	3%
Total CN	mg/L	1.0	0.032	0.003	0.003	
WAD CN	mg/L		0.0044	0.0002	0.0001	
CNO	mg/L		3.6	0.15	0.08	
SCN	mg/L		0.108	0.004	0.002	
Sulphate	mg/L		100	6.9	6.5	
Chloride	mg/L		839	93	81	
Total Ammonia	mg/L	0.97	1.22	0.063	0.033	7%
Nitrate	mg/L	2.9	6.3	0.29	0.15	10%
Nitrite	mg/L	0.018	0.49	0.023	0.013	127%
Alkalinity	mg/L		60	29	26	
OrthoPhosphate-P	mg/L		0.1903	0.0087	0.0051	
Phosphate-P	mg/L		0.1936	0.0298	0.0282	
Org. Carbon	mg/L		6.3	7.4	7.1	
Hardness CaCO3	mg/L		118	48	46	
Total Metals						
Aluminum Al	mg/L	0.1	0.18	0.08	0.25	85%
Antimony Sb	mg/L		0.0173	0.0033	0.0020	
Arsenic As	mg/L	0.5	0.00	0.0006	0.0006	12%
Barium Ba	mg/L		0.0115	0.0034	0.0053	
Beryllium Be	mg/L		0.00065	0.00004	0.00002	
Bismuth Bi	mg/L		0.01668	0.00074	0.00046	
Boron B	mg/L		0.035	0.034	0.030	
Cadmium Cd	mg/L	0.000038	0.000061	0.0000057	0.0000160	15%
Calcium Ca	mg/L		270	19	13	
Chromium Cr	mg/L	0.001	0.0072	0.0009	0.001	92%
Cobalt Co	mg/L		0.0113	0.0012	0.0006	
Copper Cu	mg/L	0.3	0.010	0.00199	0.0020	100%
Iron Fe	mg/L	0.3	0.20	0.13	0.28	43%
Lead Pb	mg/L	0.2	0.00043	0.00008	0.00026	4%
Lithium Li	mg/L		0.0051	0.0029	0.0029	
Magnesium Mg	mg/L		9.9	7.4	7.3	
Manganese Mn	mg/L		0.031	0.021	0.024	
Mercury Hg	mg/L	0.0001	0.0000138	0.00000116	0.0000009	1%
Molybdenum Mo	mg/L	0.073	0.0098	0.00056	0.00040	1%
Nickel Ni	mg/L	0.5	0.009	0.0009	0.0008	4%
Phosphorus P	mg/L		0.276	0.033	0.030	
Potassium K	mg/L		45	4.6	3.6	
Selenium Se	mg/L	0.001	0.00106	0.0009	0.00084	90%
Silicon SiO2	mg/L		4.3	0.66	0.59	
Silver Ag	mg/L	0.0001	0.00012	0.0000071	0.0000063	7%
Sodium Na	mg/L		274	49	43	
Strontium Sr	mg/L		0.096	0.044	0.047	
Tellurium Te	mg/L		0.051	0.050	0.051	
Thallium Tl	mg/L	0.0008	0.000045	0.000031	0.0020	4%
Thorium Th	mg/L		0.000058	0.0000037	0.0000019	
Tin Sn	mg/L		0.00263	0.00050	0.00006	
Titanium Ti	mg/L		0.0152	0.0064	0.0063	
Uranium U	mg/L		0.000085	0.000041	0.000045	
Vanadium V	mg/L		0.0037	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.025	0.0040	0.0056	13%
Zirconium Zr	mg/L		0.0053	0.0050	0.0051	

Appendix I

Table I-5-b-A.2
10 % increase in Background Copper in Doris Lake

Water Quality in TAIL LAKE

Date		Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1
		Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08
Parameter													
TDS	mg/L	92	124	156	180	204	241	274	308	335	360	384	404
TSS	mg/L	1.6	1.6	1.6	1.9	2.0	2.1	2.2	2.3	2.3	2.4	2.4	2.4
Free CN	mg/L	0.00050	0.00096	0.00141	0.00025	0.00044	0.00046	0.00045	0.00049	0.00094	0.00139	0.00181	0.00217
Total CN	mg/L	0.006	0.010	0.015	0.003	0.004	0.004	0.004	0.005	0.009	0.013	0.018	0.021
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0003	0.0006	0.0006	0.0006	0.0006	0.0013	0.0018	0.0024	0.0029
CNO	mg/L	0.55	1.06	1.55	0.28	0.48	0.51	0.50	0.53	1.04	1.53	1.99	2.39
SCN	mg/L	0.008	0.014	0.021	0.024	0.029	0.036	0.042	0.049	0.055	0.060	0.066	0.070
Sulphate	mg/L	7.5	13.4	19.3	23.8	28.6	35.2	41.2	47.3	52.2	56.9	61.3	65.0
Chloride	mg/L	37	57	77	99	119	143	166	187	203	219	233	245
Total Ammonia	mg/L	0.070	0.133	0.194	0.607	0.140	0.244	0.249	0.239	0.296	0.352	0.405	0.450
Nitrate	mg/L	0.35	0.58	0.80	1.46	1.96	2.60	3.03	3.45	3.59	3.73	3.86	3.96
Nitrite	mg/L	0.054	0.102	0.150	0.202	0.201	0.060	0.221	0.220	0.264	0.307	0.347	0.381
Alkalinity	mg/L	16	18	21	24	27	30	33	36	38	40	42	43
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0325	0.0384	0.0475	0.0556	0.0645	0.0719	0.0790	0.0857	0.0914
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0363	0.0420	0.0512	0.0592	0.0681	0.0754	0.0824	0.0890	0.0946
Org. Carbon	mg/L	3.0	2.9	2.8	3.3	3.4	3.5	3.6	3.6	3.5	3.4	3.3	3.2
Hardness CaCO3	mg/L	23	29	35	40	45	53	59	65	70	74	79	82
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.04
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0034	0.0045	0.0055	0.0064	0.0071	0.0075	0.0079	0.0082	0.0085
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0013	0.0015	0.0017	0.0018	0.0019	0.0020
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0033	0.0038	0.0046	0.0052	0.0059	0.0064	0.0069	0.0073	0.0077
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00023	0.00027	0.00030	0.00034	0.00036	0.00037	0.00038	0.00039	0.00040
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00325	0.00431	0.00521	0.00611	0.00677	0.00712	0.00744	0.00775	0.00801
Boron B	mg/L	0.007	0.008	0.009	0.012	0.014	0.016	0.018	0.019	0.020	0.020	0.021	0.021
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000156	0.0000195	0.0000237	0.0000276	0.0000311	0.0000335	0.0000357	0.0000379	0.0000397
Calcium Ca	mg/L	21	38	54	63	75	92	108	125	139	152	165	176
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.005
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0026	0.0031	0.0039	0.0045	0.0052	0.0058	0.0064	0.0069	0.0073
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0027	0.0031	0.0038	0.0044	0.0050	0.0055	0.0059	0.0064	0.0068
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00013	0.00016	0.00019	0.00021	0.00024	0.00025	0.00026	0.00028	0.00029
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0026	0.0028	0.0031	0.0034	0.0036	0.0037	0.0038	0.0039	0.0039
Magnesium Mg	mg/L	2.5	2.9	3.3	4.0	4.5	5.1	5.6	6.1	6.4	6.7	6.9	7.2
Manganese Mn	mg/L	0.002	0.004	0.006	0.007	0.009	0.011	0.013	0.015	0.016	0.018	0.019	0.020
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000018	0.0000021	0.0000026	0.0000029	0.0000033	0.0000035	0.0000038	0.0000040	0.0000041
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00225	0.00267	0.00330	0.00387	0.00449	0.00501	0.00550	0.00597	0.00636
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0023	0.0027	0.0033	0.0038	0.0044	0.0048	0.0052	0.0056	0.0059
Phosphorus P	mg/L	0.020	0.033	0.047	0.058	0.070	0.085	0.099	0.113	0.125	0.135	0.146	0.154
Potassium K	mg/L	3.8	6.6	9.3	10.8	12.7	15.6	18.2	21.0	23.3	25.5	27.6	29.4
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00029	0.00031	0.00034	0.00036	0.00037	0.00038	0.00038	0.00039	0.00039
Silicon SiO2	mg/L	0.70	0.92	1.14	1.36	1.54	1.81	2.05	2.29	2.47	2.64	2.80	2.93
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000707	0.0000779	0.0000823	0.0000857	0.0000884	0.0000887	0.0000888	0.0000888	0.0000888
Sodium Na	mg/L	11	13	16	18	20	23	26	29	31	32	34	36
Strontium Sr	mg/L	0.017	0.021	0.026	0.031	0.035	0.041	0.046	0.052	0.056	0.059	0.063	0.066
Tellurium Te	mg/L	0.025	0.024	0.024	0.027	0.028	0.029	0.030	0.030	0.029	0.028	0.027	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000023	0.000025	0.000028	0.000030	0.000032	0.000033	0.000033	0.000034	0.000034
Thorium Th	mg/L				0.000007	0.000011	0.000013	0.000015	0.000016	0.000015	0.000015	0.000014	0.000014
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00055	0.00073	0.00087	0.00102	0.00112	0.00116	0.00121	0.00125	0.00129
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0035	0.0036	0.0038	0.0040	0.0040	0.0040	0.0039	0.0038	0.0038
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000035	0.000039	0.000042	0.000043	0.000044	0.000043	0.000042	0.000041	0.000040
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0017	0.0019	0.0020	0.0021	0.0022	0.0023
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0059	0.0071	0.0087	0.0104	0.0119	0.0131	0.0142	0.0153	0.0162
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0029	0.0030	0.0031	0.0033	0.0033	0.0032	0.0031	0.0030	0.0029

Appendix I

Table I-5-b-A.2
10 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	427	447	467	442	442	476	500	529	547	564	580	594
TSS	mg/L	2.4	2.4	2.4	2.5	2.6	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Free CN	mg/L	0.00256	0.00291	0.00326		0.00041	0.00041	0.00040	0.00043	0.00084	0.00124	0.00162	0.00195
Total CN	mg/L	0.025	0.028	0.032	0.000	0.004	0.004	0.004	0.004	0.008	0.012	0.016	0.019
WAD CN	mg/L	0.0034	0.0039	0.0044		0.0005	0.0005	0.0005	0.0006	0.0011	0.0017	0.0022	0.0026
CNO	mg/L	2.82	3.21	3.59		0.45	0.45	0.44	0.48	0.93	1.37	1.79	2.15
SCN	mg/L	0.075	0.079	0.084	0.077	0.077	0.083	0.088	0.094	0.098	0.102	0.105	0.108
Sulphate	mg/L	69.2	72.9	76.5	72.1	72.4	78.4	82.9	88.0	91.3	94.5	97.5	100.0
Chloride	mg/L	259	271	283	273	276	298	315	333	344	354	363	371
Total Ammonia	mg/L	0.499	0.543	0.587	1.223		0.231	0.223	0.214	0.266	0.316	0.365	0.406
Nitrate	mg/L	4.09	4.19	4.29	4.63	4.81	5.42	5.75	6.10	6.16	6.20	6.25	6.28
Nitrite	mg/L	0.419	0.452	0.485	0.187	0.193	0.041	0.212	0.210	0.250	0.288	0.324	0.355
Alkalinity	mg/L	45	46	48	47	47	50	53	55	56	58	59	60
OrthoPhosphate-P	mg/L	0.0978	0.1034	0.1089	0.1009	0.1004	0.1087	0.1148	0.1221	0.1273	0.1322	0.1368	0.1408
Phosphate-P	mg/L	0.1009	0.1064	0.1119	0.1043	0.1038	0.1121	0.1181	0.1255	0.1306	0.1354	0.1399	0.1438
Org. Carbon	mg/L	3.1	3.1	3.0	3.3	3.5	3.6	3.6	3.6	3.6	3.5	3.4	3.3
Hardness CaCO3	mg/L	86	90	93	89	90	96	101	106	110	113	115	118
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0088	0.0091	0.0094	0.0097	0.0102	0.0111	0.0118	0.0124	0.0126	0.0128	0.0129	0.0131
Arsenic As	mg/L	0.0021	0.0022	0.0023	0.0022	0.0022	0.0024	0.0026	0.0027	0.0028	0.0029	0.0030	0.0030
Barium Ba	mg/L	0.0082	0.0086	0.0090	0.0085	0.0085	0.0092	0.0097	0.0103	0.0106	0.0109	0.0112	0.0115
Beryllium Be	mg/L	0.00041	0.00042	0.00043	0.00045	0.00047	0.00050	0.00052	0.00054	0.00055	0.00055	0.00056	0.00056
Bismuth Bi	mg/L	0.00831	0.00856	0.00882	0.00923	0.00969	0.01050	0.01121	0.01174	0.01193	0.01209	0.01225	0.01237
Boron B	mg/L	0.022	0.023	0.023	0.023	0.024	0.026	0.027	0.028	0.029	0.029	0.029	0.030
Cadmium Cd	mg/L	0.0000417	0.0000435	0.0000452	0.0000447	0.0000458	0.0000495	0.0000526	0.0000554	0.0000570	0.0000583	0.0000597	0.0000608
Calcium Ca	mg/L	188	198	209	194	193	209	221	235	245	254	263	270
Chromium Cr	mg/L	0.005	0.005	0.006	0.005	0.005	0.006	0.006	0.006	0.007	0.007	0.007	0.007
Cobalt Co	mg/L	0.0078	0.0083	0.0087	0.0081	0.0081	0.0088	0.0093	0.0099	0.0103	0.0106	0.0110	0.0113
Copper Cu	mg/L	0.0072	0.0076	0.0079	0.0074	0.0074	0.0080	0.0085	0.0090	0.0093	0.0096	0.0099	0.0102
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06
Lead Pb	mg/L	0.00030	0.00031	0.00032	0.00032	0.00033	0.00036	0.00038	0.00040	0.00041	0.00042	0.00043	0.00043
Lithium Li	mg/L	0.0040	0.0041	0.0042	0.0042	0.0043	0.0046	0.0048	0.0049	0.0050	0.0050	0.0051	0.0051
Magnesium Mg	mg/L	7.4	7.6	7.9	7.8	7.9	8.4	8.9	9.3	9.4	9.6	9.8	9.9
Manganese Mn	mg/L	0.022	0.023	0.024	0.022	0.022	0.024	0.026	0.027	0.028	0.029	0.030	0.031
Mercury Hg	mg/L	0.0000044	0.0000045	0.0000047	0.0000046	0.0000047	0.0000051	0.0000054	0.0000057	0.0000059	0.0000060	0.0000061	0.0000062
Molybdenum Mo	mg/L	0.00680	0.00719	0.00758	0.00703	0.00700	0.00758	0.00800	0.00851	0.00887	0.00921	0.00953	0.00981
Nickel Ni	mg/L	0.0063	0.0066	0.0069	0.0066	0.0066	0.0071	0.0075	0.0080	0.0083	0.0085	0.0088	0.0090
Phosphorus P	mg/L	0.164	0.172	0.181	0.171	0.172	0.186	0.196	0.208	0.216	0.223	0.230	0.236
Potassium K	mg/L	31.4	33.1	34.9	32.4	32.3	34.9	36.8	39.2	40.8	42.3	43.7	45.0
Selenium Se	mg/L	0.00040	0.00040	0.00041	0.00042	0.00043	0.00046	0.00048	0.00049	0.00049	0.00049	0.00050	0.00050
Silicon SiO2	mg/L	3.08	3.22	3.35	3.21	3.23	3.47	3.66	3.85	3.97	4.08	4.19	4.28
Silver Ag	mg/L	0.0000892	0.0000892	0.0000893	0.0000981	0.0001023	0.0001064	0.0001091	0.0001113	0.0001110	0.0001104	0.0001099	0.0001094
Sodium Na	mg/L	37	39	40	39	39	42	44	46	47	49	50	51
Strontium Sr	mg/L	0.069	0.072	0.075	0.072	0.072	0.078	0.082	0.086	0.089	0.091	0.094	0.096
Tellurium Te	mg/L	0.026	0.025	0.025	0.028	0.028	0.029	0.030	0.030	0.029	0.029	0.028	0.027
Thallium Tl	mg/L	0.000035	0.000036	0.000036	0.000037	0.000038	0.000041	0.000042	0.000044	0.000044	0.000044	0.000045	0.000045
Thorium Th	mg/L	0.000014	0.000013	0.000013	0.000017	0.000020	0.000022	0.000023	0.000024	0.000023	0.000023	0.000022	0.000022
Tin Sn	mg/L	0.00133	0.00136	0.00140	0.00147	0.00156	0.00169	0.00180	0.00188	0.00191	0.00193	0.00195	0.00196
Titanium Ti	mg/L	0.0037	0.0037	0.0036	0.0040	0.0041	0.0043	0.0044	0.0044	0.0044	0.0043	0.0042	0.0042
Uranium U	mg/L	0.000039	0.000039	0.000038	0.000045	0.000048	0.000050	0.000052	0.000052	0.000051	0.000050	0.000049	0.000048
Vanadium V	mg/L	0.0023	0.0024	0.0025	0.0025	0.0026	0.0028	0.0030	0.0031	0.0032	0.0032	0.0033	0.0033
Zinc Zn	mg/L	0.0173	0.0181	0.0190	0.0179	0.0179	0.0194	0.0207	0.0219	0.0228	0.0235	0.0242	0.0249
Zirconium Zr	mg/L	0.0029	0.0028	0.0027	0.0031	0.0032	0.0034	0.0035	0.0035	0.0034	0.0033	0.0032	0.0031

Table I-5-b-A.2
10 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	601	615	628	582	563	586	599	616	631	644	658	670
TSS	mg/L	2.8	2.8	2.7	2.8	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Free CN	mg/L	0.00192	0.00190	0.00189									
Total CN	mg/L	0.019	0.018	0.018		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0026	0.0025	0.0025									
CNO	mg/L	2.11	2.09	2.08									
SCN	mg/L	0.106	0.106	0.105	0.092	0.085	0.086	0.084	0.084	0.083	0.083	0.082	0.082
Sulphate	mg/L	98.6	98.4	98.1	88.1	82.9	84.2	84.0	84.2	84.2	83.9	83.7	83.6
Chloride	mg/L	382	397	411	390	386	409	425	442	457	472	486	499
Total Ammonia	mg/L	0.408	0.413	0.419	0.704		0.021	0.025	0.015	0.024	0.033	0.042	0.049
Nitrate	mg/L	6.10	5.98	5.87	5.77	5.57	5.88	5.95	6.00	5.90	5.77	5.66	5.55
Nitrite	mg/L	0.372	0.392	0.412	0.139	0.173	0.020	0.028	0.027	0.051	0.074	0.097	0.118
Alkalinity	mg/L	59	58	58	54	51	52	52	52	52	51	51	50
OrthoPhosphate-P	mg/L	0.1459	0.1523	0.1587	0.1468	0.1435	0.1520	0.1576	0.1647	0.1715	0.1779	0.1844	0.1903
Phosphate-P	mg/L	0.1489	0.1552	0.1617	0.1502	0.1468	0.1554	0.1609	0.1680	0.1748	0.1812	0.1877	0.1936
Org. Carbon	mg/L	3.2	3.2	3.2	3.5	3.7	3.8	3.9	3.9	3.8	3.8	3.8	3.8
Hardness CaCO3	mg/L	116	115	114	104	99	100	99	99	98	98	97	96
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0133	0.0136	0.0139	0.0138	0.0140	0.0148	0.0155	0.0160	0.0163	0.0167	0.0170	0.0173
Arsenic As	mg/L	0.0030	0.0030	0.0029	0.0027	0.0025	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Barium Ba	mg/L	0.0113	0.0113	0.0112	0.0101	0.0095	0.0097	0.0096	0.0096	0.0096	0.0095	0.0095	0.0094
Beryllium Be	mg/L	0.00056	0.00057	0.00057	0.00058	0.00058	0.00060	0.00062	0.00063	0.00064	0.00064	0.00065	0.00065
Bismuth Bi	mg/L	0.01259	0.01292	0.01325	0.01323	0.01340	0.01423	0.01488	0.01539	0.01575	0.01606	0.01639	0.01668
Boron B	mg/L	0.029	0.029	0.029	0.028	0.028	0.029	0.029	0.030	0.030	0.030	0.030	0.030
Cadmium Cd	mg/L	0.0000597	0.0000593	0.0000589	0.0000537	0.0000510	0.0000518	0.0000518	0.0000517	0.0000515	0.0000511	0.0000508	0.0000505
Calcium Ca	mg/L	266	264	262	231	214	216	213	212	211	209	208	206
Chromium Cr	mg/L	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0111	0.0111	0.0110	0.0097	0.0091	0.0092	0.0091	0.0091	0.0090	0.0090	0.0089	0.0089
Copper Cu	mg/L	0.0100	0.0100	0.0099	0.0088	0.0083	0.0083	0.0083	0.0082	0.0082	0.0081	0.0081	0.0080
Iron Fe	mg/L	0.06	0.06	0.06	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.05
Lead Pb	mg/L	0.00043	0.00043	0.00043	0.00041	0.00040	0.00041	0.00041	0.00042	0.00042	0.00042	0.00042	0.00042
Lithium Li	mg/L	0.0051	0.0050	0.0050	0.0049	0.0048	0.0049	0.0050	0.0050	0.0050	0.0050	0.0050	0.0049
Magnesium Mg	mg/L	9.8	9.7	9.7	9.2	8.9	9.1	9.2	9.2	9.2	9.2	9.1	9.1
Manganese Mn	mg/L	0.031	0.030	0.030	0.027	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Mercury Hg	mg/L	0.0000061	0.0000061	0.0000061	0.0000056	0.0000053	0.0000054	0.0000054	0.0000054	0.0000054	0.0000053	0.0000053	0.0000053
Molybdenum Mo	mg/L	0.00963	0.00957	0.00950	0.00837	0.00776	0.00781	0.00771	0.00767	0.00763	0.00757	0.00752	0.00747
Nickel Ni	mg/L	0.0089	0.0089	0.0089	0.0080	0.0075	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0076
Phosphorus P	mg/L	0.240	0.246	0.253	0.234	0.226	0.237	0.243	0.250	0.257	0.264	0.270	0.276
Potassium K	mg/L	44.2	43.9	43.5	38.4	35.7	35.9	35.5	35.3	35.1	34.8	34.6	34.3
Selenium Se	mg/L	0.00049	0.00048	0.00048	0.00048	0.00047	0.00048	0.00048	0.00048	0.00048	0.00048	0.00047	0.00047
Silicon SiO2	mg/L	4.20	4.18	4.15	3.78	3.57	3.61	3.60	3.59	3.57	3.54	3.52	3.50
Silver Ag	mg/L	0.0001083	0.0001084	0.0001084	0.0001128	0.0001138	0.0001166	0.0001175	0.0001183	0.0001186	0.0001185	0.0001184	0.0001185
Sodium Na	mg/L	50	50	49	45	43	43	43	43	43	42	42	42
Strontium Sr	mg/L	0.094	0.094	0.093	0.085	0.080	0.081	0.081	0.081	0.081	0.080	0.080	0.079
Tellurium Te	mg/L	0.027	0.027	0.026	0.029	0.030	0.031	0.032	0.032	0.032	0.031	0.031	0.031
Thallium Tl	mg/L	0.000044	0.000044	0.000043	0.000042	0.000041	0.000042	0.000043	0.000043	0.000043	0.000042	0.000042	0.000042
Thorium Th	mg/L	0.000021	0.000021	0.000021	0.000022	0.000022	0.000024	0.000024	0.000025	0.000025	0.000024	0.000024	0.000024
Tin Sn	mg/L	0.00199	0.00204	0.00209	0.00209	0.00213	0.00226	0.00237	0.00244	0.00250	0.00254	0.00259	0.00263
Titanium Ti	mg/L	0.0041	0.0041	0.0041	0.0044	0.0045	0.0046	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048
Uranium U	mg/L	0.000047	0.000047	0.000047	0.000051	0.000052	0.000054	0.000055	0.000055	0.000055	0.000054	0.000054	0.000054
Vanadium V	mg/L	0.0034	0.0034	0.0034	0.0033	0.0033	0.0034	0.0035	0.0036	0.0036	0.0037	0.0037	0.0037
Zinc Zn	mg/L	0.0245	0.0244	0.0243	0.0217	0.0204	0.0206	0.0207	0.0207	0.0207	0.0206	0.0205	0.0205
Zirconium Zr	mg/L	0.0031	0.0031	0.0030	0.0033	0.0034	0.0035	0.0036	0.0037	0.0036	0.0036	0.0036	0.0036

Appendix I

Table I-5-b-A.2
10 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	666	664	661	731	820	970	1108	1253	1250	1244	1238	1235
TSS	mg/L	2.7	2.7	2.7	3.0	3.1	3.2	3.3	3.3	3.3	3.3	3.2	3.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.081	0.081	0.080	0.071	0.065	0.066	0.065	0.065	0.065	0.065	0.064	0.064
Sulphate	mg/L	83.1	82.8	82.5	72.8	67.6	68.3	67.6	67.4	67.3	67.0	66.7	66.5
Chloride	mg/L	496	494	492	525	575	668	751	839	838	833	830	827
Total Ammonia	mg/L	0.049	0.049	0.049	0.016	0.012	0.006	0.008	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	5.44	5.34	5.23	4.88	4.63	4.72	4.73	4.74	4.64	4.53	4.43	4.33
Nitrite	mg/L	0.117	0.117	0.116		0.004	0.002	0.002	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	50	50	50	47	45	46	46	46	46	46	46	46
OrthoPhosphate-P	mg/L	0.1891	0.1884	0.1876	0.1651	0.1532	0.1545	0.1529	0.1525	0.1522	0.1514	0.1507	0.1503
Phosphate-P	mg/L	0.1924	0.1917	0.1909	0.1703	0.1589	0.1606	0.1591	0.1588	0.1585	0.1577	0.1570	0.1565
Org. Carbon	mg/L	3.7	3.7	3.7	4.0	4.1	4.3	4.3	4.4	4.3	4.3	4.3	4.3
Hardness CaCO3	mg/L	96	95	95	87	84	85	85	85	85	84	84	84
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Antimony Sb	mg/L	0.0172	0.0171	0.0170	0.0150	0.0139	0.0141	0.0139	0.0139	0.0139	0.0138	0.0137	0.0137
Arsenic As	mg/L	0.0025	0.0025	0.0025	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Barium Ba	mg/L	0.0094	0.0093	0.0093	0.0084	0.0079	0.0080	0.0080	0.0080	0.0080	0.0079	0.0079	0.0079
Beryllium Be	mg/L	0.00065	0.00065	0.00064	0.00060	0.00057	0.00058	0.00057	0.00057	0.00057	0.00057	0.00057	0.00056
Bismuth Bi	mg/L	0.01658	0.01652	0.01645	0.01447	0.01342	0.01354	0.01339	0.01335	0.01333	0.01326	0.01320	0.01316
Boron B	mg/L	0.029	0.029	0.029	0.030	0.030	0.031	0.032	0.032	0.032	0.032	0.031	0.031
Cadmium Cd	mg/L	0.0000502	0.0000500	0.0000498	0.0000466	0.0000448	0.0000458	0.0000461	0.0000463	0.0000462	0.0000459	0.0000457	0.0000456
Calcium Ca	mg/L	205	204	204	188	183	193	199	208	207	206	205	205
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0089	0.0088	0.0088	0.0077	0.0072	0.0073	0.0072	0.0072	0.0072	0.0071	0.0071	0.0071
Copper Cu	mg/L	0.0080	0.0080	0.0079	0.0072	0.0067	0.0068	0.0068	0.0068	0.0067	0.0067	0.0067	0.0067
Iron Fe	mg/L	0.05	0.05	0.05	0.07	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09
Lead Pb	mg/L	0.00042	0.00042	0.00042	0.00038	0.00037	0.00037	0.00037	0.00037	0.00037	0.00037	0.00037	0.00037
Lithium Li	mg/L	0.0049	0.0049	0.0049	0.0049	0.0048	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Magnesium Mg	mg/L	9.1	9.0	9.0	8.7	8.5	8.7	8.7	8.8	8.7	8.7	8.7	8.6
Manganese Mn	mg/L	0.025	0.024	0.024	0.022	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.020
Mercury Hg	mg/L	0.0000052	0.0000052	0.0000052	0.0000064	0.0000068	0.0000072	0.0000075	0.0000075	0.0000075	0.0000075	0.0000075	0.0000074
Molybdenum Mo	mg/L	0.00743	0.00740	0.00737	0.00651	0.00606	0.00611	0.00605	0.00604	0.00603	0.00599	0.00597	0.00595
Nickel Ni	mg/L	0.0076	0.0076	0.0075	0.0067	0.0063	0.0063	0.0063	0.0063	0.0063	0.0062	0.0062	0.0062
Phosphorus P	mg/L	0.275	0.274	0.272	0.242	0.225	0.227	0.225	0.225	0.224	0.223	0.222	0.221
Potassium K	mg/L	34.1	34.0	33.9	30.2	28.2	28.5	28.2	28.2	28.1	28.0	27.9	27.8
Selenium Se	mg/L	0.00047	0.00046	0.00046	0.00054	0.00057	0.00060	0.00062	0.00062	0.00062	0.00062	0.00061	0.00061
Silicon SiO2	mg/L	3.48	3.47	3.45	3.21	3.06	3.12	3.12	3.12	3.12	3.10	3.09	3.08
Silver Ag	mg/L	0.0001178	0.0001173	0.0001168	0.0001182	0.0001172	0.0001190	0.0001188	0.0001188	0.0001186	0.0001180	0.0001175	0.0001171
Sodium Na	mg/L	42	41	41	87	129	178	225	274	273	272	270	270
Strontium Sr	mg/L	0.079	0.078	0.078	0.073	0.070	0.071	0.071	0.071	0.071	0.071	0.070	0.070
Tellurium Te	mg/L	0.031	0.031	0.031	0.033	0.034	0.035	0.036	0.036	0.036	0.036	0.035	0.035
Thallium Tl	mg/L	0.000041	0.000041	0.000041	0.000041	0.000040	0.000041	0.000042	0.000042	0.000042	0.000042	0.000041	0.000041
Thorium Th	mg/L	0.000024	0.000024	0.000024	0.000030	0.000033	0.000035	0.000037	0.000038	0.000038	0.000038	0.000037	0.000037
Tin Sn	mg/L	0.00262	0.00261	0.00260	0.00230	0.00216	0.00219	0.00217	0.00217	0.00217	0.00215	0.00214	0.00214
Titanium Ti	mg/L	0.0047	0.0047	0.0047	0.0060	0.0064	0.0068	0.0071	0.0072	0.0072	0.0071	0.0071	0.0071
Uranium U	mg/L	0.000054	0.000053	0.000053	0.000060	0.000063	0.000065	0.000066	0.000067	0.000067	0.000066	0.000066	0.000066
Vanadium V	mg/L	0.0037	0.0037	0.0037	0.0035	0.0033	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0033
Zinc Zn	mg/L	0.0203	0.0203	0.0202	0.0180	0.0168	0.0170	0.0170	0.0171	0.0170	0.0169	0.0169	0.0168
Zirconium Zr	mg/L	0.0035	0.0035	0.0035	0.0038	0.0038	0.0040	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041

Table I-5-b-A.2
10 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	1231	1226	1221	1080	1004	1014	1005	1003	1001	996	991	988
TSS	mg/L	3.2	3.2	3.2	3.4	3.5	3.6	3.7	3.7	3.7	3.7	3.6	3.6
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.064	0.064	0.063	0.055	0.051	0.052	0.051	0.051	0.051	0.050	0.050	0.050
Sulphate	mg/L	66.3	66.0	65.7	57.7	53.4	53.9	53.4	53.2	53.1	52.8	52.6	52.4
Chloride	mg/L	825	821	818	724	674	681	675	674	672	669	666	664
Total Ammonia	mg/L	0.003	0.003	0.003	0.023	0.013	0.006	0.008	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	4.24	4.14	4.04	3.70	3.53	3.61	3.63	3.64	3.55	3.44	3.34	3.25
Nitrite	mg/L	0.001	0.001	0.001	0.004	0.005	0.002	0.002	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	45	45	45	43	41	42	42	42	42	42	42	42
OrthoPhosphate-P	mg/L	0.1498	0.1492	0.1486	0.1300	0.1200	0.1211	0.1197	0.1193	0.1191	0.1185	0.1179	0.1176
Phosphate-P	mg/L	0.1560	0.1554	0.1547	0.1378	0.1282	0.1296	0.1284	0.1282	0.1280	0.1273	0.1267	0.1263
Org. Carbon	mg/L	4.3	4.3	4.2	4.5	4.6	4.7	4.8	4.8	4.8	4.8	4.8	4.7
Hardness CaCO3	mg/L	83	83	83	77	73	75	75	75	75	74	74	74
Total Metals													
Aluminum Al	mg/L	0.08	0.08	0.08	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Antimony Sb	mg/L	0.0136	0.0136	0.0135	0.0118	0.0109	0.0111	0.0109	0.0109	0.0109	0.0108	0.0108	0.0108
Arsenic As	mg/L	0.0022	0.0022	0.0022	0.0020	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
Barium Ba	mg/L	0.0078	0.0078	0.0078	0.0070	0.0066	0.0067	0.0067	0.0067	0.0067	0.0066	0.0066	0.0066
Beryllium Be	mg/L	0.00056	0.00056	0.00056	0.00052	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00049	0.00049
Bismuth Bi	mg/L	0.01312	0.01307	0.01301	0.01137	0.01050	0.01059	0.01046	0.01044	0.01042	0.01036	0.01031	0.01028
Boron B	mg/L	0.031	0.031	0.031	0.032	0.032	0.033	0.033	0.033	0.033	0.033	0.033	0.033
Cadmium Cd	mg/L	0.0000455	0.0000453	0.0000451	0.0000423	0.0000407	0.0000417	0.0000421	0.0000423	0.0000422	0.0000420	0.0000418	0.0000417
Calcium Ca	mg/L	204	203	202	177	164	166	164	164	163	162	162	161
Chromium Cr	mg/L	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0070	0.0070	0.0070	0.0061	0.0057	0.0057	0.0057	0.0056	0.0056	0.0056	0.0056	0.0056
Copper Cu	mg/L	0.0066	0.0066	0.0066	0.0059	0.0056	0.0057	0.0056	0.0056	0.0056	0.0056	0.0055	0.0055
Iron Fe	mg/L	0.09	0.09	0.09	0.10	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.12
Lead Pb	mg/L	0.00037	0.00036	0.00036	0.00033	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032
Lithium Li	mg/L	0.0050	0.0049	0.0049	0.0049	0.0048	0.0050	0.0051	0.0051	0.0051	0.0050	0.0050	0.0050
Magnesium Mg	mg/L	8.6	8.6	8.5	8.3	8.0	8.3	8.3	8.4	8.3	8.3	8.3	8.2
Manganese Mn	mg/L	0.020	0.020	0.020	0.018	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
Mercury Hg	mg/L	0.0000074	0.0000074	0.0000073	0.0000083	0.0000086	0.0000090	0.0000093	0.0000094	0.0000094	0.0000093	0.0000093	0.0000092
Molybdenum Mo	mg/L	0.00593	0.00591	0.00588	0.00518	0.00480	0.00484	0.00479	0.00478	0.00477	0.00474	0.00472	0.00471
Nickel Ni	mg/L	0.0062	0.0061	0.0061	0.0054	0.0051	0.0051	0.0051	0.0051	0.0051	0.0050	0.0050	0.0050
Phosphorus P	mg/L	0.221	0.220	0.219	0.193	0.179	0.181	0.180	0.179	0.179	0.178	0.177	0.177
Potassium K	mg/L	27.7	27.6	27.5	24.4	22.7	23.0	22.8	22.7	22.7	22.6	22.5	22.4
Selenium Se	mg/L	0.00061	0.00061	0.00060	0.00067	0.00069	0.00072	0.00074	0.00074	0.00074	0.00074	0.00073	0.00073
Silicon SiO2	mg/L	3.07	3.06	3.04	2.84	2.71	2.77	2.77	2.78	2.77	2.75	2.74	2.73
Silver Ag	mg/L	0.0001168	0.0001163	0.0001158	0.0001174	0.0001164	0.0001182	0.0001179	0.0001180	0.0001178	0.0001171	0.0001166	0.0001163
Sodium Na	mg/L	269	268	267	239	223	226	225	224	224	223	222	221
Strontium Sr	mg/L	0.070	0.070	0.069	0.065	0.062	0.063	0.064	0.064	0.064	0.063	0.063	0.063
Tellurium Te	mg/L	0.035	0.035	0.035	0.037	0.037	0.038	0.039	0.040	0.039	0.039	0.039	0.039
Thallium Tl	mg/L	0.000041	0.000041	0.000041	0.000040	0.000040	0.000041	0.000041	0.000042	0.000042	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000037	0.000037	0.000037	0.000042	0.000044	0.000046	0.000048	0.000049	0.000049	0.000049	0.000048	0.000048
Tin Sn	mg/L	0.00213	0.00212	0.00211	0.00187	0.00175	0.00177	0.00176	0.00176	0.00176	0.00175	0.00174	0.00173
Titanium Ti	mg/L	0.0070	0.0070	0.0070	0.0081	0.0084	0.0088	0.0090	0.0091	0.0091	0.0091	0.0090	0.0090
Uranium U	mg/L	0.000066	0.000066	0.000065	0.000071	0.000073	0.000075	0.000077	0.000077	0.000077	0.000077	0.000076	0.000076
Vanadium V	mg/L	0.0033	0.0033	0.0033	0.0031	0.0030	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0030
Zinc Zn	mg/L	0.0168	0.0167	0.0166	0.0148	0.0138	0.0139	0.0140	0.0140	0.0140	0.0139	0.0139	0.0138
Zirconium Zr	mg/L	0.0040	0.0040	0.0040	0.0042	0.0043	0.0044	0.0045	0.0046	0.0045	0.0045	0.0045	0.0045

Appendix I

Table I-5-b-A.2
10 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	985	981	977	862	799	807	800	798	797	792	789	786
TSS	mg/L	3.6	3.6	3.6	3.8	3.8	3.9	4.0	4.0	4.0	4.0	4.0	4.0
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.050	0.050	0.049	0.043	0.039	0.040	0.039	0.039	0.039	0.039	0.039	0.038
Sulphate	mg/L	52.3	52.1	51.8	45.3	41.7	42.1	41.7	41.6	41.5	41.3	41.1	41.0
Chloride	mg/L	662	659	656	579	538	544	539	538	537	534	532	530
Total Ammonia	mg/L	0.003	0.003	0.003	0.024	0.013	0.006	0.009	0.003	0.003	0.003	0.003	0.003
Nitrate	mg/L	3.15	3.05	2.95	2.75	2.64	2.71	2.75	2.76	2.67	2.56	2.46	2.37
Nitrite	mg/L	0.001	0.001	0.001	0.005	0.005	0.002	0.002	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	41	41	41	39	38	39	39	39	39	39	39	38
OrthoPhosphate-P	mg/L	0.1172	0.1167	0.1162	0.1010	0.0929	0.0936	0.0924	0.0922	0.0920	0.0915	0.0911	0.0908
Phosphate-P	mg/L	0.1259	0.1254	0.1248	0.1111	0.1031	0.1043	0.1033	0.1031	0.1029	0.1023	0.1019	0.1016
Org. Carbon	mg/L	4.7	4.7	4.7	4.9	4.9	5.1	5.2	5.2	5.2	5.2	5.1	5.1
Hardness CaCO3	mg/L	73	73	73	68	65	66	66	66	66	66	66	65
Total Metals													
Aluminum Al	mg/L	0.11	0.11	0.11	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Antimony Sb	mg/L	0.0107	0.0107	0.0106	0.0092	0.0085	0.0086	0.0085	0.0085	0.0085	0.0084	0.0084	0.0084
Arsenic As	mg/L	0.0019	0.0019	0.0019	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
Barium Ba	mg/L	0.0065	0.0065	0.0065	0.0059	0.0055	0.0056	0.0056	0.0056	0.0056	0.0056	0.0055	0.0055
Beryllium Be	mg/L	0.00049	0.00049	0.00049	0.00046	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00043	0.00043
Bismuth Bi	mg/L	0.01025	0.01021	0.01016	0.00882	0.00811	0.00817	0.00807	0.00805	0.00803	0.00799	0.00795	0.00792
Boron B	mg/L	0.033	0.033	0.033	0.033	0.033	0.034	0.035	0.035	0.035	0.035	0.034	0.034
Cadmium Cd	mg/L	0.0000415	0.0000414	0.0000412	0.0000388	0.0000374	0.0000384	0.0000388	0.0000390	0.0000390	0.0000387	0.0000386	0.0000384
Calcium Ca	mg/L	161	160	159	139	128	130	128	128	128	127	126	126
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0055	0.0055	0.0055	0.0048	0.0044	0.0045	0.0044	0.0044	0.0044	0.0044	0.0043	0.0043
Copper Cu	mg/L	0.0055	0.0055	0.0055	0.0049	0.0046	0.0047	0.0047	0.0047	0.0047	0.0046	0.0046	0.0046
Iron Fe	mg/L	0.12	0.12	0.11	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Lead Pb	mg/L	0.00032	0.00032	0.00032	0.00029	0.00028	0.00029	0.00029	0.00029	0.00029	0.00028	0.00028	0.00028
Lithium Li	mg/L	0.0050	0.0050	0.0049	0.0050	0.0049	0.0050	0.0051	0.0051	0.0051	0.0051	0.0050	0.0050
Magnesium Mg	mg/L	8.2	8.2	8.1	7.9	7.7	7.9	8.0	8.0	8.0	8.0	7.9	7.9
Manganese Mn	mg/L	0.017	0.017	0.017	0.015	0.014	0.015	0.015	0.015	0.015	0.014	0.014	0.014
Mercury Hg	mg/L	0.0000092	0.0000092	0.0000091	0.0000099	0.0000101	0.0000105	0.0000108	0.0000109	0.0000108	0.0000108	0.0000107	0.0000107
Molybdenum Mo	mg/L	0.00469	0.00467	0.00465	0.00407	0.00376	0.00380	0.00375	0.00375	0.00374	0.00372	0.00370	0.00369
Nickel Ni	mg/L	0.0050	0.0050	0.0049	0.0044	0.0041	0.0041	0.0041	0.0041	0.0041	0.0040	0.0040	0.0040
Phosphorus P	mg/L	0.176	0.175	0.175	0.154	0.142	0.144	0.142	0.142	0.142	0.141	0.140	0.140
Potassium K	mg/L	22.3	22.2	22.1	19.6	18.3	18.5	18.3	18.3	18.3	18.2	18.1	18.0
Selenium Se	mg/L	0.00073	0.00073	0.00072	0.00078	0.00079	0.00082	0.00084	0.00084	0.00084	0.00084	0.00083	0.00083
Silicon SiO2	mg/L	2.73	2.71	2.70	2.54	2.43	2.48	2.49	2.49	2.49	2.47	2.46	2.45
Silver Ag	mg/L	0.0001159	0.0001154	0.0001149	0.0001168	0.0001157	0.0001175	0.0001172	0.0001173	0.0001170	0.0001164	0.0001158	0.0001155
Sodium Na	mg/L	220	219	218	196	183	185	184	184	183	182	182	181
Strontium Sr	mg/L	0.063	0.062	0.062	0.058	0.056	0.057	0.057	0.058	0.057	0.057	0.057	0.057
Tellurium Te	mg/L	0.039	0.039	0.038	0.040	0.040	0.042	0.042	0.043	0.043	0.042	0.042	0.042
Thallium Tl	mg/L	0.000041	0.000041	0.000040	0.000040	0.000039	0.000041	0.000041	0.000041	0.000041	0.000041	0.000041	0.000041
Thorium Th	mg/L	0.000048	0.000048	0.000048	0.000052	0.000053	0.000055	0.000057	0.000058	0.000058	0.000058	0.000057	0.000057
Tin Sn	mg/L	0.00173	0.00172	0.00171	0.00151	0.00141	0.00143	0.00143	0.00142	0.00142	0.00141	0.00141	0.00140
Titanium Ti	mg/L	0.0090	0.0089	0.0089	0.0098	0.0100	0.0104	0.0106	0.0107	0.0107	0.0106	0.0106	0.0106
Uranium U	mg/L	0.000076	0.000075	0.000075	0.000080	0.000081	0.000084	0.000085	0.000085	0.000085	0.000085	0.000084	0.000084
Vanadium V	mg/L	0.0030	0.0030	0.0030	0.0029	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028
Zinc Zn	mg/L	0.0138	0.0137	0.0137	0.0121	0.0113	0.0114	0.0115	0.0116	0.0116	0.0115	0.0114	0.0114
Zirconium Zr	mg/L	0.0045	0.0045	0.0044	0.0046	0.0046	0.0048	0.0049	0.0049	0.0049	0.0049	0.0048	0.0048

Table I-5-b-A.2
10 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	784	780	777	684	633	640	634	633	632	628	625	623
TSS	mg/L	3.9	3.9	3.9	4.1	4.0	4.2	4.3	4.3	4.3	4.3	4.2	4.2
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.038	0.038	0.038	0.033	0.030	0.030	0.030	0.030	0.029	0.029	0.029	0.029
Sulphate	mg/L	40.8	40.7	40.5	35.1	32.2	32.5	32.1	32.0	32.0	31.8	31.6	31.5
Chloride	mg/L	528	526	524	462	428	433	429	429	428	425	423	422
Total Ammonia	mg/L	0.003	0.003	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	2.27	2.17	2.07	1.79	1.63	1.64	1.62	1.62	1.52	1.42	1.32	1.22
Nitrite	mg/L	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	38	38	38	36	35	36	36	36	36	36	36	36
OrthoPhosphate-P	mg/L	0.0905	0.0901	0.0897	0.0774	0.0708	0.0714	0.0705	0.0702	0.0701	0.0697	0.0694	0.0692
Phosphate-P	mg/L	0.1012	0.1008	0.1003	0.0893	0.0827	0.0838	0.0830	0.0828	0.0827	0.0822	0.0818	0.0816
Org. Carbon	mg/L	5.1	5.1	5.1	5.2	5.2	5.4	5.5	5.5	5.5	5.5	5.4	5.4
Hardness CaCO3	mg/L	65	65	65	60	58	59	59	60	59	59	59	59
Total Metals													
Aluminum Al	mg/L	0.13	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.14	0.14
Antimony Sb	mg/L	0.0083	0.0083	0.0083	0.0071	0.0065	0.0066	0.0065	0.0065	0.0065	0.0064	0.0064	0.0064
Arsenic As	mg/L	0.0017	0.0017	0.0017	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Barium Ba	mg/L	0.0055	0.0055	0.0054	0.0049	0.0046	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047
Beryllium Be	mg/L	0.00043	0.00043	0.00043	0.00040	0.00038	0.00038	0.00037	0.00037	0.00037	0.00037	0.00037	0.00037
Bismuth Bi	mg/L	0.00790	0.00786	0.00783	0.00674	0.00616	0.00620	0.00611	0.00610	0.00608	0.00605	0.00602	0.00600
Boron B	mg/L	0.034	0.034	0.034	0.034	0.033	0.034	0.035	0.035	0.035	0.035	0.034	0.034
Cadmium Cd	mg/L	0.0000383	0.0000381	0.0000380	0.0000339	0.0000315	0.0000319	0.0000317	0.0000317	0.0000316	0.0000315	0.0000313	0.0000312
Calcium Ca	mg/L	125	125	124	108	99	100	99	99	98	98	97	97
Chromium Cr	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0043	0.0043	0.0043	0.0037	0.0034	0.0034	0.0034	0.0034	0.0034	0.0033	0.0033	0.0033
Copper Cu	mg/L	0.0046	0.0046	0.0046	0.0041	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0038	0.0038
Iron Fe	mg/L	0.14	0.14	0.14	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16
Lead Pb	mg/L	0.00028	0.00028	0.00028	0.00025	0.00023	0.00024	0.00024	0.00024	0.00024	0.00023	0.00023	0.00023
Lithium Li	mg/L	0.0050	0.0050	0.0050	0.0050	0.0049	0.0050	0.0051	0.0051	0.0051	0.0051	0.0050	0.0050
Magnesium Mg	mg/L	7.9	7.9	7.8	7.6	7.4	7.7	7.7	7.8	7.7	7.7	7.7	7.6
Manganese Mn	mg/L	0.014	0.014	0.014	0.013	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
Mercury Hg	mg/L	0.0000107	0.0000106	0.0000106	0.0000111	0.0000110	0.0000114	0.0000116	0.0000117	0.0000117	0.0000116	0.0000116	0.0000115
Molybdenum Mo	mg/L	0.00368	0.00366	0.00364	0.00318	0.00292	0.00295	0.00292	0.00291	0.00291	0.00289	0.00288	0.00287
Nickel Ni	mg/L	0.0040	0.0040	0.0040	0.0035	0.0032	0.0033	0.0033	0.0033	0.0032	0.0032	0.0032	0.0032
Phosphorus P	mg/L	0.139	0.139	0.138	0.120	0.110	0.111	0.110	0.109	0.109	0.108	0.108	0.108
Potassium K	mg/L	18.0	17.9	17.8	15.8	14.6	14.8	14.7	14.7	14.7	14.6	14.5	14.5
Selenium Se	mg/L	0.00083	0.00082	0.00082	0.00086	0.00085	0.00088	0.00090	0.00090	0.00090	0.00090	0.00089	0.00089
Silicon SiO2	mg/L	2.45	2.43	2.42	2.27	2.16	2.21	2.21	2.22	2.21	2.20	2.19	2.18
Silver Ag	mg/L	0.0001151	0.0001146	0.0001141	0.0001135	0.0001109	0.0001119	0.0001106	0.0001103	0.0001102	0.0001095	0.0001090	0.0001086
Sodium Na	mg/L	180	180	179	160	150	152	151	151	151	150	149	149
Strontium Sr	mg/L	0.057	0.056	0.056	0.053	0.051	0.052	0.052	0.053	0.052	0.052	0.052	0.052
Tellurium Te	mg/L	0.042	0.042	0.041	0.043	0.043	0.044	0.045	0.045	0.045	0.045	0.044	0.044
Thallium Tl	mg/L	0.000041	0.000040	0.000040	0.000039	0.000038	0.000039	0.000039	0.000039	0.000039	0.000039	0.000039	0.000039
Thorium Th	mg/L	0.000057	0.000057	0.000056	0.000055	0.000054	0.000055	0.000056	0.000056	0.000056	0.000055	0.000055	0.000055
Tin Sn	mg/L	0.00140	0.00139	0.00139	0.00121	0.00113	0.00114	0.00114	0.00113	0.00113	0.00113	0.00112	0.00112
Titanium Ti	mg/L	0.0105	0.0105	0.0104	0.0112	0.0112	0.0117	0.0119	0.0120	0.0120	0.0119	0.0119	0.0118
Uranium U	mg/L	0.000084	0.000084	0.000083	0.000083	0.000081	0.000083	0.000083	0.000083	0.000083	0.000082	0.000082	0.000081
Vanadium V	mg/L	0.0028	0.0028	0.0028	0.0026	0.0025	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0025
Zinc Zn	mg/L	0.0114	0.0113	0.0113	0.0099	0.0092	0.0093	0.0095	0.0095	0.0095	0.0094	0.0094	0.0093
Zirconium Zr	mg/L	0.0048	0.0048	0.0048	0.0048	0.0048	0.0049	0.0050	0.0050	0.0050	0.0050	0.0049	0.0049

Appendix I

Table I-5-b-A.2
10 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	621	618	615	542	500	506	502	501	500	497	495	493
TSS	mg/L	4.2	4.2	4.2	4.3	4.3	4.4	4.5	4.5	4.5	4.5	4.4	4.4
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.029	0.029	0.029	0.024	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022
Sulphate	mg/L	31.4	31.3	31.1	26.9	24.6	24.8	24.5	24.4	24.4	24.2	24.1	24.0
Chloride	mg/L	421	419	417	368	340	345	342	341	341	339	337	336
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.13	1.03	0.94	0.80	0.73	0.73	0.72	0.72	0.62	0.52	0.42	0.33
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	36	36	35	34	33	34	34	34	34	34	34	34
OrthoPhosphate-P	mg/L	0.0689	0.0686	0.0683	0.0585	0.0533	0.0537	0.0529	0.0528	0.0527	0.0524	0.0521	0.0519
Phosphate-P	mg/L	0.0813	0.0809	0.0805	0.0719	0.0665	0.0674	0.0668	0.0667	0.0666	0.0662	0.0658	0.0656
Org. Carbon	mg/L	5.4	5.4	5.3	5.5	5.5	5.7	5.7	5.7	5.7	5.7	5.7	5.6
Hardness CaCO3	mg/L	58	58	58	54	53	54	54	54	54	54	54	53
Total Metals													
Aluminum Al	mg/L	0.14	0.14	0.14	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.15
Antimony Sb	mg/L	0.0064	0.0063	0.0063	0.0054	0.0049	0.0050	0.0049	0.0049	0.0049	0.0049	0.0049	0.0048
Arsenic As	mg/L	0.0014	0.0014	0.0014	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Barium Ba	mg/L	0.0046	0.0046	0.0046	0.0042	0.0039	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Beryllium Be	mg/L	0.00037	0.00036	0.00036	0.00034	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032	0.00031	0.00031
Bismuth Bi	mg/L	0.00598	0.00595	0.00593	0.00506	0.00460	0.00463	0.00456	0.00454	0.00453	0.00451	0.00449	0.00447
Boron B	mg/L	0.034	0.034	0.034	0.034	0.033	0.034	0.035	0.035	0.035	0.035	0.035	0.034
Cadmium Cd	mg/L	0.0000311	0.0000310	0.0000308	0.0000276	0.0000256	0.0000260	0.0000259	0.0000259	0.0000258	0.0000257	0.0000255	0.0000254
Calcium Ca	mg/L	97	96	96	83	76	76	75	75	75	75	74	74
Chromium Cr	mg/L	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0033	0.0033	0.0033	0.0028	0.0026	0.0026	0.0026	0.0026	0.0026	0.0025	0.0025	0.0025
Copper Cu	mg/L	0.0038	0.0038	0.0038	0.0034	0.0032	0.0033	0.0033	0.0033	0.0033	0.0032	0.0032	0.0032
Iron Fe	mg/L	0.16	0.16	0.15	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Lead Pb	mg/L	0.00023	0.00023	0.00023	0.00021	0.00019	0.00020	0.00020	0.00020	0.00020	0.00019	0.00019	0.00019
Lithium Li	mg/L	0.0050	0.0050	0.0050	0.0050	0.0049	0.0050	0.0051	0.0051	0.0051	0.0051	0.0050	0.0050
Magnesium Mg	mg/L	7.6	7.6	7.5	7.4	7.2	7.4	7.5	7.5	7.5	7.5	7.4	7.4
Manganese Mn	mg/L	0.012	0.012	0.012	0.011	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Mercury Hg	mg/L	0.0000115	0.0000114	0.0000114	0.0000118	0.0000117	0.0000121	0.0000123	0.0000124	0.0000123	0.0000123	0.0000122	0.0000122
Molybdenum Mo	mg/L	0.00286	0.00284	0.00283	0.00246	0.00226	0.00228	0.00225	0.00225	0.00224	0.00223	0.00222	0.00221
Nickel Ni	mg/L	0.0032	0.0032	0.0032	0.0028	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Phosphorus P	mg/L	0.107	0.107	0.106	0.092	0.084	0.085	0.083	0.083	0.083	0.082	0.082	0.082
Potassium K	mg/L	14.4	14.4	14.3	12.7	11.8	11.9	11.8	11.8	11.8	11.7	11.7	11.6
Selenium Se	mg/L	0.00089	0.00088	0.00088	0.00091	0.00090	0.00093	0.00095	0.00095	0.00095	0.00095	0.00094	0.00094
Silicon SiO2	mg/L	2.17	2.16	2.15	2.04	1.94	1.98	1.99	2.00	1.99	1.98	1.97	1.97
Silver Ag	mg/L	0.0001083	0.0001078	0.0001073	0.0001078	0.0001055	0.0001064	0.0001051	0.0001048	0.0001046	0.0001040	0.0001035	0.0001032
Sodium Na	mg/L	148	148	147	132	124	126	125	125	125	124	123	123
Strontium Sr	mg/L	0.052	0.051	0.051	0.049	0.047	0.048	0.048	0.049	0.048	0.048	0.048	0.048
Tellurium Te	mg/L	0.044	0.044	0.044	0.045	0.044	0.046	0.047	0.047	0.047	0.047	0.046	0.046
Thallium Tl	mg/L	0.000039	0.000038	0.000038	0.000037	0.000036	0.000037	0.000038	0.000038	0.000038	0.000037	0.000037	0.000037
Thorium Th	mg/L	0.000055	0.000055	0.000054	0.000053	0.000052	0.000053	0.000054	0.000054	0.000054	0.000054	0.000053	0.000053
Tin Sn	mg/L	0.00111	0.00111	0.00110	0.00096	0.00089	0.00091	0.00090	0.00090	0.00090	0.00090	0.00089	0.00089
Titanium Ti	mg/L	0.0118	0.0117	0.0117	0.0123	0.0122	0.0127	0.0129	0.0130	0.0130	0.0129	0.0129	0.0128
Uranium U	mg/L	0.000081	0.000081	0.000080	0.000081	0.000079	0.000081	0.000080	0.000080	0.000080	0.000080	0.000079	0.000079
Vanadium V	mg/L	0.0025	0.0025	0.0025	0.0024	0.0023	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
Zinc Zn	mg/L	0.0093	0.0093	0.0092	0.0081	0.0075	0.0076	0.0078	0.0078	0.0078	0.0078	0.0077	0.0077
Zirconium Zr	mg/L	0.0049	0.0049	0.0049	0.0049	0.0048	0.0050	0.0051	0.0051	0.0051	0.0050	0.0050	0.0050

Appendix I

Table I-5-b-A.2
10 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	491	489	487	429	396	401	398	398	397	395	393	391
TSS	mg/L	4.4	4.4	4.4	4.5	4.4	4.6	4.6	4.7	4.7	4.6	4.6	4.6
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.022	0.021	0.021	0.018	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Sulphate	mg/L	24.0	23.9	23.7	20.4	18.6	18.7	18.5	18.5	18.4	18.3	18.2	18.2
Chloride	mg/L	335	333	332	293	271	275	273	273	273	271	270	269
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	0.23	0.14	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	34	33	33	32	31	32	33	33	33	32	32	32
OrthoPhosphate-P	mg/L	0.0518	0.0515	0.0513	0.0436	0.0395	0.0398	0.0392	0.0391	0.0390	0.0388	0.0386	0.0384
Phosphate-P	mg/L	0.0654	0.0651	0.0648	0.0582	0.0538	0.0545	0.0541	0.0540	0.0539	0.0536	0.0533	0.0531
Org. Carbon	mg/L	5.6	5.6	5.6	5.7	5.7	5.8	5.9	5.9	5.9	5.9	5.9	5.8
Hardness CaCO3	mg/L	53	53	53	50	48	49	50	50	50	50	49	49
Total Metals													
Aluminum Al	mg/L	0.15	0.15	0.15	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16
Antimony Sb	mg/L	0.0048	0.0048	0.0048	0.0041	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0036	0.0036
Arsenic As	mg/L	0.0012	0.0012	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Barium Ba	mg/L	0.0040	0.0039	0.0039	0.0036	0.0034	0.0035	0.0035	0.0035	0.0035	0.0035	0.0034	0.0034
Beryllium Be	mg/L	0.00031	0.00031	0.00031	0.00029	0.00028	0.00028	0.00028	0.00028	0.00028	0.00027	0.00027	0.00027
Bismuth Bi	mg/L	0.00445	0.00443	0.00441	0.00373	0.00337	0.00339	0.00334	0.00332	0.00332	0.00330	0.00328	0.00327
Boron B	mg/L	0.034	0.034	0.034	0.034	0.033	0.034	0.035	0.035	0.035	0.035	0.035	0.035
Cadmium Cd	mg/L	0.0000254	0.0000252	0.0000251	0.0000226	0.0000210	0.0000214	0.0000213	0.0000213	0.0000213	0.0000211	0.0000210	0.0000209
Calcium Ca	mg/L	74	73	73	63	57	58	57	57	57	56	56	56
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0025	0.0025	0.0025	0.0021	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
Copper Cu	mg/L	0.0032	0.0032	0.0032	0.0029	0.0027	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0027
Iron Fe	mg/L	0.17	0.17	0.17	0.17	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Lead Pb	mg/L	0.00019	0.00019	0.00019	0.00017	0.00016	0.00017	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016
Lithium Li	mg/L	0.0050	0.0050	0.0050	0.0050	0.0049	0.0050	0.0051	0.0051	0.0051	0.0051	0.0050	0.0050
Magnesium Mg	mg/L	7.4	7.4	7.3	7.2	7.0	7.2	7.3	7.4	7.3	7.3	7.3	7.2
Manganese Mn	mg/L	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Mercury Hg	mg/L	0.0000121	0.0000121	0.0000120	0.0000124	0.0000122	0.0000126	0.0000128	0.0000129	0.0000129	0.0000128	0.0000127	0.0000127
Molybdenum Mo	mg/L	0.00220	0.00219	0.00218	0.00189	0.00173	0.00175	0.00173	0.00173	0.00172	0.00171	0.00170	0.00170
Nickel Ni	mg/L	0.0025	0.0025	0.0025	0.0022	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Phosphorus P	mg/L	0.081	0.081	0.081	0.070	0.063	0.064	0.063	0.063	0.062	0.062	0.062	0.062
Potassium K	mg/L	11.6	11.5	11.5	10.2	9.5	9.6	9.6	9.6	9.6	9.5	9.5	9.4
Selenium Se	mg/L	0.00093	0.00093	0.00093	0.00095	0.00094	0.00097	0.00099	0.00099	0.00099	0.00098	0.00098	0.00097
Silicon SiO2	mg/L	1.96	1.95	1.94	1.85	1.77	1.81	1.82	1.83	1.82	1.81	1.80	1.80
Silver Ag	mg/L	0.0001028	0.0001023	0.0001018	0.0001033	0.0001013	0.0001021	0.0001007	0.0001004	0.0001003	0.0000997	0.0000992	0.0000988
Sodium Na	mg/L	123	122	121	110	103	105	105	105	104	104	103	103
Strontium Sr	mg/L	0.048	0.047	0.047	0.045	0.044	0.045	0.045	0.045	0.045	0.045	0.045	0.045
Tellurium Te	mg/L	0.046	0.046	0.046	0.047	0.046	0.047	0.048	0.049	0.048	0.048	0.048	0.048
Thallium Tl	mg/L	0.000037	0.000037	0.000037	0.000036	0.000035	0.000036	0.000036	0.000036	0.000036	0.000036	0.000036	0.000036
Thorium Th	mg/L	0.000053	0.000053	0.000053	0.000052	0.000050	0.000052	0.000053	0.000053	0.000053	0.000052	0.000052	0.000052
Tin Sn	mg/L	0.00089	0.00088	0.00088	0.00076	0.00071	0.00072	0.00072	0.00072	0.00072	0.00072	0.00071	0.00071
Titanium Ti	mg/L	0.0128	0.0127	0.0126	0.0131	0.0130	0.0135	0.0137	0.0138	0.0138	0.0137	0.0136	0.0136
Uranium U	mg/L	0.000079	0.000079	0.000078	0.000079	0.000077	0.000079	0.000079	0.000079	0.000079	0.000078	0.000078	0.000077
Vanadium V	mg/L	0.0023	0.0023	0.0023	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Zinc Zn	mg/L	0.0077	0.0076	0.0076	0.0067	0.0062	0.0063	0.0065	0.0065	0.0065	0.0065	0.0064	0.0064
Zirconium Zr	mg/L	0.0050	0.0050	0.0049	0.0050	0.0049	0.0050	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051

Appendix I

Table I-5-b-A.2
10 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	390	388	386	342	316	320	319	318	318	316	314
TSS	mg/L	4.6	4.6	4.5	4.6	4.5	4.7	4.8	4.8	4.8	4.8	4.7
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.016	0.016	0.016	0.013	0.012	0.012	0.011	0.011	0.011	0.011	0.011
Sulphate	mg/L	18.1	18.0	17.9	15.3	13.9	14.1	13.9	13.9	13.9	13.8	13.7
Chloride	mg/L	268	266	265	235	218	222	220	220	220	219	218
Total Ammonia	mg/L	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Nitrate	mg/L				0.00	0.00	0.00	0.00	0.00			
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	32	32	32	31	30	31	31	31	31	31	31
OrthoPhosphate-P	mg/L	0.0383	0.0381	0.0379	0.0321	0.0289	0.0291	0.0286	0.0285	0.0285	0.0283	0.0282
Phosphate-P	mg/L	0.0530	0.0527	0.0524	0.0475	0.0439	0.0446	0.0443	0.0443	0.0442	0.0439	0.0437
Org. Carbon	mg/L	5.8	5.8	5.8	5.8	5.8	6.0	6.1	6.1	6.1	6.0	6.0
Hardness CaCO3	mg/L	49	49	49	46	45	46	47	47	47	46	46
Total Metals												
Aluminum Al	mg/L	0.16	0.16	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17
Antimony Sb	mg/L	0.0036	0.0036	0.0036	0.0030	0.0027	0.0028	0.0027	0.0027	0.0027	0.0027	0.0027
Arsenic As	mg/L	0.0010	0.0010	0.0010	0.0009	0.0008	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
Barium Ba	mg/L	0.0034	0.0034	0.0034	0.0031	0.0029	0.0030	0.0031	0.0031	0.0031	0.0030	0.0030
Beryllium Be	mg/L	0.00027	0.00027	0.00027	0.00026	0.00025	0.00025	0.00025	0.00024	0.00024	0.00024	0.00024
Bismuth Bi	mg/L	0.00326	0.00324	0.00323	0.00271	0.00243	0.00244	0.00240	0.00239	0.00238	0.00237	0.00236
Boron B	mg/L	0.034	0.034	0.034	0.034	0.033	0.034	0.035	0.035	0.035	0.035	0.035
Cadmium Cd	mg/L	0.0000209	0.0000208	0.0000207	0.0000187	0.0000175	0.0000178	0.0000178	0.0000178	0.0000177	0.0000176	0.0000175
Calcium Ca	mg/L	56	56	55	47	43	44	43	43	43	43	42
Chromium Cr	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt Co	mg/L	0.0019	0.0019	0.0019	0.0016	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Copper Cu	mg/L	0.0027	0.0027	0.0027	0.0025	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
Iron Fe	mg/L	0.18	0.18	0.18	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19
Lead Pb	mg/L	0.00016	0.00016	0.00016	0.00015	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014
Lithium Li	mg/L	0.0050	0.0050	0.0050	0.0050	0.0049	0.0050	0.0051	0.0051	0.0051	0.0051	0.0050
Magnesium Mg	mg/L	7.2	7.2	7.1	7.0	6.9	7.1	7.2	7.2	7.2	7.2	7.1
Manganese Mn	mg/L	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Mercury Hg	mg/L	0.0000126	0.0000126	0.0000125	0.0000128	0.0000126	0.0000130	0.0000132	0.0000133	0.0000133	0.0000132	0.0000131
Molybdenum Mo	mg/L	0.00169	0.00168	0.00168	0.00145	0.00133	0.00134	0.00133	0.00133	0.00132	0.00132	0.00131
Nickel Ni	mg/L	0.0020	0.0020	0.0020	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
Phosphorus P	mg/L	0.061	0.061	0.061	0.052	0.047	0.048	0.047	0.047	0.047	0.046	0.046
Potassium K	mg/L	9.4	9.3	9.3	8.3	7.7	7.9	7.8	7.8	7.8	7.8	7.7
Selenium Se	mg/L	0.00097	0.00097	0.00096	0.00099	0.00097	0.00100	0.00102	0.00102	0.00102	0.00101	0.00101
Silicon SiO2	mg/L	1.79	1.78	1.77	1.71	1.63	1.67	1.69	1.69	1.69	1.68	1.67
Silver Ag	mg/L	0.0000985	0.0000980	0.0000975	0.0000999	0.0000981	0.0000988	0.0000973	0.0000970	0.0000969	0.0000963	0.0000958
Sodium Na	mg/L	103	102	102	93	87	89	89	89	89	88	88
Strontium Sr	mg/L	0.044	0.044	0.044	0.042	0.041	0.042	0.043	0.043	0.043	0.043	0.042
Tellurium Te	mg/L	0.048	0.047	0.047	0.048	0.047	0.049	0.049	0.050	0.050	0.049	0.049
Thallium Tl	mg/L	0.000036	0.000036	0.000035	0.000035	0.000034	0.000035	0.000035	0.000035	0.000035	0.000035	0.000035
Thorium Th	mg/L	0.000052	0.000051	0.000051	0.000051	0.000049	0.000051	0.000052	0.000052	0.000052	0.000051	0.000051
Tin Sn	mg/L	0.00071	0.00071	0.00070	0.00061	0.00057	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058
Titanium Ti	mg/L	0.0135	0.0135	0.0134	0.0138	0.0136	0.0141	0.0143	0.0144	0.0144	0.0143	0.0142
Uranium U	mg/L	0.000077	0.000077	0.000076	0.000078	0.000076	0.000077	0.000077	0.000077	0.000077	0.000077	0.000076
Vanadium V	mg/L	0.0022	0.0022	0.0022	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Zinc Zn	mg/L	0.0064	0.0064	0.0063	0.0056	0.0051	0.0053	0.0055	0.0055	0.0055	0.0055	0.0055
Zirconium Zr	mg/L	0.0050	0.0050	0.0050	0.0050	0.0049	0.0051	0.0052	0.0052	0.0052	0.0052	0.0051

Table I-5-b-A.3
10 % increase in Background Copper in Doris Lake

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	117442	101129	86343	86341	83207	78530	81148	81148	73295
TSS	183	177	183	1239	683	339	373	235	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18322	17072	15397	15296	14793	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	71012	57298	58154	52614	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15548	12090	8330	8331	7357	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1165.56	311.70	325.44	85.82				
Hardness CaCO3	14992	14508	14992	26182	22152	16914	16982	15644	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.31	12.07	9.24	8.82	5.92	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.48	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.00	1.75	1.73	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.30	7.38	4.50	4.72	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42156	42164	41156	39990	40731	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.32	1.27	1.12	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.53	11.65	9.29	9.39	5.99	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.84	1.15	0.69	0.73	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2866	2084	1459	1465	1203	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7119	7034	6793	6629	6738	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	963	772	631	632	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11746	9511	7305	7348	6671	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.74	8.36	2.62	3.28	0.88	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.42	1.22	0.46	0.55	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.10	1.04	0.35	0.44	0.12				

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	116623	100724	86235	86177	83164	78530	81148	81148	73295
TSS	183	177	183	1216	673	336	369	234	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18307	17063	15395	15292	14792	13840	14302	14302	12918
Chloride	49110	47526	49110	82144	70877	57262	58104	52600	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15362	11985	8301	8297	7348	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2077.81	1141.93	305.26	318.61	84.02				
Hardness CaCO3	14992	14508	14992	25936	22007	16874	16930	15630	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.18	12.03	9.19	8.79	5.91	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.47	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.28	1.99	1.75	1.72	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.22	7.33	4.48	4.71	3.42	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42118	42144	41148	39981	40729	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.31	1.26	1.11	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.83	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.21	11.53	9.20	9.30	5.97	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.81	1.14	0.69	0.73	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2835	2068	1453	1459	1201	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.57	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7108	7028	6792	6626	6737	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	956	769	630	631	583	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11629	9447	7286	7323	6664	6148	6353	6353	5739
Strontium Sr	12	12	12	21	17	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.37	8.20	2.57	3.21	0.86	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.37	1.20	0.45	0.54	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.08	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.06	1.02	0.34	0.43	0.12				

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	86695	70035	55699	56601	52660	49028	50662	50662	45759
TSS				1027	484	151	189	50				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5606	3984	2355	2663	1768	1247	1289	1289	1164
Chloride	49110	47526	49110	82032	70810	57245	58081	52595	47526	49110	49110	44357
Total Ammonia	25	24	25	153	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1036	654	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				8561	5005	1360	1578	416				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2054.58	1130.12	302.21	315.56	83.26				
Hardness CaCO3				11300	6942	1864	2398	633				
Total Metals												
Aluminum Al	0.81	0.78	0.81	12.63	6.52	4.73	4.25	1.90	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.55	3.32	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.27	0.18	0.08	0.10	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.81	0.48	0.24	0.26	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.20	0.13	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.52	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.35	4.67	2.09	2.34	1.14	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	3001	1806	878	996	486	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.38	0.30	0.16	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.28	0.19	0.11	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.43	0.25	0.09	0.10	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	16.11	6.65	4.58	4.77	1.48	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.40	0.72	0.28	0.33	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1873	1089	485	521	238	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.89	0.56	0.40	0.48	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.65	0.43	0.24	0.26	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	33	29	25	25	24	22	23	23	21
Potassium K	25	24	25	641	351	119	168	65	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.16	0.08	0.02	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	392	201	74	91	33	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5427	3072	934	1173	320	12	12	12	11
Strontium Sr	0	0	0	9	5	2	2	1	0	0	0	0
Tellurium Te				17.14	8.08	2.52	3.16	0.83				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.55	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.30	1.14	0.41	0.50	0.18	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.88	0.59	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.1	0.8	0.5	0.9	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.91	0.93	0.30	0.38	0.11				

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				415939	397622	383261	385806	380217				
TSS				1668	787	245	308	81				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				823	502	142	233	66				
Chloride				257658	245030	234658	235929	231854				
Total Ammonia				61	37	16	22	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8574	5014	1363	1582	418				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2057.80	1132.21	302.88	316.39	83.51				
Hardness CaCO3				11318	6955	1868	2405	635				
Total Metals												
Aluminum Al				65.34	30.66	11.58	13.05	3.57				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.58	0.32	0.14	0.15	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.03	6.31	2.08	2.48	0.68				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				24828	23620	22780	22873	22440				
Chromium Cr				0.26	0.18	0.06	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.51	0.26	0.07	0.09	0.02				
Iron Fe				69.26	31.52	12.16	14.33	3.81				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.69	0.80	0.25	0.31	0.08				
Magnesium Mg				2160	1110	386	428	114				
Manganese Mn				1.58	0.73	0.31	0.42	0.11				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1125	556	160	227	60				
Selenium Se				0.38	0.18	0.06	0.07	0.02				
Silicon SiO2				491	239	78	98	27				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				141217	133438	127974	128596	126350				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.17	8.10	2.53	3.17	0.84				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.00	0.01	0.00				
Tin Sn				0.06	0.06	0.02	0.03	0.01				
Titanium Ti				5.22	2.47	0.77	0.97	0.26				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.67	0.32	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.93	0.94	0.31	0.39	0.11				

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				37896	19495	5071	7629	2014				
TSS				1675	790	247	309	82				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				826	504	142	234	66				
Chloride				27388	14702	4285	5563	1468				
Total Ammonia				61	37	16	22	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8613	5036	1369	1589	420				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2067.04	1137.21	304.27	317.88	83.91				
Hardness CaCO3				11369	6986	1876	2416	638				
Total Metals												
Aluminum Al				65.62	30.78	11.63	13.11	3.58				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.59	0.32	0.14	0.15	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.08	6.33	2.08	2.49	0.68				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2564	1350	507	600	166				
Chromium Cr				0.26	0.18	0.06	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.51	0.26	0.07	0.09	0.02				
Iron Fe				69.57	31.65	12.21	14.39	3.83				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.69	0.80	0.25	0.32	0.08				
Magnesium Mg				2169	1114	388	430	114				
Manganese Mn				1.59	0.74	0.31	0.42	0.11				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1130	558	161	228	60				
Selenium Se				0.38	0.18	0.06	0.07	0.02				
Silicon SiO2				493	240	78	98	27				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				15743	7928	2440	3065	809				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.25	8.14	2.54	3.19	0.84				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.00	0.01	0.00				
Tin Sn				0.06	0.06	0.02	0.03	0.01				
Titanium Ti				5.24	2.48	0.77	0.97	0.26				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.67	0.32	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.94	0.94	0.31	0.39	0.11				

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				38072	19584	5095	7666	2024				
TSS				1683	794	248	311	82				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				829	506	143	235	66				
Chloride				27515	14769	4305	5590	1476				
Total Ammonia				61	37	16	22	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8653	5059	1376	1597	422				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2076.67	1142.41	305.71	319.43	84.32				
Hardness CaCO3				11422	7018	1885	2428	641				
Total Metals												
Aluminum Al				65.90	30.91	11.68	13.16	3.60				
Antimony Sb				0.08	0.06	0.04	0.05	0.01				
Arsenic As				0.26	0.15	0.05	0.06	0.02				
Barium Ba				0.59	0.32	0.14	0.15	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				12.13	6.36	2.09	2.50	0.69				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				2575	1356	509	603	166				
Chromium Cr				0.26	0.19	0.07	0.03	0.01				
Cobalt Co				0.08	0.04	0.01	0.02	0.01				
Copper Cu				0.51	0.26	0.07	0.09	0.02				
Iron Fe				69.89	31.80	12.27	14.46	3.85				
Lead Pb				0.05	0.03	0.01	0.01	0.00				
Lithium Li				1.70	0.80	0.25	0.32	0.08				
Magnesium Mg				2179	1120	389	432	115				
Manganese Mn				1.60	0.74	0.31	0.42	0.11				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.26	0.13	0.04	0.04	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				1135	561	162	229	61				
Selenium Se				0.39	0.18	0.06	0.07	0.02				
Silicon SiO2				495	241	78	99	27				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				15816	7965	2451	3080	813				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.33	8.17	2.55	3.20	0.85				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.03	0.01	0.00	0.01	0.00				
Tin Sn				0.06	0.07	0.02	0.03	0.01				
Titanium Ti				5.27	2.49	0.78	0.98	0.26				
Uranium U				0.04	0.02	0.00	0.01	0.00				
Vanadium V				0.67	0.32	0.09	0.10	0.03				
Zinc Zn				0.7	0.3	0.2	0.6	0.2				
Zirconium Zr				1.94	0.95	0.31	0.39	0.11				

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				38256	19677	5120	7705	2034				
TSS				1691	797	249	312	82				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				685	416	105	187	49				
Chloride				27648	14839	4326	5618	1483				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8695	5083	1382	1605	424				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2086.69	1147.81	307.20	321.04	84.75				
Hardness CaCO3				11477	7051	1894	2440	644				
Total Metals												
Aluminum Al				61.91	28.39	10.61	11.79	3.11				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.16	0.09	0.03	0.03	0.01				
Barium Ba				0.58	0.32	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.18	5.76	1.84	2.17	0.57				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2334	1206	446	522	138				
Chromium Cr				0.24	0.17	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.49	0.25	0.06	0.08	0.02				
Iron Fe				69.22	31.32	12.06	14.20	3.75				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.69	0.80	0.25	0.31	0.08				
Magnesium Mg				2164	1109	385	426	112				
Manganese Mn				1.58	0.73	0.31	0.42	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1135	560	161	228	60				
Selenium Se				0.37	0.17	0.05	0.06	0.02				
Silicon SiO2				450	212	66	83	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				15886	7998	2462	3093	817				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.39	8.20	2.56	3.21	0.85				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				5.27	2.49	0.78	0.97	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.64	0.30	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.76	0.83	0.26	0.32	0.09				

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				38447	19773	5146	7745	2045				
TSS				1700	801	250	314	83				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				689	419	105	188	50				
Chloride				27786	14912	4348	5647	1491				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8738	5108	1389	1614	426				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2097.12	1153.42	308.76	322.71	85.20				
Hardness CaCO3				11534	7085	1904	2453	648				
Total Metals												
Aluminum Al				62.22	28.53	10.66	11.85	3.13				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.16	0.09	0.03	0.03	0.01				
Barium Ba				0.58	0.32	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.24	5.79	1.85	2.18	0.58				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2346	1211	448	524	138				
Chromium Cr				0.24	0.17	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.49	0.25	0.06	0.08	0.02				
Iron Fe				69.56	31.48	12.13	14.27	3.77				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.70	0.80	0.25	0.31	0.08				
Magnesium Mg				2175	1114	387	428	113				
Manganese Mn				1.59	0.73	0.31	0.42	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1140	562	162	229	61				
Selenium Se				0.37	0.17	0.05	0.06	0.02				
Silicon SiO2				452	213	67	84	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				15966	8037	2474	3110	821				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.48	8.24	2.57	3.23	0.85				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				5.30	2.50	0.78	0.98	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.64	0.30	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.76	0.83	0.26	0.33	0.09				

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				38646	19872	5173	7786	2056				
TSS				1709	805	252	316	83				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				692	421	106	189	50				
Chloride				27930	14987	4371	5678	1499				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8783	5134	1397	1622	428				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2107.94	1159.22	310.36	324.44	85.66				
Hardness CaCO3				11594	7121	1914	2466	651				
Total Metals												
Aluminum Al				62.54	28.67	10.72	11.91	3.15				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.16	0.09	0.03	0.03	0.01				
Barium Ba				0.58	0.32	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.29	5.82	1.86	2.20	0.58				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2358	1218	450	527	139				
Chromium Cr				0.24	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.50	0.25	0.06	0.08	0.02				
Iron Fe				69.92	31.64	12.19	14.35	3.79				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.71	0.80	0.25	0.32	0.08				
Magnesium Mg				2187	1120	389	430	114				
Manganese Mn				1.60	0.74	0.31	0.42	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1146	565	163	231	61				
Selenium Se				0.37	0.18	0.05	0.06	0.02				
Silicon SiO2				455	214	67	84	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16048	8078	2487	3126	825				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.57	8.28	2.59	3.24	0.86				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				5.33	2.51	0.78	0.98	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.64	0.30	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.77	0.84	0.26	0.33	0.09				

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				38851	19975	5200	7829	2067				
TSS				1718	810	253	317	84				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				696	423	107	190	50				
Chloride				28078	15064	4394	5709	1507				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8830	5160	1404	1631	431				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				2119.16	1165.22	312.02	326.22	86.14				
Hardness CaCO3				11655	7158	1924	2479	655				
Total Metals												
Aluminum Al				62.88	28.82	10.78	11.98	3.16				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.09	0.03	0.03	0.01				
Barium Ba				0.59	0.32	0.14	0.15	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				11.35	5.85	1.87	2.21	0.58				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				2371	1224	453	530	140				
Chromium Cr				0.24	0.18	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.50	0.25	0.06	0.08	0.02				
Iron Fe				70.30	31.80	12.25	14.43	3.81				
Lead Pb				0.03	0.01	0.01	0.00	0.00				
Lithium Li				1.72	0.81	0.25	0.32	0.08				
Magnesium Mg				2198	1126	391	433	114				
Manganese Mn				1.61	0.74	0.31	0.42	0.11				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.11	0.05	0.01	0.02	0.00				
Nickel Ni				0.24	0.12	0.03	0.04	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1152	568	163	232	61				
Selenium Se				0.37	0.18	0.05	0.06	0.02				
Silicon SiO2				457	215	67	84	22				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				16133	8120	2500	3143	830				
Strontium Sr				11	6	2	3	1				
Tellurium Te				17.66	8.32	2.60	3.26	0.86				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				5.36	2.52	0.79	0.99	0.26				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.65	0.30	0.08	0.09	0.02				
Zinc Zn				0.6	0.3	0.2	0.6	0.2				
Zirconium Zr				1.78	0.84	0.26	0.33	0.09				

Appendix I

Table I-5-b-B.1
10 % increase in Background Copper in Doris Creek

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)
Discharge rate		750000 m3/year				
Degradation Field(age)		Tail Lk Cu < CME Year		13		
		MMER	CCME	Tail Lake	Doris Creek	L'Roberts L
Maximum Concentration				Year 2	Year 3	Year 3
pH			6 to 9	7 to 8	7 to 8	7 to 8
TDS	mg/L			1253	186	184
TSS	mg/L			5.0	6.9	8.1
Free CN	mg/L		0.005	0.0033	0.00014	0.00007
Total CN	mg/L	1.0		0.032	0.003	0.003
WAD CN	mg/L			0.0044	0.0002	0.0001
CNO	mg/L			3.6	0.15	0.08
SCN	mg/L			0.108	0.004	0.002
Sulphate	mg/L			100	6.9	6.5
Chloride	mg/L			839	93	81
Total Ammonia	mg/L		0.97	1.22	0.063	0.033
Nitrate	mg/L		2.9	6.3	0.29	0.15
Nitrite	mg/L		0.018	0.49	0.023	0.013
Alkalinity	mg/L			60	29	26
OrthoPhosphate-P	mg/L			0.1903	0.0087	0.0051
Phosphate-P	mg/L			0.1936	0.0298	0.0282
Org. Carbon	mg/L			6.3	7.4	7.1
Hardness CaCO3	mg/L			118	48	46
Total Metals						
Aluminum Al	mg/L		0.1	0.18	0.08	0.25
Antimony Sb	mg/L			0.0173	0.0033	0.0020
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006
Barium Ba	mg/L			0.0115	0.0034	0.0053
Beryllium Be	mg/L			0.00065	0.00004	0.00002
Bismuth Bi	mg/L			0.01668	0.00074	0.00046
Boron B	mg/L			0.035	0.034	0.030
Cadmium Cd	mg/L		0.000038	0.000061	0.0000057	0.0000160
Calcium Ca	mg/L			270	19	13
Chromium Cr	mg/L		0.001	0.0072	0.001	0.001
Cobalt Co	mg/L			0.0113	0.0012	0.0006
Copper Cu	mg/L	0.3	0.002	0.010	0.0020	0.0020
Iron Fe	mg/L		0.3	0.20	0.13	0.28
Lead Pb	mg/L	0.2	0.002	0.00043	0.00008	0.00026
Lithium Li	mg/L			0.0051	0.0029	0.0029
Magnesium Mg	mg/L			9.9	7.4	7.3
Manganese Mn	mg/L			0.031	0.021	0.024
Mercury Hg	mg/L		0.0001	0.0000138	0.0000012	0.0000009
Molybdenum Mo	mg/L		0.073	0.0098	0.00056	0.00040
Nickel Ni	mg/L	0.5	0.025	0.009	0.0009	0.0008
Phosphorus P	mg/L			0.276	0.033	0.030
Potassium K	mg/L			45	4.6	3.6
Selenium Se	mg/L		0.001	0.00106	0.00090	0.00084
Silicon SiO2	mg/L			4.3	0.66	0.59
Silver Ag	mg/L		0.0001	0.00012	0.0000071	0.0000063
Sodium Na	mg/L			274	49	43
Strontium Sr	mg/L			0.096	0.044	0.047
Tellurium Te	mg/L			0.051	0.050	0.051
Thallium Tl	mg/L		0.0008	0.000045	0.000031	0.002001
Thorium Th	mg/L			0.000058	0.0000037	0.0000019
Tin Sn	mg/L			0.00263	0.00050	0.00006
Titanium Ti	mg/L			0.0152	0.0064	0.0063
Uranium U	mg/L			0.000085	0.000041	0.000045
Vanadium V	mg/L			0.0037	0.0007	0.0005
Zinc Zn	mg/L	0.5	0.03	0.025	0.0040	0.0056
Zirconium Zr	mg/L			0.0053	0.0050	0.0051

Table I-5-b-B.2
10 % increase in Background Copper in Doris Creek

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				141	124	128	149	151				
TSS	mg/L				3.9	5.7	5.8	6.8	6.8				
Free CN	mg/L				0.00006	0.00001	0.00002	0.00002	0.00002				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.07	0.01	0.02	0.02	0.02				
SCN	mg/L				0.001	0.001	0.001	0.002	0.002				
Sulphate	mg/L				3.5	3.6	4.0	4.4	4.6				
Chloride	mg/L				61	62	61	66	67				
Total Ammonia	mg/L				0.016	0.037	0.023	0.026	0.026				
Nitrate	mg/L				0.07	0.09	0.11	0.14	0.16				
Nitrite	mg/L				0.009	0.011	0.011	0.005	0.012				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0019	0.0021	0.0024	0.0027	0.0031				
Phosphate-P	mg/L				0.0171	0.0187	0.0248	0.0209	0.0212				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				45	43	43	44	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0009	0.0029	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00010	0.00017	0.00022	0.00025	0.00029				
Boron B	mg/L				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000036	0.0000039	0.0000035	0.0000037	0.0000039				
Calcium Ca	mg/L				10	10	11	11	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0010	0.0002	0.0003				
Copper Cu	mg/L				0.0014	0.0017	0.0015	0.0017	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.1	6.5	6.5	6.4	6.4				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000008				
Molybdenum Mo	mg/L				0.00023	0.00024	0.00029	0.00029	0.00032				
Nickel Ni	mg/L				0.0005	0.0006	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.018	0.020	0.026	0.023	0.023				
Potassium K	mg/L				3.1	2.8	2.8	2.9	3.0				
Selenium Se	mg/L				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.53	0.54	0.55	0.56	0.57				
Silver Ag	mg/L				0.0000042	0.0000050	0.0000050	0.0000052	0.0000054				
Sodium Na	mg/L				38	32	34	32	32				
Strontium Sr	mg/L				0.040	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00041	0.00042	0.00042	0.00043				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0030	0.0020	0.0021				
Zirconium Zr	mg/L				0.0049	0.0049	0.0049	0.0050	0.0050				

Table I-5-b-B.2
10 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				154	135	139	159	160				
TSS	mg/L				3.9	5.7	5.9	6.8	6.8				
Free CN	mg/L				0.00014		0.00002	0.00002	0.00002				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0002		0.0000	0.0000	0.0000				
CNO	mg/L				0.15		0.02	0.02	0.02				
SCN	mg/L				0.004	0.003	0.003	0.004	0.004				
Sulphate	mg/L				6.0	5.7	5.8	6.2	6.4				
Chloride	mg/L				70	70	68	73	73				
Total Ammonia	mg/L				0.033	0.063	0.017	0.025	0.025				
Nitrate	mg/L				0.21	0.23	0.24	0.26	0.28				
Nitrite	mg/L				0.023	0.010	0.011	0.004	0.012				
Alkalinity	mg/L				28	26	28	28	28				
OrthoPhosphate-P	mg/L				0.0054	0.0050	0.0050	0.0054	0.0056				
Phosphate-P	mg/L				0.0206	0.0216	0.0274	0.0235	0.0237				
Org. Carbon	mg/L				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3	mg/L				48	45	45	46	46				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0007	0.0012	0.0032	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0031	0.0034	0.0032	0.0034	0.0034				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00041	0.00043	0.00045	0.00048	0.00051				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000051	0.0000051	0.0000047	0.0000048	0.0000050				
Calcium Ca	mg/L				17	16	16	16	16				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0005	0.0012	0.0005	0.0005				
Copper Cu	mg/L				0.0016	0.0019	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00047	0.00045	0.00047	0.00048	0.00050				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.024	0.025	0.031	0.027	0.028				
Potassium K	mg/L				4.2	3.7	3.7	3.7	3.8				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2	mg/L				0.63	0.62	0.62	0.63	0.64				
Silver Ag	mg/L				0.0000057	0.0000062	0.0000061	0.0000062	0.0000064				
Sodium Na	mg/L				39	33	35	33	33				
Strontium Sr	mg/L				0.042	0.043	0.037	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000003	0.000003				
Tin Sn	mg/L				0.00045	0.00045	0.00045	0.00046	0.00046				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0006	0.0002	0.0003	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0038	0.0035	0.0025	0.0025				
Zirconium Zr	mg/L				0.0049	0.0050	0.0050	0.0050	0.0050				

Table I-5-b-B.2
10 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				161	141	144	164	164				
TSS	mg/L				3.9	5.7	5.9	6.8	6.8				
Free CN	mg/L				0.00008								
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001								
CNO	mg/L				0.09								
SCN	mg/L				0.004	0.004	0.004	0.004	0.004				
Sulphate	mg/L				6.9	6.4	6.3	6.5	6.5				
Chloride	mg/L				76	75	73	77	78				
Total Ammonia	mg/L				0.026	0.041	0.017	0.017	0.017				
Nitrate	mg/L				0.28	0.28	0.27	0.28	0.29				
Nitrite	mg/L				0.020	0.008	0.010	0.003	0.004				
Alkalinity	mg/L				29	27	28	28	28				
OrthoPhosphate-P	mg/L				0.0075	0.0070	0.0069	0.0072	0.0075				
Phosphate-P	mg/L				0.0227	0.0235	0.0293	0.0253	0.0256				
Org. Carbon	mg/L				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3	mg/L				48	45	45	46	46				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0009	0.0014	0.0033	0.0011	0.0011				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0032	0.0034	0.0033	0.0034	0.0034				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00060	0.00060	0.00060	0.00064	0.00067				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000057	0.0000055	0.0000049	0.0000049	0.0000049				
Calcium Ca	mg/L				19	17	16	16	16				
Chromium Cr	mg/L				0.001	0.001	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0005	0.0005	0.0012	0.0005	0.0005				
Copper Cu	mg/L				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00006	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.008	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo	mg/L				0.00056	0.00050	0.00051	0.00049	0.00048				
Nickel Ni	mg/L				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.027	0.028	0.033	0.029	0.030				
Potassium K	mg/L				4.6	4.0	3.8	3.8	3.8				
Selenium Se	mg/L				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2	mg/L				0.66	0.65	0.64	0.64	0.64				
Silver Ag	mg/L				0.0000065	0.0000068	0.0000065	0.0000067	0.0000067				
Sodium Na	mg/L				40	34	35	33	33				
Strontium Sr	mg/L				0.043	0.044	0.038	0.042	0.042				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00048	0.00048	0.00048	0.00048	0.00049				
Titanium Ti	mg/L				0.0059	0.0059	0.0059	0.0059	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0019	0.0040	0.0036	0.0025	0.0025				
Zirconium Zr	mg/L				0.0049	0.0050	0.0050	0.0050	0.0050				

Table I-5-b-B.2
10 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				162	147	155	180	186				
TSS	mg/L				3.9	5.8	5.9	6.8	6.8				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.003	0.003	0.003	0.003				
Sulphate	mg/L				6.2	5.7	5.6	5.8	5.8				
Chloride	mg/L				79	80	81	88	92				
Total Ammonia	mg/L				0.010	0.012	0.017	0.016	0.016				
Nitrate	mg/L				0.25	0.24	0.23	0.23	0.23				
Nitrite	mg/L				0.007	0.002	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0087	0.0078	0.0073	0.0073	0.0073				
Phosphate-P	mg/L				0.0240	0.0244	0.0298	0.0255	0.0255				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				48	45	44	46	46				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0011	0.0014	0.0033	0.0010	0.0010				
Arsenic As	mg/L				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba	mg/L				0.0031	0.0034	0.0032	0.0033	0.0033				
Beryllium Be	mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00074	0.00065	0.00061	0.00061	0.00060				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000053	0.0000052	0.0000046	0.0000047	0.0000047				
Calcium Ca	mg/L				17	16	15	15	16				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0004	0.0005	0.0012	0.0004	0.0004				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.7	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.014	0.011	0.011				
Mercury Hg	mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo	mg/L				0.00047	0.00043	0.00043	0.00041	0.00041				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P	mg/L				0.028	0.028	0.033	0.029	0.029				
Potassium K	mg/L				4.1	3.6	3.5	3.5	3.4				
Selenium Se	mg/L				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.63	0.62	0.62	0.62	0.62				
Silver Ag	mg/L				0.0000069	0.0000071	0.0000067	0.0000068	0.0000068				
Sodium Na	mg/L				39	35	38	38	40				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.049	0.049				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000003	0.000003				
Tin Sn	mg/L				0.00050	0.00048	0.00048	0.00048	0.00048				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0017	0.0038	0.0035	0.0024	0.0024				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-b-B.2
10 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				186	162	163	182	182				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.003	0.002	0.002	0.002	0.002				
Sulphate	mg/L				5.5	5.1	5.0	5.2	5.2				
Chloride	mg/L				93	89	85	89	89				
Total Ammonia	mg/L				0.008	0.012	0.017	0.016	0.016				
Nitrate	mg/L				0.20	0.19	0.18	0.19	0.19				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0071	0.0063	0.0059	0.0059	0.0058				
Phosphate-P	mg/L				0.0224	0.0230	0.0285	0.0242	0.0242				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0009	0.0013	0.0032	0.0009	0.0009				
Arsenic As	mg/L				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0031	0.0033	0.0032	0.0032	0.0032				
Beryllium Be	mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi	mg/L				0.00059	0.00052	0.00048	0.00048	0.00048				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000051	0.0000050	0.0000044	0.0000045	0.0000045				
Calcium Ca	mg/L				17	15	14	14	14				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0019	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.09	0.09	0.09				
Lead Pb	mg/L				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.4	6.6	6.7	6.6	6.6				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00040	0.00037	0.00038	0.00036	0.00036				
Nickel Ni	mg/L				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P	mg/L				0.026	0.026	0.031	0.027	0.027				
Potassium K	mg/L				3.9	3.4	3.3	3.2	3.2				
Selenium Se	mg/L				0.00089	0.00058	0.00062	0.00057	0.00057				
Silicon SiO2	mg/L				0.62	0.61	0.60	0.60	0.60				
Silver Ag	mg/L				0.0000068	0.0000070	0.0000067	0.0000067	0.0000067				
Sodium Na	mg/L				49	42	42	40	40				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.049	0.049	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000003	0.000003	0.000003	0.000004	0.000004				
Tin Sn	mg/L				0.00048	0.00047	0.00046	0.00046	0.00046				
Titanium Ti	mg/L				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V	mg/L				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn	mg/L				0.0016	0.0037	0.0033	0.0022	0.0022				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-b-B.2
10 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				176	153	154	173	173				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				4.9	4.5	4.5	4.7	4.6				
Chloride	mg/L				86	83	79	83	83				
Total Ammonia	mg/L				0.005	0.009	0.014	0.013	0.013				
Nitrate	mg/L				0.13	0.12	0.12	0.12	0.12				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0057	0.0050	0.0047	0.0047	0.0047				
Phosphate-P	mg/L				0.0211	0.0219	0.0274	0.0231	0.0231				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0008	0.0012	0.0031	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00046	0.00041	0.00038	0.00038	0.00037				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000042	0.0000041	0.0000035	0.0000036	0.0000036				
Calcium Ca	mg/L				15	13	13	13	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo	mg/L				0.00035	0.00032	0.00034	0.00032	0.00031				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.023	0.024	0.029	0.025	0.025				
Potassium K	mg/L				3.6	3.2	3.1	3.0	3.0				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.59	0.59	0.58	0.58	0.58				
Silver Ag	mg/L				0.0000057	0.0000059	0.0000056	0.0000057	0.0000056				
Sodium Na	mg/L				47	40	41	39	39				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00046	0.00045	0.00044	0.00044	0.00044				
Titanium Ti	mg/L				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0007	0.0002	0.0003	0.0003	0.0003				
Zinc Zn	mg/L				0.0014	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-b-B.2
10 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				167	145	147	166	166				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.4	4.1	4.1	4.2	4.2				
Chloride	mg/L				80	78	74	78	78				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.09	0.08	0.08	0.08	0.08				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0046	0.0040	0.0037	0.0038	0.0037				
Phosphate-P	mg/L				0.0201	0.0209	0.0265	0.0222	0.0222				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	44	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0007	0.0011	0.0030	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00036	0.00032	0.00029	0.00029	0.00029				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000040	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca	mg/L				13	12	12	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0015	0.0018	0.0015	0.0017	0.0017				
Iron Fe	mg/L				0.05	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000010	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00031	0.00028	0.00030	0.00028	0.00028				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.022	0.022	0.028	0.023	0.023				
Potassium K	mg/L				3.5	3.0	2.9	2.9	2.9				
Selenium Se	mg/L				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.58	0.58	0.57	0.57	0.57				
Silver Ag	mg/L				0.0000057	0.0000058	0.0000054	0.0000054	0.0000054				
Sodium Na	mg/L				45	39	39	37	37				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00044	0.00043	0.00043	0.00043	0.00043				
Titanium Ti	mg/L				0.0062	0.0062	0.0062	0.0062	0.0063				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0002	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-b-B.2
10 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				160	139	141	160	160				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.0	3.7	3.8	3.9	3.9				
Chloride	mg/L				76	74	71	75	74				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.05	0.04	0.04	0.04	0.04				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0036	0.0032	0.0030	0.0030	0.0030				
Phosphate-P	mg/L				0.0192	0.0202	0.0258	0.0215	0.0215				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0006	0.0010	0.0029	0.0007	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00028	0.00025	0.00023	0.00023	0.00022				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000037	0.0000036	0.0000030	0.0000030	0.0000030				
Calcium Ca	mg/L				12	11	11	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0014	0.0018	0.0015	0.0017	0.0017				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00027	0.00025	0.00027	0.00025	0.00025				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.020	0.021	0.027	0.022	0.022				
Potassium K	mg/L				3.3	2.9	2.8	2.7	2.7				
Selenium Se	mg/L				0.00090	0.00059	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.57	0.57	0.56	0.56	0.56				
Silver Ag	mg/L				0.0000054	0.0000056	0.0000051	0.0000052	0.0000051				
Sodium Na	mg/L				44	37	38	36	36				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00043	0.00042	0.00042	0.00042	0.00042				
Titanium Ti	mg/L				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0034	0.0030	0.0019	0.0020				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-b-B.2
10 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				155	134	137	156	156				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				3.7	3.5	3.5	3.7	3.6				
Chloride	mg/L				72	70	68	72	72				
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012				
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0029	0.0026	0.0024	0.0024	0.0024				
Phosphate-P	mg/L				0.0186	0.0196	0.0253	0.0210	0.0210				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08				
Antimony Sb	mg/L				0.0005	0.0010	0.0029	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00002	0.00002	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00022	0.00019	0.00017	0.00017	0.00017				
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd	mg/L				0.0000035	0.0000034	0.0000028	0.0000028	0.0000028				
Calcium Ca	mg/L				11	10	10	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0002	0.0009	0.0002	0.0002				
Copper Cu	mg/L				0.0014	0.0017	0.0014	0.0017	0.0017				
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo	mg/L				0.00024	0.00023	0.00025	0.00023	0.00023				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.020	0.026	0.021	0.021				
Potassium K	mg/L				3.2	2.8	2.7	2.7	2.6				
Selenium Se	mg/L				0.00090	0.00059	0.00063	0.00057	0.00057				
Silicon SiO2	mg/L				0.56	0.56	0.55	0.56	0.56				
Silver Ag	mg/L				0.0000052	0.0000054	0.0000049	0.0000050	0.0000049				
Sodium Na	mg/L				43	36	37	35	35				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00042	0.00042	0.00041	0.00041	0.00041				
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U	mg/L				0.000027	0.000032	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-b-B.2
10 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				151	131	133	153	152			
TSS	mg/L				4.0	5.8	5.9	6.9	6.9			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.001	0.001	0.000	0.001	0.000			
Sulphate	mg/L				3.5	3.3	3.3	3.5	3.5			
Chloride	mg/L				69	68	65	69	69			
Total Ammonia	mg/L				0.005	0.008	0.013	0.012	0.012			
Nitrate	mg/L				0.01	0.01	0.01	0.01	0.01			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				28	26	27	27	27			
OrthoPhosphate-P	mg/L				0.0023	0.0021	0.0020	0.0020	0.0019			
Phosphate-P	mg/L				0.0180	0.0191	0.0249	0.0206	0.0206			
Org. Carbon	mg/L				5.5	5.2	7.4	5.0	5.0			
Hardness CaCO3	mg/L				46	43	43	44	44			
Total Metals												
Aluminum Al	mg/L				0.04	0.06	0.08	0.08	0.08			
Antimony Sb	mg/L				0.0005	0.0009	0.0028	0.0006	0.0006			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0029	0.0031	0.0030	0.0031	0.0031			
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00017	0.00014	0.00013	0.00013	0.00013			
Boron B	mg/L				0.034	0.023	0.024	0.023	0.023			
Cadmium Cd	mg/L				0.0000033	0.0000032	0.0000027	0.0000027	0.0000027			
Calcium Ca	mg/L				10	10	9	9	9			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0001	0.0001			
Copper Cu	mg/L				0.0014	0.0017	0.0014	0.0017	0.0017			
Iron Fe	mg/L				0.06	0.13	0.09	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5			
Manganese Mn	mg/L				0.007	0.020	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011			
Molybdenum Mo	mg/L				0.00022	0.00021	0.00023	0.00021	0.00021			
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005			
Phosphorus P	mg/L				0.018	0.019	0.025	0.021	0.021			
Potassium K	mg/L				3.1	2.7	2.6	2.6	2.6			
Selenium Se	mg/L				0.00090	0.00059	0.00063	0.00057	0.00058			
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55			
Silver Ag	mg/L				0.0000050	0.0000052	0.0000048	0.0000049	0.0000048			
Sodium Na	mg/L				42	36	37	35	35			
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002			
Tin Sn	mg/L				0.00041	0.00041	0.00041	0.00041	0.00041			
Titanium Ti	mg/L				0.0063	0.0063	0.0063	0.0063	0.0064			
Uranium U	mg/L				0.000027	0.000032	0.000039	0.000033	0.000033			
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002			
Zinc Zn	mg/L				0.0011	0.0033	0.0029	0.0018	0.0019			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

Table I-5-b-B.3
10 % increase in Background Copper in Doris Creek

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1057270	576839	252169	374855	132034				
TSS				29306	26593	11448	17075	5963				
Free CN				0.45	0.05	0.04	0.05	0.02				
Total CN				19	9	4	5	2				
WAD CN				0.60	0.07	0.05	0.07	0.02				
CNO				498	55	40	54	19				
SCN				7	5	2	4	2				
Sulphate				26548	16963	7799	11027	4072				
Chloride				459877	289642	119959	165801	58700				
Total Ammonia				122	171	44	66	23				
Nitrate				489	433	225	357	141				
Nitrite				67	52	22	13	10				
Alkalinity				204477	117968	52989	67001	23493				
OrthoPhosphate-P				14	10	5	7	3				
Phosphate-P				129	87	49	52	19				
Org. Carbon				40476	23516	14388	12413	4334				
Hardness CaCO3				338508	198739	83716	111537	39158				
Total Metals												
Aluminum Al				248	273	155	178	62				
Antimony Sb				3.2	4.4	5.7	1.7	0.6				
Arsenic As				3.7	2.0	0.8	1.0	0.4				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.11	0.07	0.03	0.05	0.02				
Bismuth Bi				0.75	0.80	0.42	0.64	0.26				
Boron B				252	104	45	56	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				78703	47633	20635	27613	10221				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.06	1.14	1.94	0.60	0.24				
Copper Cu				10	8	3	4	2				
Iron Fe				376	565	162	222	78				
Lead Pb				0.18	0.31	0.09	0.11	0.04				
Lithium Li				21	13	6	7	2				
Magnesium Mg				53612	30081	12828	16141	5652				
Manganese Mn				50	94	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.75	1.13	0.57	0.74	0.28				
Nickel Ni				3.53	3.01	1.10	1.41	0.51				
Phosphorus P				137	94	52	57	21				
Potassium K				23294	12955	5588	7309	2647				
Selenium Se				6.56	2.62	1.19	1.38	0.48				
Silicon SiO2				4019	2537	1085	1417	503				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				287737	151271	66368	79829	27959				
Strontium Sr				301	194	70	101	35				
Tellurium Te				367	229	96	123	43				
Thallium Tl				0.22	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				2.99	1.91	0.82	1.06	0.38				
Titanium Ti				44	27	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.23	0.43	0.56	0.51	0.19				
Zinc Zn				8.16	15.36	5.96	5.06	1.83				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1157342	629152	272163	400094	140548				
TSS				29553	26716	11495	17134	5983				
Free CN				1.05		0.03	0.04	0.02				
Total CN				25	9	4	5	2				
WAD CN				1.40		0.05	0.06	0.02				
CNO				1154		38	49	17				
SCN				27	15	6	9	3				
Sulphate				44966	26599	11479	15672	5639				
Chloride				526393	324303	133172	182474	64321				
Total Ammonia				248	294	33	64	22				
Nitrate				1610	1067	465	660	243				
Nitrite				175	49	21	11	10				
Alkalinity				213242	122517	54722	69188	24230				
OrthoPhosphate-P				40	23	10	13	5				
Phosphate-P				155	101	54	59	21				
Org. Carbon				40530	23532	14392	12419	4336				
Hardness CaCO3				357304	208539	87454	116255	40749				
Total Metals												
Aluminum Al				256	278	157	180	63				
Antimony Sb				5.6	5.6	6.2	2.3	0.8				
Arsenic As				4.2	2.3	0.9	1.2	0.4				
Barium Ba				23	16	6	8	3				
Beryllium Be				0.20	0.12	0.05	0.07	0.02				
Bismuth Bi				3.07	1.99	0.88	1.21	0.45				
Boron B				256	106	46	57	20				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				128456	73738	30618	40217	14475				
Chromium Cr				6	2	1	1	0				
Cobalt Co				3.15	2.23	2.36	1.13	0.41				
Copper Cu				12	9	3	5	2				
Iron Fe				383	568	164	223	78				
Lead Pb				0.25	0.35	0.10	0.13	0.05				
Lithium Li				22	13	6	7	3				
Magnesium Mg				55077	30839	13116	16505	5775				
Manganese Mn				55	97	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.57	2.08	0.93	1.20	0.43				
Nickel Ni				5.16	3.86	1.43	1.82	0.65				
Phosphorus P				180	116	60	68	24				
Potassium K				31500	17261	7235	9388	3349				
Selenium Se				6.61	2.65	1.20	1.39	0.49				
Silicon SiO2				4731	2907	1226	1596	564				
Silver Ag				0.04	0.03	0.01	0.02	0.01				
Sodium Na				295714	155427	67954	81830	28633				
Strontium Sr				316	202	73	105	37				
Tellurium Te				368	229	96	123	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.35	2.09	0.89	1.15	0.41				
Titanium Ti				44	28	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.81	0.73	0.67	0.65	0.23				
Zinc Zn				12.72	17.74	6.88	6.20	2.21				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1209210	657067	282327	412012	144255				
TSS				29659	26766	11510	17147	5985				
Free CN				0.61								
Total CN				20	9	4	5	2				
WAD CN				0.81								
CNO				668								
SCN				34	18	7	9	3				
Sulphate				51896	29773	12359	16296	5679				
Chloride				567526	347720	142401	194362	68421				
Total Ammonia				194	191	33	42	15				
Nitrate				2118	1293	528	710	250				
Nitrite				151	39	19	8	3				
Alkalinity				216415	123933	55086	69389	24208				
OrthoPhosphate-P				56	33	13	18	7				
Phosphate-P				171	110	57	64	22				
Org. Carbon				40596	23571	14408	12440	4344				
Hardness CaCO3				363953	211472	88187	116618	40675				
Total Metals												
Aluminum Al				260	279	157	181	63				
Antimony Sb				7.1	6.5	6.5	2.7	1.0				
Arsenic As				4.5	2.4	0.9	1.2	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.25	0.14	0.06	0.08	0.03				
Bismuth Bi				4.50	2.79	1.19	1.61	0.59				
Boron B				258	107	46	57	20				
Cadmium Cd				0.04	0.03	0.01	0.01	0.00				
Calcium Ca				145447	81076	32372	40902	14171				
Chromium Cr				7	2	1	1	0				
Cobalt Co				3.89	2.56	2.44	1.18	0.41				
Copper Cu				13	9	3	5	2				
Iron Fe				386	569	164	224	78				
Lead Pb				0.29	0.37	0.11	0.14	0.05				
Lithium Li				22	13	6	7	3				
Magnesium Mg				55674	31122	13201	16576	5787				
Manganese Mn				57	98	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				4.18	2.35	0.99	1.23	0.42				
Nickel Ni				5.78	4.14	1.51	1.88	0.65				
Phosphorus P				204	129	65	74	26				
Potassium K				34295	18467	7522	9497	3297				
Selenium Se				6.64	2.66	1.21	1.40	0.49				
Silicon SiO2				4988	3020	1255	1611	562				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				298552	156682	68270	81992	28605				
Strontium Sr				322	204	74	105	37				
Tellurium Te				368	229	97	124	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.57	2.22	0.94	1.21	0.43				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.08	0.03				
Vanadium V				5.11	0.89	0.73	0.72	0.25				
Zinc Zn				14.40	18.50	7.08	6.34	2.21				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1219738	686687	303898	453272	163334				
TSS				29651	26810	11537	17186	6000				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				26	14	6	7	2				
Sulphate				46872	26724	11078	14585	5064				
Chloride				593573	374720	158295	222202	80664				
Total Ammonia				75	54	34	40	14				
Nitrate				1914	1116	449	584	204				
Nitrite				56	12	5	6	2				
Alkalinity				213848	122561	54560	68730	23987				
OrthoPhosphate-P				66	36	14	18	6				
Phosphate-P				180	114	58	64	22				
Org. Carbon				40760	23665	14446	12490	4361				
Hardness CaCO3				357832	208180	86920	115019	40136				
Total Metals												
Aluminum Al				260	283	159	184	64				
Antimony Sb				8.1	6.7	6.5	2.6	0.9				
Arsenic As				4.3	2.3	0.9	1.2	0.4				
Barium Ba				24	16	6	8	3				
Beryllium Be				0.27	0.15	0.06	0.08	0.03				
Bismuth Bi				5.53	3.03	1.19	1.54	0.53				
Boron B				258	107	46	57	20				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				126680	72486	29707	38419	13655				
Chromium Cr				7	2	1	1	0				
Cobalt Co				3.18	2.16	2.28	0.97	0.34				
Copper Cu				12	9	3	5	2				
Iron Fe				386	573	166	227	79				
Lead Pb				0.28	0.36	0.11	0.13	0.05				
Lithium Li				22	13	6	7	3				
Magnesium Mg				55443	31022	13164	16528	5770				
Manganese Mn				55	97	27	27	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.50	1.98	0.85	1.04	0.36				
Nickel Ni				5.35	3.89	1.40	1.73	0.60				
Phosphorus P				210	130	65	73	25				
Potassium K				31181	16817	6889	8694	3025				
Selenium Se				6.63	2.67	1.22	1.41	0.49				
Silicon SiO2				4764	2907	1212	1558	544				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				296013	165056	75482	96421	35429				
Strontium Sr				317	202	73	104	36				
Tellurium Te				370	230	97	124	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.01	0.01	0.00				
Tin Sn				3.74	2.26	0.94	1.21	0.42				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.19	0.92	0.73	0.71	0.25				
Zinc Zn				13.08	17.76	6.78	5.95	2.08				
Zirconium Zr				37	23	10	13	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1399695	756378	319354	458016	159479				
TSS				29804	26896	11570	17230	6016				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				20	11	4	6	2				
Sulphate				41485	23715	9883	13041	4529				
Chloride				698160	414358	166593	223649	77816				
Total Ammonia				61	55	34	40	14				
Nitrate				1529	882	357	465	163				
Nitrite				19	12	5	7	2				
Alkalinity				212330	121714	54222	68295	23837				
OrthoPhosphate-P				53	29	11	15	5				
Phosphate-P				168	107	56	61	21				
Org. Carbon				40933	23762	14484	12540	4379				
Hardness CaCO3				353951	206013	86057	113907	39751				
Total Metals												
Aluminum Al				270	289	161	187	65				
Antimony Sb				7.0	6.1	6.3	2.3	0.8				
Arsenic As				4.2	2.2	0.9	1.1	0.4				
Barium Ba				23	15	6	8	3				
Beryllium Be				0.24	0.13	0.05	0.07	0.02				
Bismuth Bi				4.42	2.42	0.94	1.22	0.42				
Boron B				259	107	46	58	20				
Cadmium Cd				0.04	0.02	0.01	0.01	0.00				
Calcium Ca				126244	70426	28169	35536	12333				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.60	1.84	2.15	0.80	0.28				
Copper Cu				12	9	3	5	2				
Iron Fe				396	579	168	230	80				
Lead Pb				0.27	0.35	0.10	0.13	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				55292	30938	13130	16485	5755				
Manganese Mn				54	96	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				3.02	1.71	0.75	0.91	0.31				
Nickel Ni				4.90	3.63	1.30	1.60	0.56				
Phosphorus P				193	121	61	68	24				
Potassium K				29123	15667	6432	8104	2821				
Selenium Se				6.68	2.70	1.23	1.42	0.50				
Silicon SiO2				4633	2833	1183	1520	531				
Silver Ag				0.05	0.03	0.01	0.02	0.01				
Sodium Na				368461	195291	83431	101640	35411				
Strontium Sr				315	200	73	103	36				
Tellurium Te				371	230	97	124	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.02	0.01	0.01	0.00				
Tin Sn				3.58	2.17	0.91	1.16	0.40				
Titanium Ti				45	28	12	15	5				
Uranium U				0.21	0.15	0.08	0.09	0.03				
Vanadium V				5.07	0.85	0.71	0.68	0.24				
Zinc Zn				11.94	17.12	6.53	5.62	1.96				
Zirconium Zr				37	23	10	13	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1321203	712815	302121	435755	151780				
TSS				29930	26967	11598	17266	6028				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				16	9	3	4	1				
Sulphate				36844	21127	8856	11715	4071				
Chloride				646172	385503	155177	208905	72717				
Total Ammonia				37	40	27	32	11				
Nitrate				993	574	233	306	108				
Nitrite				15	10	4	5	2				
Alkalinity				211071	121017	53945	67939	23714				
OrthoPhosphate-P				43	23	9	12	4				
Phosphate-P				159	102	54	58	20				
Org. Carbon				41076	23842	14515	12581	4393				
Hardness CaCO3				350734	204227	85349	112995	39436				
Total Metals												
Aluminum Al				273	290	162	187	66				
Antimony Sb				6.0	5.5	6.1	2.0	0.7				
Arsenic As				4.0	2.1	0.8	1.1	0.4				
Barium Ba				23	15	6	8	3				
Beryllium Be				0.20	0.10	0.04	0.05	0.02				
Bismuth Bi				3.48	1.89	0.74	0.95	0.33				
Boron B				258	107	46	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				112174	62595	25068	31530	10948				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.10	1.56	2.04	0.66	0.23				
Copper Cu				11	8	3	4	2				
Iron Fe				404	583	170	232	81				
Lead Pb				0.23	0.33	0.09	0.12	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				55137	30850	13094	16440	5740				
Manganese Mn				53	96	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.63	1.50	0.66	0.79	0.28				
Nickel Ni				4.49	3.41	1.21	1.48	0.52				
Phosphorus P				175	110	57	62	22				
Potassium K				27408	14715	6056	7618	2653				
Selenium Se				6.69	2.70	1.23	1.43	0.50				
Silicon SiO2				4466	2737	1144	1470	513				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				352934	186676	80020	97236	33888				
Strontium Sr				312	199	72	102	36				
Tellurium Te				372	231	97	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.43	2.09	0.87	1.12	0.39				
Titanium Ti				46	29	12	16	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.92	0.77	0.67	0.64	0.22				
Zinc Zn				10.87	16.52	6.29	5.31	1.86				
Zirconium Zr				37	23	10	13	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1256945	677398	288171	417740	145556				
TSS				30033	27025	11620	17295	6038				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				12	7	3	3	1				
Sulphate				33190	19099	8055	10679	3712				
Chloride				603612	362043	145937	196973	68595				
Total Ammonia				37	36	26	31	11				
Nitrate				710	383	148	191	66				
Nitrite				15	9	4	5	2				
Alkalinity				210040	120450	53720	67651	23615				
OrthoPhosphate-P				34	19	7	9	3				
Phosphate-P				151	98	52	56	19				
Org. Carbon				41193	23907	14541	12614	4404				
Hardness CaCO3				348100	202775	84775	112257	39182				
Total Metals												
Aluminum Al				280	294	163	189	66				
Antimony Sb				5.2	5.1	5.9	1.8	0.6				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.18	0.09	0.04	0.05	0.02				
Bismuth Bi				2.73	1.48	0.57	0.74	0.25				
Boron B				258	107	46	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				100904	56360	22608	28349	9847				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.71	1.34	1.95	0.55	0.19				
Copper Cu				11	8	3	4	2				
Iron Fe				411	587	172	234	82				
Lead Pb				0.22	0.32	0.09	0.11	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				55034	30792	13070	16409	5729				
Manganese Mn				52	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.30	1.32	0.59	0.70	0.24				
Nickel Ni				4.18	3.23	1.14	1.40	0.49				
Phosphorus P				163	104	54	59	20				
Potassium K				26011	13945	5752	7225	2517				
Selenium Se				6.72	2.72	1.23	1.43	0.50				
Silicon SiO2				4376	2684	1122	1441	503				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				340229	179676	77260	93674	32658				
Strontium Sr				310	198	72	102	36				
Tellurium Te				373	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.32	2.03	0.85	1.09	0.38				
Titanium Ti				47	29	12	16	5				
Uranium U				0.21	0.15	0.08	0.08	0.03				
Vanadium V				4.84	0.72	0.65	0.61	0.21				
Zinc Zn				10.10	16.08	6.11	5.08	1.78				
Zirconium Zr				38	23	10	13	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1205045	649009	277041	403373	140598				
TSS				30117	27071	11638	17318	6046				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				9	5	2	2	1				
Sulphate				30194	17460	7413	9849	3426				
Chloride				569237	343238	138564	187458	65311				
Total Ammonia				36	36	26	31	11				
Nitrate				344	186	72	93	32				
Nitrite				14	9	4	5	2				
Alkalinity				209206	119996	53540	67421	23535				
OrthoPhosphate-P				27	15	6	8	3				
Phosphate-P				145	94	51	54	19				
Org. Carbon				41287	23960	14560	12641	4413				
Hardness CaCO3				345972	201612	84317	111668	38979				
Total Metals												
Aluminum Al				285	296	164	190	66				
Antimony Sb				4.6	4.8	5.8	1.6	0.6				
Arsenic As				3.8	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.16	0.08	0.03	0.04	0.01				
Bismuth Bi				2.12	1.14	0.44	0.57	0.20				
Boron B				258	107	46	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				91727	51337	20640	25809	8970				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.39	1.17	1.89	0.46	0.16				
Copper Cu				11	8	3	4	2				
Iron Fe				417	590	173	235	82				
Lead Pb				0.20	0.31	0.09	0.11	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54944	30744	13050	16384	5720				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				2.04	1.17	0.53	0.63	0.22				
Nickel Ni				3.92	3.09	1.08	1.32	0.46				
Phosphorus P				153	98	52	56	20				
Potassium K				24881	13327	5510	6913	2409				
Selenium Se				6.74	2.73	1.24	1.44	0.50				
Silicon SiO2				4290	2637	1103	1417	495				
Silver Ag				0.04	0.03	0.01	0.01	0.00				
Sodium Na				329964	174064	75057	90832	31677				
Strontium Sr				309	197	71	101	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.23	1.98	0.83	1.06	0.37				
Titanium Ti				47	29	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.77	0.68	0.63	0.59	0.21				
Zinc Zn				9.44	15.72	5.97	4.90	1.72				
Zirconium Zr				38	23	10	13	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1163742	626605	268303	392097	136712				
TSS				30183	27108	11651	17336	6052				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				7	4	1	2	1				
Sulphate				27811	16166	6909	9199	3201				
Chloride				541880	328397	132775	179990	62737				
Total Ammonia				36	36	26	31	11				
Nitrate				57	34	14	18	6				
Nitrite				14	9	4	5	2				
Alkalinity				208542	119638	53398	67240	23473				
OrthoPhosphate-P				22	12	5	6	2				
Phosphate-P				140	91	50	53	18				
Org. Carbon				41362	24002	14576	12661	4420				
Hardness CaCO3				344278	200693	83956	111206	38820				
Total Metals												
Aluminum Al				288	298	165	191	67				
Antimony Sb				4.1	4.5	5.7	1.5	0.5				
Arsenic As				3.8	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.14	0.07	0.03	0.04	0.01				
Bismuth Bi				1.63	0.88	0.34	0.44	0.15				
Boron B				258	107	46	57	20				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				84424	47373	19096	23815	8283				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.13	1.03	1.83	0.39	0.13				
Copper Cu				11	8	3	4	1				
Iron Fe				421	592	174	237	83				
Lead Pb				0.19	0.31	0.08	0.10	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54872	30705	13034	16364	5714				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.83	1.06	0.49	0.57	0.20				
Nickel Ni				3.72	2.98	1.04	1.27	0.44				
Phosphorus P				145	94	50	54	19				
Potassium K				23982	12839	5319	6667	2325				
Selenium Se				6.76	2.74	1.24	1.44	0.50				
Silicon SiO2				4221	2600	1088	1398	488				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				321793	169637	73326	88602	30909				
Strontium Sr				307	196	71	101	35				
Tellurium Te				374	232	98	125	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.16	1.94	0.81	1.04	0.36				
Titanium Ti				47	29	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.70	0.65	0.62	0.57	0.20				
Zinc Zn				8.92	15.44	5.86	4.76	1.67				
Zirconium Zr				38	23	10	13	4				

Solute Loadings in DORIS Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1131400	609224	261560	383402	133720				
TSS				30234	27137	11661	17350	6057				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				5	3	1	1	0				
Sulphate				25945	15162	6520	8697	3029				
Chloride				520460	316883	128307	174231	60756				
Total Ammonia				36	36	26	31	11				
Nitrate				43	27	11	15	5				
Nitrite				14	9	4	5	2				
Alkalinity				208021	119361	53288	67100	23426				
OrthoPhosphate-P				18	10	4	5	2				
Phosphate-P				136	89	49	52	18				
Org. Carbon				41420	24034	14588	12677	4426				
Hardness CaCO3				342950	199981	83677	110849	38698				
Total Metals												
Aluminum Al				291	299	165	192	67				
Antimony Sb				3.7	4.3	5.6	1.4	0.5				
Arsenic As				3.7	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.07	0.03	0.03	0.01				
Bismuth Bi				1.25	0.67	0.26	0.33	0.12				
Boron B				258	107	46	57	20				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				78706	44298	17904	22278	7754				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.93	0.92	1.79	0.34	0.12				
Copper Cu				10	8	3	4	1				
Iron Fe				424	594	174	238	83				
Lead Pb				0.18	0.30	0.08	0.10	0.04				
Lithium Li				22	13	6	7	3				
Magnesium Mg				54815	30676	13022	16349	5709				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.01	0.01	0.00	0.00	0.00				
Molybdenum Mo				1.67	0.97	0.45	0.53	0.18				
Nickel Ni				3.56	2.90	1.01	1.23	0.43				
Phosphorus P				138	90	49	52	18				
Potassium K				23277	12461	5172	6478	2259				
Selenium Se				6.77	2.74	1.24	1.44	0.50				
Silicon SiO2				4167	2571	1077	1383	483				
Silver Ag				0.04	0.02	0.01	0.01	0.00				
Sodium Na				315395	166203	71990	86882	30318				
Strontium Sr				306	196	71	101	35				
Tellurium Te				375	233	98	126	44				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.10	1.91	0.80	1.03	0.36				
Titanium Ti				47	30	12	16	6				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.66	0.62	0.61	0.56	0.20				
Zinc Zn				8.51	15.22	5.77	4.64	1.63				
Zirconium Zr				38	23	10	13	4				

Appendix I

Table I-5-b-C.1
10 % increase in Background Copper in Doris Lake

OUTPUT SUMMARY							Fraction of CCME in Doris Creek (%)
Discharge rate 750000 m3/year Degradation Field(age) Tail Lk Cu < CME Year 13							
MMER		CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3		
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			1253	186	184	
TSS	mg/L			5.0	6.9	8.1	
Free CN	mg/L		0.005	0.0033	0.00014	0.00007	3%
Total CN	mg/L	1.0		0.032	0.003	0.003	
WAD CN	mg/L			0.0044	0.0002	0.0001	
CNO	mg/L			3.6	0.15	0.08	
SCN	mg/L			0.108	0.004	0.002	
Sulphate	mg/L			100	6.9	6.5	
Chloride	mg/L			839	93	81	
Total Ammonia	mg/L		0.97	1.22	0.063	0.033	7%
Nitrate	mg/L		2.9	6.3	0.29	0.15	10%
Nitrite	mg/L		0.018	0.49	0.023	0.013	127%
Alkalinity	mg/L			60	29	26	
OrthoPhosphate-P	mg/L			0.1903	0.0087	0.0051	
Phosphate-P	mg/L			0.1936	0.0298	0.0282	
Org. Carbon	mg/L			6.3	7.4	7.1	
Hardness CaCO3	mg/L			118	48	46	
Total Metals							
Aluminum Al	mg/L		0.1	0.18	0.08	0.25	85%
Antimony Sb	mg/L			0.0173	0.0033	0.0020	
Arsenic As	mg/L	0.5	0.005	0.00	0.0006	0.0006	12%
Barium Ba	mg/L			0.0115	0.0034	0.0053	
Beryllium Be	mg/L			0.00065	0.00004	0.00002	
Bismuth Bi	mg/L			0.01668	0.00074	0.00046	
Boron B	mg/L			0.035	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000061	0.0000057	0.0000160	15%
Calcium Ca	mg/L			270	19	13	
Chromium Cr	mg/L		0.001	0.0072	0.001	0.001	92%
Cobalt Co	mg/L			0.0113	0.0012	0.0006	
Copper Cu	mg/L	0.3	0.002	0.010	0.0020	0.0020	100%
Iron Fe	mg/L		0.3	0.20	0.13	0.28	43%
Lead Pb	mg/L	0.2	0.002	0.00043	0.00008	0.00026	4%
Lithium Li	mg/L			0.0051	0.0029	0.0029	
Magnesium Mg	mg/L			9.9	7.4	7.3	
Manganese Mn	mg/L			0.031	0.021	0.024	
Mercury Hg	mg/L		0.0001	0.0000138	0.0000012	0.0000009	1%
Molybdenum Mo	mg/L		0.073	0.0098	0.00056	0.00040	1%
Nickel Ni	mg/L	0.5	0.025	0.009	0.0009	0.0008	4%
Phosphorus P	mg/L			0.276	0.033	0.030	
Potassium K	mg/L			45	4.6	3.6	
Selenium Se	mg/L		0.001	0.00106	0.00090	0.00084	90%
Silicon SiO2	mg/L			4.3	0.66	0.59	
Silver Ag	mg/L		0.0001	0.00012	0.0000071	0.0000063	7%
Sodium Na	mg/L			274	49	43	
Strontium Sr	mg/L			0.096	0.044	0.047	
Tellurium Te	mg/L			0.051	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000045	0.000031	0.002001	4%
Thorium Th	mg/L			0.000058	0.0000037	0.0000019	
Tin Sn	mg/L			0.00263	0.00050	0.00006	
Titanium Ti	mg/L			0.0152	0.0064	0.0063	
Uranium U	mg/L			0.000085	0.000041	0.000045	
Vanadium V	mg/L			0.0037	0.0007	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.025	0.0040	0.0056	13%
Zirconium Zr	mg/L			0.0053	0.0050	0.0051	

Table I-5-b-C.2
10 % increase in Background Copper in Doris Creek

Water Quality in Little Roberst Lake Outflow

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				153	154	144	165	166				
TSS	mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN	mg/L				0.00003	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.03	0.01	0.01	0.01	0.01				
SCN	mg/L				0.000	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.2	4.2	5.3	5.2	5.3				
Chloride	mg/L				63	60	60	68	69				
Total Ammonia	mg/L				0.011	0.020	0.005	0.014	0.014				
Nitrate	mg/L				0.04	0.05	0.06	0.08	0.08				
Nitrite	mg/L				0.006	0.007	0.005	0.004	0.007				
Alkalinity	mg/L				23	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0016	0.0017	0.0018	0.0020	0.0022				
Phosphate-P	mg/L				0.0247	0.0168	0.0079	0.0201	0.0203				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				44	39	41	45	45				
Total Metals													
Aluminum Al	mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0005	0.0018	0.0013	0.0007	0.0008				
Arsenic As	mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba	mg/L				0.0051	0.0035	0.0045	0.0043	0.0043				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00014	0.00017	0.00020	0.00022	0.00023				
Boron B	mg/L				0.029	0.020	0.028	0.027	0.027				
Cadmium Cd	mg/L				0.0000031	0.0000047	0.0000153	0.0000029	0.0000030				
Calcium Ca	mg/L				9	8	8	9	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu	mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li	mg/L				0.0028	0.0028	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00022	0.00021	0.00029	0.00027	0.00028				
Nickel Ni	mg/L				0.0007	0.0005	0.0007	0.0006	0.0007				
Phosphorus P	mg/L				0.025	0.018	0.009	0.021	0.021				
Potassium K	mg/L				2.9	2.4	2.4	2.8	2.9				
Selenium Se	mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2	mg/L				0.53	0.53	0.54	0.54	0.55				
Silver Ag	mg/L				0.0000049	0.0000026	0.0000051	0.0000036	0.0000037				
Sodium Na	mg/L				38	31	34	37	37				
Strontium Sr	mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00001	0.00001	0.00002	0.00002	0.00002				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U	mg/L				0.000036	0.000033	0.000035	0.000044	0.000044				
Vanadium V	mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn	mg/L				0.0036	0.0018	0.0017	0.0053	0.0053				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-b-C.2
10 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS mg/L				160	160	150	170	171				
TSS mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN mg/L				0.00007		0.00001	0.00001	0.00001				
Total CN mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0001		0.0000	0.0000	0.0000				
CNO mg/L				0.08		0.01	0.01	0.01				
SCN mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate mg/L				5.5	5.3	6.3	6.2	6.3				
Chloride mg/L				67	64	63	72	72				
Total Ammonia mg/L				0.019	0.033	0.002	0.014	0.013				
Nitrate mg/L				0.11	0.12	0.12	0.14	0.14				
Nitrite mg/L				0.013	0.006	0.005	0.003	0.007				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0034	0.0032	0.0032	0.0034	0.0035				
Phosphate-P mg/L				0.0264	0.0183	0.0093	0.0214	0.0216				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				45	40	42	46	46				
Total Metals												
Aluminum Al mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb mg/L				0.0006	0.0019	0.0014	0.0009	0.0009				
Arsenic As mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba mg/L				0.0053	0.0036	0.0046	0.0044	0.0044				
Beryllium Be mg/L				0.00002	0.00001	0.00002	0.00002	0.00002				
Bismuth Bi mg/L				0.00029	0.00030	0.00031	0.00033	0.00035				
Boron B mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd mg/L				0.0000038	0.0000053	0.0000159	0.0000035	0.0000036				
Calcium Ca mg/L				12	11	11	12	12				
Chromium Cr mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co mg/L				0.0003	0.0005	0.0005	0.0003	0.0003				
Copper Cu mg/L				0.0013	0.0015	0.0018	0.0020	0.0020				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00006	0.00010	0.00026	0.00026				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.1	5.2	5.4	7.3	7.3				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000008				
Molybdenum Mo mg/L				0.00035	0.00032	0.00039	0.00036	0.00037				
Nickel Ni mg/L				0.0008	0.0006	0.0008	0.0007	0.0007				
Phosphorus P mg/L				0.028	0.020	0.011	0.023	0.024				
Potassium K mg/L				3.5	2.9	2.9	3.2	3.3				
Selenium Se mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.58	0.57	0.57	0.58	0.58				
Silver Ag mg/L				0.0000057	0.0000032	0.0000057	0.0000041	0.0000042				
Sodium Na mg/L				38	32	34	37	37				
Strontium Sr mg/L				0.046	0.038	0.041	0.047	0.047				
Tellurium Te mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00003	0.00003	0.00004	0.00004	0.00004				
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0002	0.0005	0.0003	0.0004				
Zinc Zn mg/L				0.0039	0.0021	0.0019	0.0055	0.0056				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-b-C.2
10 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS mg/L				164	163	152	173	173				
TSS mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN mg/L				0.00004								
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0001								
CNO mg/L				0.05								
SCN mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate mg/L				5.9	5.6	6.5	6.3	6.3				
Chloride mg/L				70	67	65	74	74				
Total Ammonia mg/L				0.016	0.022	0.002	0.009	0.009				
Nitrate mg/L				0.15	0.14	0.13	0.15	0.15				
Nitrite mg/L				0.011	0.005	0.004	0.003	0.003				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0045	0.0042	0.0041	0.0043	0.0044				
Phosphate-P mg/L				0.0275	0.0193	0.0102	0.0224	0.0225				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				45	40	42	46	46				
Total Metals												
Aluminum Al mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb mg/L				0.0007	0.0020	0.0015	0.0009	0.0009				
Arsenic As mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba mg/L				0.0053	0.0036	0.0046	0.0044	0.0044				
Beryllium Be mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi mg/L				0.00039	0.00039	0.00039	0.00041	0.00043				
Boron B mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd mg/L				0.0000041	0.0000055	0.0000160	0.0000035	0.0000035				
Calcium Ca mg/L				13	12	11	12	12				
Chromium Cr mg/L				0.001	0.000	0.001	0.001	0.001				
Cobalt Co mg/L				0.0004	0.0005	0.0006	0.0003	0.0003				
Copper Cu mg/L				0.0014	0.0015	0.0018	0.0020	0.0020				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000008	0.0000008	0.0000007	0.0000008	0.0000008				
Molybdenum Mo mg/L				0.00039	0.00035	0.00040	0.00037	0.00036				
Nickel Ni mg/L				0.0008	0.0007	0.0008	0.0007	0.0007				
Phosphorus P mg/L				0.030	0.021	0.012	0.024	0.025				
Potassium K mg/L				3.6	3.0	2.9	3.2	3.2				
Selenium Se mg/L				0.00065	0.00038	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.59	0.59	0.58	0.58	0.58				
Silver Ag mg/L				0.0000061	0.0000035	0.0000059	0.0000043	0.0000044				
Sodium Na mg/L				38	32	34	37	37				
Strontium Sr mg/L				0.046	0.039	0.041	0.047	0.047				
Tellurium Te mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00005	0.00005	0.00005	0.00005	0.00005				
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn mg/L				0.0040	0.0021	0.0020	0.0056	0.0056				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-b-C.2
10 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				164	166	158	181	184				
TSS	mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.001	0.001	0.001				
Sulphate	mg/L				5.6	5.3	6.1	5.9	5.9				
Chloride	mg/L				72	69	70	80	81				
Total Ammonia	mg/L				0.008	0.007	0.002	0.009	0.009				
Nitrate	mg/L				0.13	0.13	0.11	0.12	0.12				
Nitrite	mg/L				0.005	0.002	0.000	0.002	0.002				
Alkalinity	mg/L				24	24	25	26	26				
OrthoPhosphate-P	mg/L				0.0051	0.0046	0.0043	0.0044	0.0043				
Phosphate-P	mg/L				0.0282	0.0197	0.0105	0.0225	0.0225				
Org. Carbon	mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3	mg/L				45	40	42	46	46				
Total Metals													
Aluminum Al	mg/L				0.24	0.12	0.19	0.15	0.15				
Antimony Sb	mg/L				0.0008	0.0020	0.0015	0.0009	0.0009				
Arsenic As	mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba	mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00046	0.00042	0.00039	0.00040	0.00039				
Boron B	mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd	mg/L				0.0000039	0.0000054	0.0000159	0.0000034	0.0000034				
Calcium Ca	mg/L				12	11	11	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0005	0.0005	0.0003	0.0003				
Copper Cu	mg/L				0.0013	0.0015	0.0017	0.0020	0.0020				
Iron Fe	mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb	mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li	mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg	mg/L				7.2	5.2	5.4	7.3	7.3				
Manganese Mn	mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg	mg/L				0.0000007	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00034	0.00031	0.00037	0.00033	0.00033				
Nickel Ni	mg/L				0.0008	0.0006	0.0008	0.0007	0.0007				
Phosphorus P	mg/L				0.030	0.022	0.012	0.024	0.024				
Potassium K	mg/L				3.4	2.8	2.8	3.1	3.1				
Selenium Se	mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2	mg/L				0.58	0.57	0.57	0.57	0.57				
Silver Ag	mg/L				0.0000063	0.0000036	0.0000060	0.0000044	0.0000044				
Sodium Na	mg/L				38	33	36	40	41				
Strontium Sr	mg/L				0.046	0.038	0.041	0.047	0.047				
Tellurium Te	mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl	mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th	mg/L				0.000001	0.000001	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00006	0.00005	0.00005	0.00005	0.00005				
Titanium Ti	mg/L				0.0061	0.0061	0.0061	0.0061	0.0062				
Uranium U	mg/L				0.000037	0.000033	0.000036	0.000044	0.000044				
Vanadium V	mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn	mg/L				0.0039	0.0021	0.0019	0.0055	0.0055				
Zirconium Zr	mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-b-C.2
10 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS mg/L				177	174	162	182	182				
TSS mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate mg/L				5.2	5.0	5.8	5.6	5.6				
Chloride mg/L				79	74	72	80	80				
Total Ammonia mg/L				0.007	0.007	0.002	0.009	0.009				
Nitrate mg/L				0.11	0.10	0.09	0.10	0.10				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0042	0.0038	0.0036	0.0036	0.0036				
Phosphate-P mg/L				0.0274	0.0190	0.0098	0.0218	0.0218				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				45	40	42	46	46				
Total Metals												
Aluminum Al mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb mg/L				0.0007	0.0020	0.0014	0.0009	0.0009				
Arsenic As mg/L				0.0005	0.0004	0.0006	0.0005	0.0005				
Barium Ba mg/L				0.0053	0.0036	0.0046	0.0043	0.0043				
Beryllium Be mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi mg/L				0.00039	0.00035	0.00033	0.00033	0.00033				
Boron B mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd mg/L				0.0000038	0.0000053	0.0000158	0.0000033	0.0000033				
Calcium Ca mg/L				12	11	10	11	11				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu mg/L				0.0013	0.0014	0.0017	0.0020	0.0020				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00008	0.00006	0.00010	0.00026	0.00026				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.1	5.2	5.4	7.3	7.3				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo mg/L				0.00031	0.00028	0.00034	0.00030	0.00030				
Nickel Ni mg/L				0.0008	0.0006	0.0007	0.0007	0.0007				
Phosphorus P mg/L				0.029	0.020	0.011	0.023	0.023				
Potassium K mg/L				3.3	2.7	2.7	3.0	3.0				
Selenium Se mg/L				0.00065	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2 mg/L				0.57	0.57	0.56	0.56	0.56				
Silver Ag mg/L				0.0000063	0.0000036	0.0000060	0.0000044	0.0000044				
Sodium Na mg/L				43	36	38	41	41				
Strontium Sr mg/L				0.046	0.038	0.040	0.047	0.047				
Tellurium Te mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn mg/L				0.00005	0.00004	0.00004	0.00004	0.00004				
Titanium Ti mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U mg/L				0.000037	0.000034	0.000036	0.000045	0.000045				
Vanadium V mg/L				0.0005	0.0002	0.0005	0.0004	0.0004				
Zinc Zn mg/L				0.0038	0.0020	0.0018	0.0054	0.0054				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Appendix I

Table I-5-b-C.2
10 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS mg/L				171	169	157	178	177				
TSS mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate mg/L				4.9	4.7	5.6	5.4	5.3				
Chloride mg/L				75	71	69	77	77				
Total Ammonia mg/L				0.005	0.006	0.000	0.007	0.007				
Nitrate mg/L				0.07	0.07	0.06	0.07	0.07				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0035	0.0032	0.0030	0.0030	0.0030				
Phosphate-P mg/L				0.0267	0.0184	0.0092	0.0213	0.0213				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				45	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb mg/L				0.0006	0.0019	0.0013	0.0008	0.0008				
Arsenic As mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00032	0.00029	0.00028	0.00028	0.00028				
Boron B mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd mg/L				0.0000033	0.0000048	0.0000153	0.0000028	0.0000028				
Calcium Ca mg/L				11	10	9	10	10				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.1	5.2	5.3	7.3	7.3				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo mg/L				0.00028	0.00025	0.00032	0.00028	0.00028				
Nickel Ni mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P mg/L				0.028	0.019	0.010	0.022	0.022				
Potassium K mg/L				3.2	2.6	2.6	2.9	2.9				
Selenium Se mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2 mg/L				0.56	0.56	0.55	0.55	0.55				
Silver Ag mg/L				0.0000057	0.0000030	0.0000054	0.0000038	0.0000038				
Sodium Na mg/L				42	35	37	40	40				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00004	0.00003	0.00003	0.00003	0.00003				
Titanium Ti mg/L				0.0062	0.0062	0.0062	0.0062	0.0062				
Uranium U mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0002	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0038	0.0019	0.0018	0.0053	0.0054				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-b-C.2
10 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS mg/L				167	165	154	174	174				
TSS mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate mg/L				4.7	4.4	5.4	5.1	5.1				
Chloride mg/L				72	68	66	74	74				
Total Ammonia mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate mg/L				0.05	0.04	0.04	0.04	0.04				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0030	0.0027	0.0025	0.0026	0.0025				
Phosphate-P mg/L				0.0262	0.0179	0.0088	0.0208	0.0208				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb mg/L				0.0006	0.0019	0.0013	0.0008	0.0008				
Arsenic As mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00027	0.00025	0.00023	0.00024	0.00023				
Boron B mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd mg/L				0.0000033	0.0000047	0.0000152	0.0000027	0.0000027				
Calcium Ca mg/L				10	9	9	10	10				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.1	5.2	5.3	7.3	7.3				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000009				
Molybdenum Mo mg/L				0.00026	0.00023	0.00030	0.00026	0.00026				
Nickel Ni mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.027	0.019	0.009	0.021	0.021				
Potassium K mg/L				3.1	2.5	2.5	2.8	2.8				
Selenium Se mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2 mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag mg/L				0.0000057	0.0000030	0.0000053	0.0000037	0.0000037				
Sodium Na mg/L				41	34	37	39	39				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00003	0.00003	0.00002	0.00002	0.00002				
Titanium Ti mg/L				0.0062	0.0062	0.0062	0.0063	0.0063				
Uranium U mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-b-C.2
10 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS mg/L				163	162	151	171	171				
TSS mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.001	0.001	0.000	0.000	0.000				
Sulphate mg/L				4.4	4.3	5.2	5.0	5.0				
Chloride mg/L				70	66	64	73	72				
Total Ammonia mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate mg/L				0.03	0.02	0.02	0.02	0.02				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0025	0.0023	0.0022	0.0022	0.0022				
Phosphate-P mg/L				0.0258	0.0176	0.0085	0.0205	0.0205				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb mg/L				0.0006	0.0018	0.0013	0.0007	0.0007				
Arsenic As mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00023	0.00021	0.00020	0.00020	0.00020				
Boron B mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd mg/L				0.0000031	0.0000046	0.0000151	0.0000026	0.0000026				
Calcium Ca mg/L				10	8	8	9	9				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.1	5.2	5.3	7.3	7.3				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000008	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo mg/L				0.00024	0.00022	0.00028	0.00025	0.00025				
Nickel Ni mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.026	0.018	0.009	0.021	0.021				
Potassium K mg/L				3.0	2.4	2.4	2.7	2.7				
Selenium Se mg/L				0.00066	0.00038	0.00084	0.00061	0.00061				
Silicon SiO2 mg/L				0.55	0.54	0.54	0.54	0.54				
Silver Ag mg/L				0.0000056	0.0000029	0.0000052	0.0000036	0.0000035				
Sodium Na mg/L				41	34	36	39	39				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0037	0.0018	0.0017	0.0053	0.0053				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-b-C.2
10 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS mg/L				161	159	149	169	169				
TSS mg/L				7.1	8.1	4.1	5.1	5.1				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate mg/L				4.3	4.1	5.1	4.8	4.8				
Chloride mg/L				68	64	63	71	71				
Total Ammonia mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate mg/L				0.01	0.01	0.00	0.01	0.01				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0021	0.0020	0.0019	0.0019	0.0019				
Phosphate-P mg/L				0.0254	0.0173	0.0082	0.0202	0.0202				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.25	0.12	0.19	0.15	0.15				
Antimony Sb mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00020	0.00018	0.00017	0.00017	0.00017				
Boron B mg/L				0.030	0.021	0.029	0.027	0.027				
Cadmium Cd mg/L				0.0000030	0.0000045	0.0000150	0.0000025	0.0000025				
Calcium Ca mg/L				9	8	8	9	9				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0003	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg mg/L				7.1	5.2	5.3	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo mg/L				0.00023	0.00021	0.00027	0.00023	0.00023				
Nickel Ni mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.026	0.018	0.008	0.020	0.020				
Potassium K mg/L				2.9	2.4	2.4	2.7	2.7				
Selenium Se mg/L				0.00066	0.00039	0.00084	0.00061	0.00061				
Silicon SiO2 mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag mg/L				0.0000054	0.0000028	0.0000051	0.0000035	0.0000034				
Sodium Na mg/L				40	33	36	38	38				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.051	0.051	0.051	0.051	0.051				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti mg/L				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0036	0.0018	0.0017	0.0052	0.0052				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-b-C.2
10 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter											
TDS mg/L				158	157	147	167	167			
TSS mg/L				7.1	8.1	4.1	5.1	5.1			
Free CN mg/L											
Total CN mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN mg/L											
CNO mg/L											
SCN mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate mg/L				4.2	4.0	5.0	4.7	4.7			
Chloride mg/L				67	63	62	70	70			
Total Ammonia mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate mg/L				0.01	0.01	0.00	0.01	0.01			
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity mg/L				24	24	25	26	26			
OrthoPhosphate-P mg/L				0.0018	0.0017	0.0016	0.0016	0.0016			
Phosphate-P mg/L				0.0251	0.0170	0.0080	0.0200	0.0200			
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3 mg/L				44	39	41	45	45			
Total Metals											
Aluminum Al mg/L				0.25	0.12	0.19	0.15	0.15			
Antimony Sb mg/L				0.0005	0.0018	0.0012	0.0007	0.0007			
Arsenic As mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0042	0.0042			
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi mg/L				0.00017	0.00016	0.00015	0.00015	0.00015			
Boron B mg/L				0.030	0.021	0.029	0.027	0.027			
Cadmium Cd mg/L				0.0000029	0.0000044	0.0000149	0.0000024	0.0000024			
Calcium Ca mg/L				9	8	8	8	8			
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co mg/L				0.0002	0.0003	0.0004	0.0001	0.0001			
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019			
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li mg/L				0.0029	0.0029	0.0029	0.0029	0.0029			
Magnesium Mg mg/L				7.1	5.2	5.3	7.2	7.2			
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg mg/L				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009			
Molybdenum Mo mg/L				0.00022	0.00020	0.00026	0.00023	0.00022			
Nickel Ni mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P mg/L				0.025	0.017	0.008	0.020	0.020			
Potassium K mg/L				2.9	2.4	2.3	2.6	2.6			
Selenium Se mg/L				0.00066	0.00039	0.00084	0.00061	0.00061			
Silicon SiO2 mg/L				0.54	0.54	0.54	0.54	0.54			
Silver Ag mg/L				0.0000053	0.0000027	0.0000050	0.0000034	0.0000034			
Sodium Na mg/L				40	33	35	38	38			
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046			
Tellurium Te mg/L				0.051	0.051	0.051	0.051	0.051			
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001			
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001			
Tin Sn mg/L				0.00002	0.00001	0.00001	0.00001	0.00001			
Titanium Ti mg/L				0.0063	0.0063	0.0063	0.0063	0.0063			
Uranium U mg/L				0.000037	0.000033	0.000035	0.000044	0.000044			
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003			
Zinc Zn mg/L				0.0036	0.0018	0.0016	0.0052	0.0052			
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-5-b-C.3
10 % increase in Background Copper in Doris Creek

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				141	124	128	149	151				
TSS				3.9	5.7	5.8	6.8	6.8				
Free CN				0.00006	0.00001	0.00002	0.00002	0.00002				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.07	0.01	0.02	0.02	0.02				
SCN				0.001	0.001	0.001	0.002	0.002				
Sulphate				3.5	3.6	4.0	4.4	4.6				
Chloride				61	62	61	66	67				
Total Ammonia				0.016	0.037	0.023	0.026	0.026				
Nitrate				0.07	0.09	0.11	0.14	0.16				
Nitrite				0.009	0.011	0.011	0.005	0.012				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0019	0.0021	0.0024	0.0027	0.0031				
Phosphate-P				0.0171	0.0187	0.0248	0.0209	0.0212				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				45	43	43	44	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0009	0.0029	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0028	0.0032	0.0030	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00010	0.00017	0.00022	0.00025	0.00029				
Boron B				0.033	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000036	0.0000039	0.0000035	0.0000037	0.0000039				
Calcium Ca				10	10	11	11	12				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0010	0.0002	0.0003				
Copper Cu				0.0014	0.0017	0.0015	0.0017	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.1	6.5	6.5	6.4	6.4				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000008				
Molybdenum Mo				0.00023	0.00024	0.00029	0.00029	0.00032				
Nickel Ni				0.0005	0.0006	0.0006	0.0006	0.0006				
Phosphorus P				0.018	0.020	0.026	0.023	0.023				
Potassium K				3.1	2.8	2.8	2.9	3.0				
Selenium Se				0.00087	0.00056	0.00061	0.00055	0.00055				
Silicon SiO2				0.53	0.54	0.55	0.56	0.57				
Silver Ag				0.0000042	0.0000050	0.0000050	0.0000052	0.0000054				
Sodium Na				38	32	34	32	32				
Strontium Sr				0.040	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000019	0.0000021	0.0000021	0.0000022				
Tin Sn				0.00040	0.00041	0.00042	0.00042	0.00043				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000026	0.000032	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0030	0.0020	0.0021				
Zirconium Zr				0.0049	0.0049	0.0049	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				154	135	139	159	160				
TSS				3.9	5.7	5.9	6.8	6.8				
Free CN				0.00014		0.00002	0.00002	0.00002				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0002		0.0000	0.0000	0.0000				
CNO				0.15		0.02	0.02	0.02				
SCN				0.004	0.003	0.003	0.004	0.004				
Sulphate				6.0	5.7	5.8	6.2	6.4				
Chloride				70	70	68	73	73				
Total Ammonia				0.033	0.063	0.017	0.025	0.025				
Nitrate				0.21	0.23	0.24	0.26	0.28				
Nitrite				0.023	0.010	0.011	0.004	0.012				
Alkalinity				28	26	28	28	28				
OrthoPhosphate-P				0.0054	0.0050	0.0050	0.0054	0.0056				
Phosphate-P				0.0206	0.0216	0.0274	0.0235	0.0237				
Org. Carbon				5.4	5.0	7.3	4.9	4.9				
Hardness CaCO3				48	45	45	46	46				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0012	0.0032	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0031	0.0034	0.0032	0.0034	0.0034				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00041	0.00043	0.00045	0.00048	0.00051				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000051	0.0000051	0.0000047	0.0000048	0.0000050				
Calcium Ca				17	16	16	16	16				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0005	0.0012	0.0005	0.0005				
Copper Cu				0.0016	0.0019	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000009	0.0000009				
Molybdenum Mo				0.00047	0.00045	0.00047	0.00048	0.00050				
Nickel Ni				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P				0.024	0.025	0.031	0.027	0.028				
Potassium K				4.2	3.7	3.7	3.7	3.8				
Selenium Se				0.00088	0.00057	0.00061	0.00055	0.00056				
Silicon SiO2				0.63	0.62	0.62	0.63	0.64				
Silver Ag				0.0000057	0.0000062	0.0000061	0.0000062	0.0000064				
Sodium Na				39	33	35	33	33				
Strontium Sr				0.042	0.043	0.037	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000022	0.0000023	0.0000025	0.0000025	0.0000026				
Tin Sn				0.00045	0.00045	0.00045	0.00046	0.00046				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0059				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0006	0.0002	0.0003	0.0003	0.0003				
Zinc Zn				0.0017	0.0038	0.0035	0.0025	0.0025				
Zirconium Zr				0.0049	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				161	141	144	164	164				
TSS				3.9	5.7	5.9	6.8	6.8				
Free CN				0.00008								
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001								
CNO				0.09								
SCN				0.004	0.004	0.004	0.004	0.004				
Sulphate				6.9	6.4	6.3	6.5	6.5				
Chloride				76	75	73	77	78				
Total Ammonia				0.026	0.041	0.017	0.017	0.017				
Nitrate				0.28	0.28	0.27	0.28	0.29				
Nitrite				0.020	0.008	0.010	0.003	0.004				
Alkalinity				29	27	28	28	28				
OrthoPhosphate-P				0.0075	0.0070	0.0069	0.0072	0.0075				
Phosphate-P				0.0227	0.0235	0.0293	0.0253	0.0256				
Org. Carbon				5.4	5.1	7.3	4.9	5.0				
Hardness CaCO3				48	45	45	46	46				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0009	0.0014	0.0033	0.0011	0.0011				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0032	0.0034	0.0033	0.0034	0.0034				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00060	0.00060	0.00060	0.00064	0.00067				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000057	0.0000055	0.0000049	0.0000049	0.0000049				
Calcium Ca				19	17	16	16	16				
Chromium Cr				0.001	0.001	0.001	0.000	0.000				
Cobalt Co				0.0005	0.0005	0.0012	0.0005	0.0005				
Copper Cu				0.0017	0.0020	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00006	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.008	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000009				
Molybdenum Mo				0.00056	0.00050	0.00051	0.00049	0.00048				
Nickel Ni				0.0008	0.0009	0.0008	0.0007	0.0007				
Phosphorus P				0.027	0.028	0.033	0.029	0.030				
Potassium K				4.6	4.0	3.8	3.8	3.8				
Selenium Se				0.00088	0.00057	0.00061	0.00056	0.00056				
Silicon SiO2				0.66	0.65	0.64	0.64	0.64				
Silver Ag				0.0000065	0.0000068	0.0000065	0.0000067	0.0000067				
Sodium Na				40	34	35	33	33				
Strontium Sr				0.043	0.044	0.038	0.042	0.042				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000025	0.0000025	0.0000026	0.0000026	0.0000026				
Tin Sn				0.00048	0.00048	0.00048	0.00048	0.00049				
Titanium Ti				0.0059	0.0059	0.0059	0.0059	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0019	0.0040	0.0036	0.0025	0.0025				
Zirconium Zr				0.0049	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				162	147	155	180	186				
TSS				3.9	5.8	5.9	6.8	6.8				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.003	0.003	0.003	0.003				
Sulphate				6.2	5.7	5.6	5.8	5.8				
Chloride				79	80	81	88	92				
Total Ammonia				0.010	0.012	0.017	0.016	0.016				
Nitrate				0.25	0.24	0.23	0.23	0.23				
Nitrite				0.007	0.002	0.003	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0087	0.0078	0.0073	0.0073	0.0073				
Phosphate-P				0.0240	0.0244	0.0298	0.0255	0.0255				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				48	45	44	46	46				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0011	0.0014	0.0033	0.0010	0.0010				
Arsenic As				0.0006	0.0005	0.0005	0.0005	0.0005				
Barium Ba				0.0031	0.0034	0.0032	0.0033	0.0033				
Beryllium Be				0.00004	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00074	0.00065	0.00061	0.00061	0.00060				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000053	0.0000052	0.0000046	0.0000047	0.0000047				
Calcium Ca				17	16	15	15	16				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0004	0.0005	0.0012	0.0004	0.0004				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.7	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.014	0.011	0.011				
Mercury Hg				0.0000009	0.0000009	0.0000009	0.0000009	0.0000010				
Molybdenum Mo				0.00047	0.00043	0.00043	0.00041	0.00041				
Nickel Ni				0.0007	0.0008	0.0007	0.0007	0.0007				
Phosphorus P				0.028	0.028	0.033	0.029	0.029				
Potassium K				4.1	3.6	3.5	3.5	3.4				
Selenium Se				0.00088	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.63	0.62	0.62	0.62	0.62				
Silver Ag				0.0000069	0.0000071	0.0000067	0.0000068	0.0000068				
Sodium Na				39	35	38	38	40				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.049	0.049				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000026	0.0000029	0.0000030	0.0000031	0.0000032				
Tin Sn				0.00050	0.00048	0.00048	0.00048	0.00048				
Titanium Ti				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000028	0.000033	0.000040	0.000034	0.000034				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0017	0.0038	0.0035	0.0024	0.0024				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				186	162	163	182	182				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.003	0.002	0.002	0.002	0.002				
Sulphate				5.5	5.1	5.0	5.2	5.2				
Chloride				93	89	85	89	89				
Total Ammonia				0.008	0.012	0.017	0.016	0.016				
Nitrate				0.20	0.19	0.18	0.19	0.19				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0071	0.0063	0.0059	0.0059	0.0058				
Phosphate-P				0.0224	0.0230	0.0285	0.0242	0.0242				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0009	0.0013	0.0032	0.0009	0.0009				
Arsenic As				0.0006	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0031	0.0033	0.0032	0.0032	0.0032				
Beryllium Be				0.00003	0.00003	0.00003	0.00003	0.00003				
Bismuth Bi				0.00059	0.00052	0.00048	0.00048	0.00048				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000051	0.0000050	0.0000044	0.0000045	0.0000045				
Calcium Ca				17	15	14	14	14				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0015	0.0019	0.0016	0.0018	0.0018				
Iron Fe				0.05	0.12	0.09	0.09	0.09				
Lead Pb				0.00004	0.00008	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.4	6.6	6.7	6.6	6.6				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00040	0.00037	0.00038	0.00036	0.00036				
Nickel Ni				0.0007	0.0008	0.0007	0.0006	0.0006				
Phosphorus P				0.026	0.026	0.031	0.027	0.027				
Potassium K				3.9	3.4	3.3	3.2	3.2				
Selenium Se				0.00089	0.00058	0.00062	0.00057	0.00057				
Silicon SiO2				0.62	0.61	0.60	0.60	0.60				
Silver Ag				0.0000068	0.0000070	0.0000067	0.0000067	0.0000067				
Sodium Na				49	42	42	40	40				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.049	0.049	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000032	0.0000034	0.0000035	0.0000036	0.0000037				
Tin Sn				0.00048	0.00047	0.00046	0.00046	0.00046				
Titanium Ti				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U				0.000028	0.000033	0.000041	0.000035	0.000035				
Vanadium V				0.0007	0.0002	0.0004	0.0003	0.0003				
Zinc Zn				0.0016	0.0037	0.0033	0.0022	0.0022				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				176	153	154	173	173				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				4.9	4.5	4.5	4.7	4.6				
Chloride				86	83	79	83	83				
Total Ammonia				0.005	0.009	0.014	0.013	0.013				
Nitrate				0.13	0.12	0.12	0.12	0.12				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0057	0.0050	0.0047	0.0047	0.0047				
Phosphate-P				0.0211	0.0219	0.0274	0.0231	0.0231				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	43	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.07	0.07				
Antimony Sb				0.0008	0.0012	0.0031	0.0008	0.0008				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00003	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00046	0.00041	0.00038	0.00038	0.00037				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000042	0.0000041	0.0000035	0.0000036	0.0000036				
Calcium Ca				15	13	13	13	12				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0015	0.0018	0.0015	0.0018	0.0018				
Iron Fe				0.05	0.13	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000010	0.0000010	0.0000010	0.0000010				
Molybdenum Mo				0.00035	0.00032	0.00034	0.00032	0.00031				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.023	0.024	0.029	0.025	0.025				
Potassium K				3.6	3.2	3.1	3.0	3.0				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.59	0.59	0.58	0.58	0.58				
Silver Ag				0.0000057	0.0000059	0.0000056	0.0000057	0.0000056				
Sodium Na				47	40	41	39	39				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000020	0.0000022	0.0000023	0.0000024	0.0000025				
Tin Sn				0.00046	0.00045	0.00044	0.00044	0.00044				
Titanium Ti				0.0061	0.0062	0.0062	0.0062	0.0062				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0007	0.0002	0.0003	0.0003	0.0003				
Zinc Zn				0.0014	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				167	145	147	166	166				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.4	4.1	4.1	4.2	4.2				
Chloride				80	78	74	78	78				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.09	0.08	0.08	0.08	0.08				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0046	0.0040	0.0037	0.0038	0.0037				
Phosphate-P				0.0201	0.0209	0.0265	0.0222	0.0222				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	44	43	45	45				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0007	0.0011	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00036	0.00032	0.00029	0.00029	0.00029				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000040	0.0000038	0.0000033	0.0000033	0.0000033				
Calcium Ca				13	12	12	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0015	0.0018	0.0015	0.0017	0.0017				
Iron Fe				0.05	0.13	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000010	0.0000010	0.0000010	0.0000011	0.0000011				
Molybdenum Mo				0.00031	0.00028	0.00030	0.00028	0.00028				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.022	0.022	0.028	0.023	0.023				
Potassium K				3.5	3.0	2.9	2.9	2.9				
Selenium Se				0.00089	0.00058	0.00063	0.00057	0.00057				
Silicon SiO2				0.58	0.58	0.57	0.57	0.57				
Silver Ag				0.0000057	0.0000058	0.0000054	0.0000054	0.0000054				
Sodium Na				45	39	39	37	37				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000024	0.0000024	0.0000023	0.0000024	0.0000024				
Tin Sn				0.00044	0.00043	0.00043	0.00043	0.00043				
Titanium Ti				0.0062	0.0062	0.0062	0.0062	0.0063				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0002	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				160	139	141	160	160				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				4.0	3.7	3.8	3.9	3.9				
Chloride				76	74	71	75	74				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.05	0.04	0.04	0.04	0.04				
Nitrite				0.0019	0.0019	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0036	0.0032	0.0030	0.0030	0.0030				
Phosphate-P				0.0192	0.0202	0.0258	0.0215	0.0215				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0006	0.0010	0.0029	0.0007	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00028	0.00025	0.00023	0.00023	0.00022				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000037	0.0000036	0.0000030	0.0000030	0.0000030				
Calcium Ca				12	11	11	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0014	0.0018	0.0015	0.0017	0.0017				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00027	0.00025	0.00027	0.00025	0.00025				
Nickel Ni				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.020	0.021	0.027	0.022	0.022				
Potassium K				3.3	2.9	2.8	2.7	2.7				
Selenium Se				0.00090	0.00059	0.00063	0.00057	0.00057				
Silicon SiO2				0.57	0.57	0.56	0.56	0.56				
Silver Ag				0.0000054	0.0000056	0.0000051	0.0000052	0.0000051				
Sodium Na				44	37	38	36	36				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000023	0.0000023	0.0000022	0.0000023	0.0000023				
Tin Sn				0.00043	0.00042	0.00042	0.00042	0.00042				
Titanium Ti				0.0062	0.0063	0.0063	0.0063	0.0063				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0034	0.0030	0.0019	0.0020				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

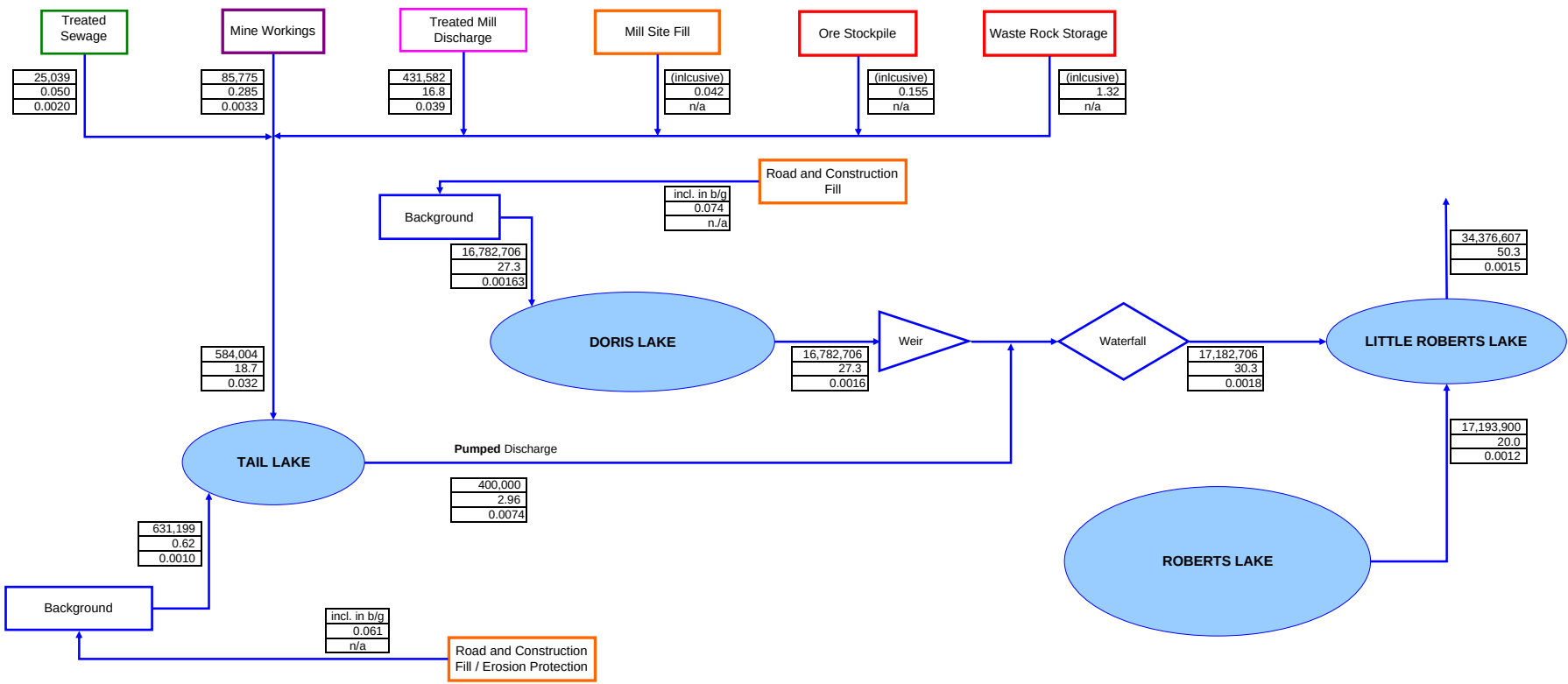
Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				155	134	137	156	156				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				3.7	3.5	3.5	3.7	3.6				
Chloride				72	70	68	72	72				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0029	0.0026	0.0024	0.0024	0.0024				
Phosphate-P				0.0186	0.0196	0.0253	0.0210	0.0210				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0005	0.0010	0.0029	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00002	0.00001	0.00001	0.00001				
Bismuth Bi				0.00022	0.00019	0.00017	0.00017	0.00017				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000035	0.0000034	0.0000028	0.0000028	0.0000028				
Calcium Ca				11	10	10	9	9				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0002	0.0009	0.0002	0.0002				
Copper Cu				0.0014	0.0017	0.0014	0.0017	0.0017				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00024	0.00023	0.00025	0.00023	0.00023				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.020	0.026	0.021	0.021				
Potassium K				3.2	2.8	2.7	2.7	2.6				
Selenium Se				0.00090	0.00059	0.00063	0.00057	0.00057				
Silicon SiO2				0.56	0.56	0.55	0.56	0.56				
Silver Ag				0.0000052	0.0000054	0.0000049	0.0000050	0.0000049				
Sodium Na				43	36	37	35	35				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000022	0.0000022	0.0000022	0.0000022	0.0000022				
Tin Sn				0.00042	0.00042	0.00041	0.00041	0.00041				
Titanium Ti				0.0063	0.0063	0.0063	0.0063	0.0063				
Uranium U				0.000027	0.000032	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

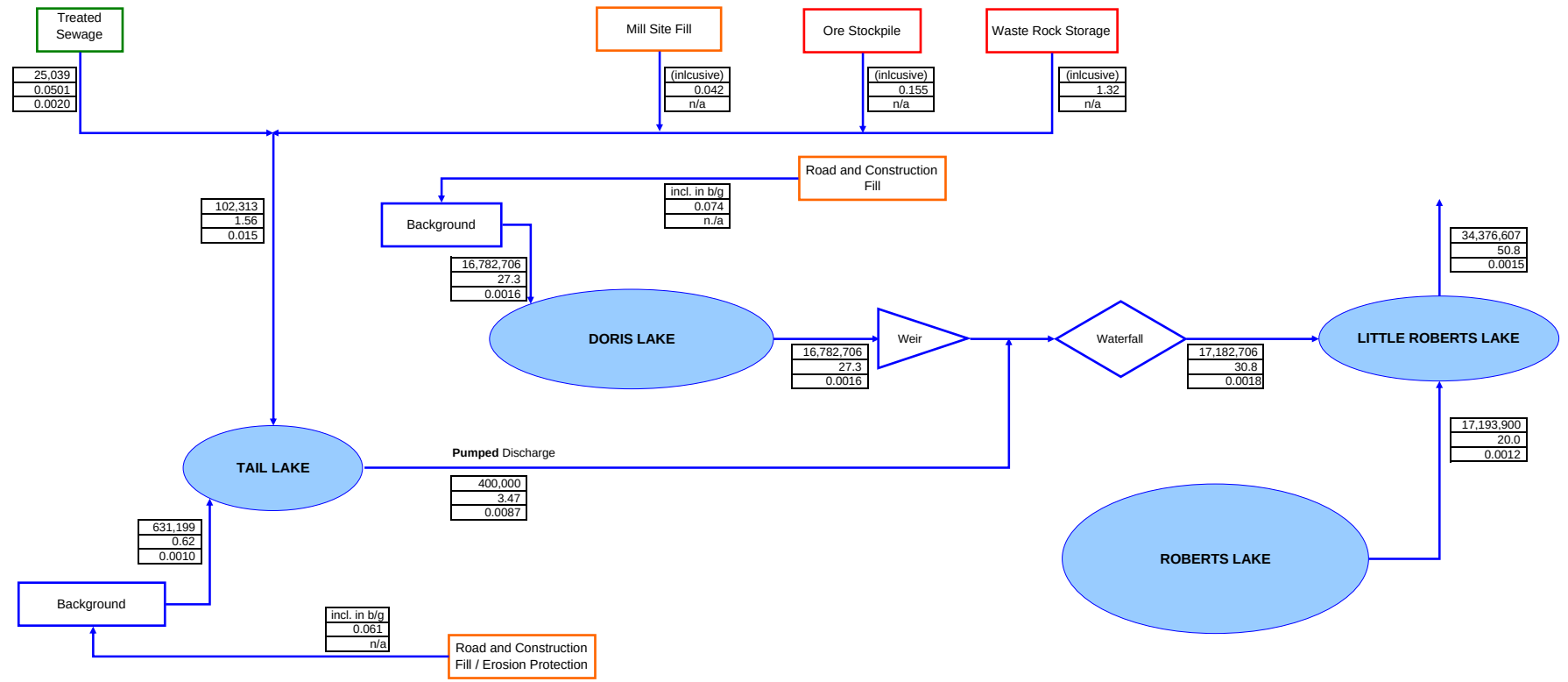
Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				151	131	133	153	152				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.000	0.001	0.000				
Sulphate				3.5	3.3	3.3	3.5	3.5				
Chloride				69	68	65	69	69				
Total Ammonia				0.005	0.008	0.013	0.012	0.012				
Nitrate				0.01	0.01	0.01	0.01	0.01				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0023	0.0021	0.0020	0.0020	0.0019				
Phosphate-P				0.0180	0.0191	0.0249	0.0206	0.0206				
Org. Carbon				5.5	5.2	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.04	0.06	0.08	0.08	0.08				
Antimony Sb				0.0005	0.0009	0.0028	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0031	0.0030	0.0031	0.0031				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00017	0.00014	0.00013	0.00013	0.00013				
Boron B				0.034	0.023	0.024	0.023	0.023				
Cadmium Cd				0.0000033	0.0000032	0.0000027	0.0000027	0.0000027				
Calcium Ca				10	10	9	9	9				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0001	0.0001				
Copper Cu				0.0014	0.0017	0.0014	0.0017	0.0017				
Iron Fe				0.06	0.13	0.09	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0029	0.0029	0.0029	0.0029	0.0029				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.020	0.013	0.010	0.010				
Mercury Hg				0.0000011	0.0000011	0.0000011	0.0000011	0.0000011				
Molybdenum Mo				0.00022	0.00021	0.00023	0.00021	0.00021				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.025	0.021	0.021				
Potassium K				3.1	2.7	2.6	2.6	2.6				
Selenium Se				0.00090	0.00059	0.00063	0.00057	0.00058				
Silicon SiO2				0.55	0.55	0.55	0.55	0.55				
Silver Ag				0.0000050	0.0000052	0.0000048	0.0000049	0.0000048				
Sodium Na				42	36	37	35	35				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000022	0.0000022	0.0000021	0.0000022	0.0000022				
Tin Sn				0.00041	0.00041	0.00041	0.00041	0.00041				
Titanium Ti				0.0063	0.0063	0.0063	0.0063	0.0064				
Uranium U				0.000027	0.000032	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0029	0.0018	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

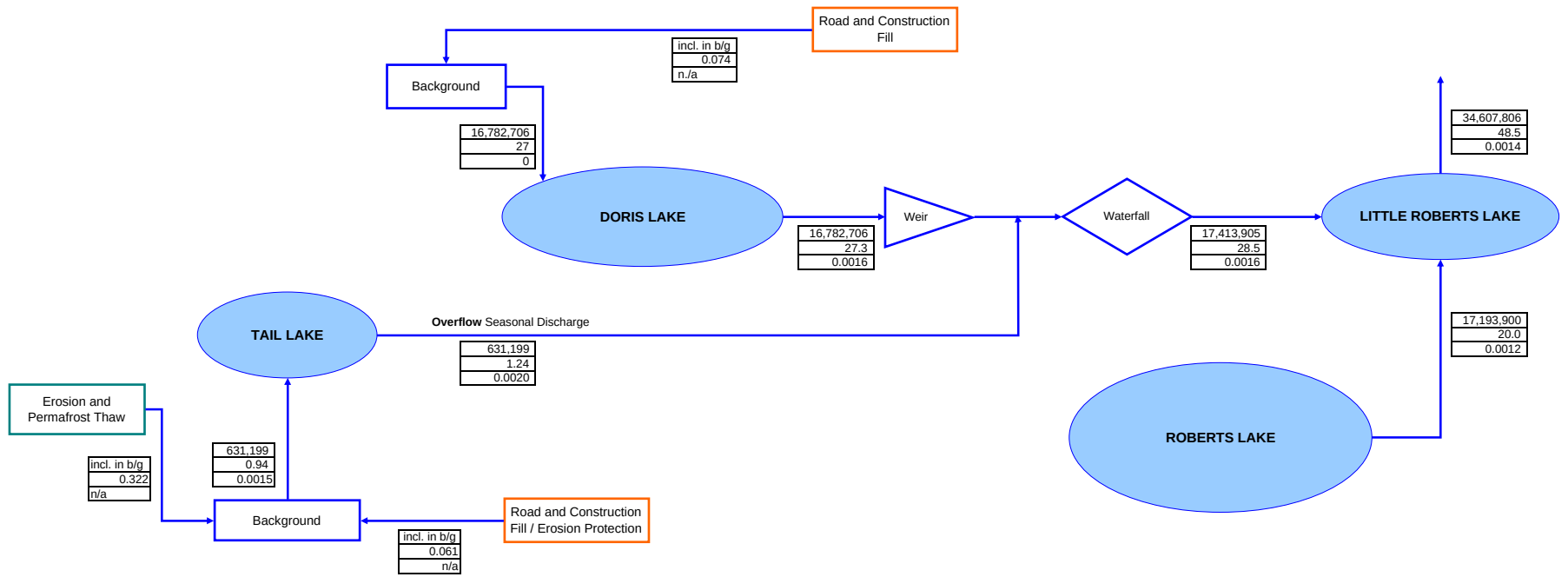
Scenario 3 - 20 % increase in Cu Concentration in Doris Creek -OPERATIONAL CONDITIONS
Year 2



POST MILLING OPERATIONAL CONDITIONS
Year 3



POST CLOSURE CONDITIONS
Year 25

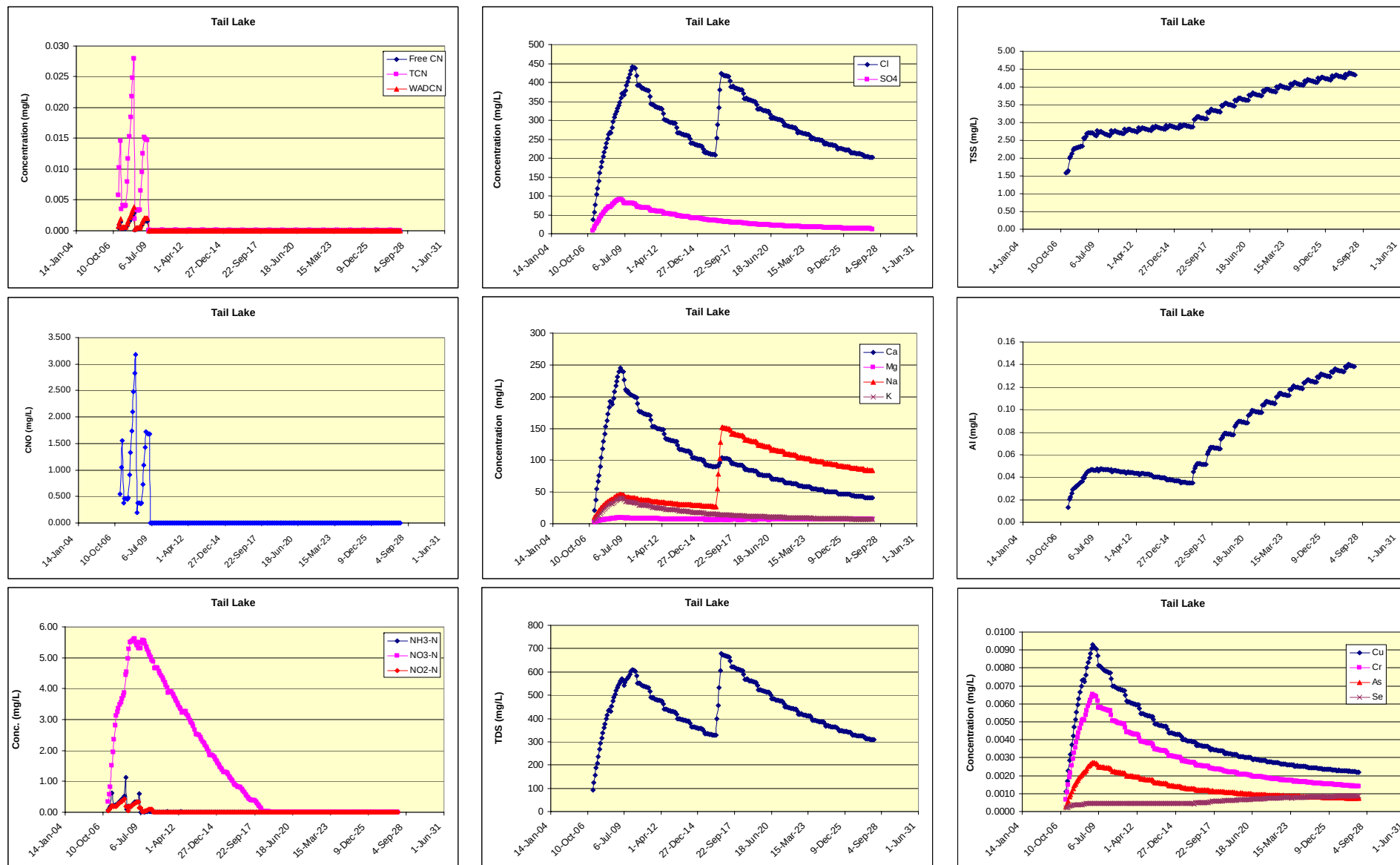


Key:	Flow	m3/year
	Load	kg/year
	Conc.	mg/L

 MIRAMAR HOPE BAY LIMITED	DORIS NORTH PROJECT WATER AND LOAD BALANCE			
	20 % Increase in Background Copper No Erosion Control			
	PROJECT: 1CM014.06	Date: Oct-05	Approved: JTC	FIGURE I-5-c.1

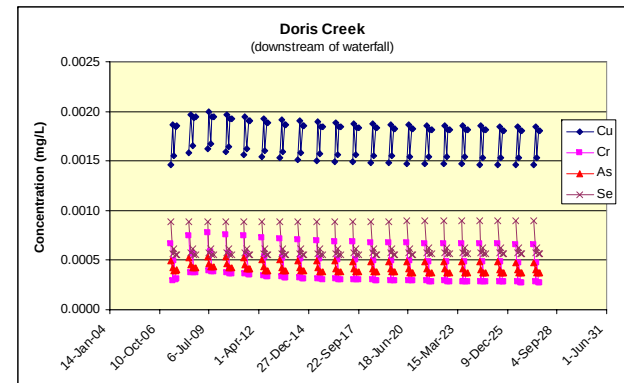
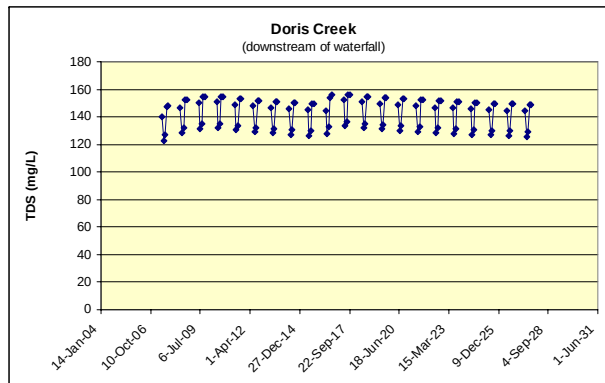
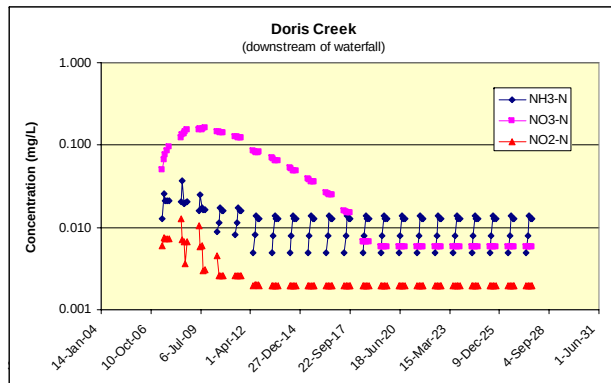
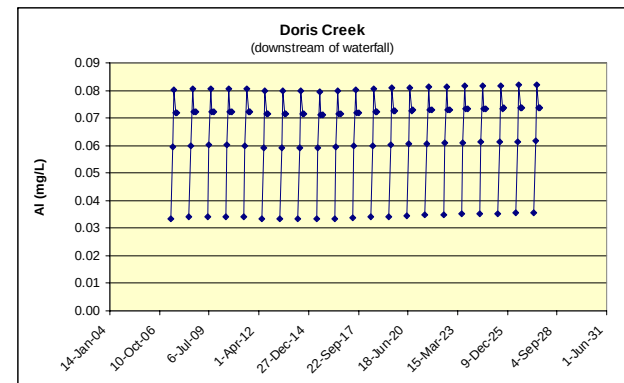
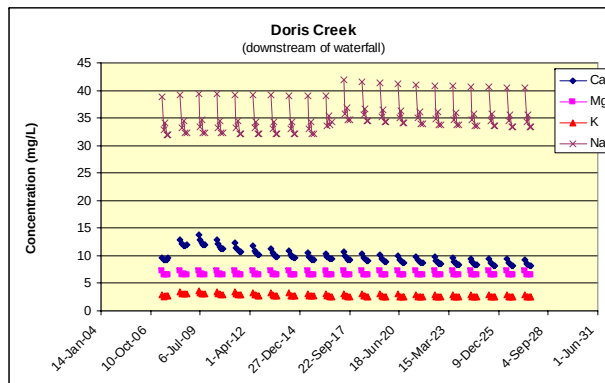
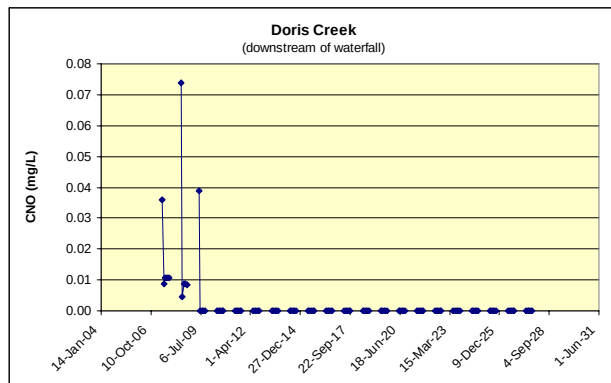
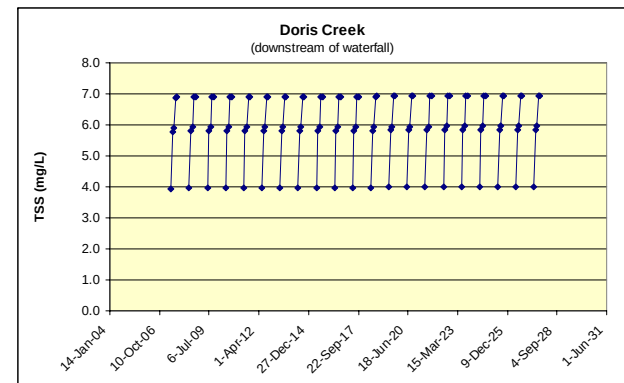
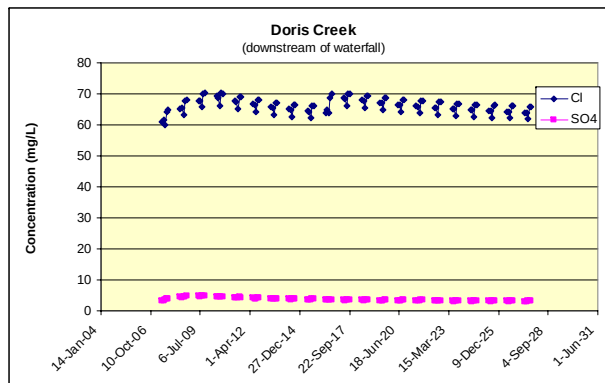
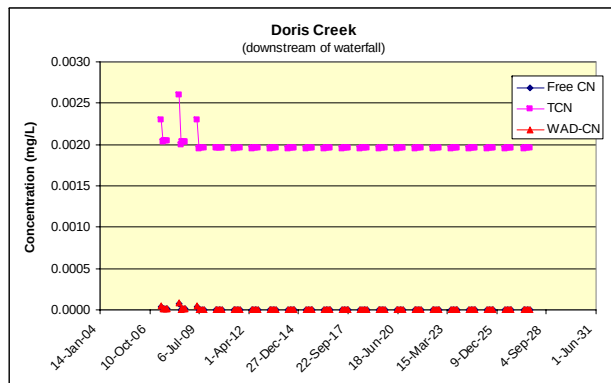
Appendix I

CuBG 3 20 % Increase in Background Copper



Appendix I

CuBG 3 20 % Increase in Background Copper



Appendix I

Table I-5-c-A.1

20 % increase in Background Copper in Doris Lake

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate		400000 m3/year					
Degradation Field(age)		Tail Lk Cu < CME Year		25			
		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
Maximum Concentration							
pH			6 to 9	7 to 8	7 to 8	7 to 8	1% <

Table I-5-c-A.2
20 % increase in Background Copper in Ddoris Lake

Water Quality in TAIL LAKE

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L	92	124	156	190	207	237	267	293	315	337	359	377
TSS	mg/L	1.6	1.6	1.6	2.0	2.0	2.1	2.2	2.3	2.3	2.3	2.3	2.3
Free CN	mg/L	0.00050	0.00096	0.00141	0.00034	0.00042	0.00042	0.00041	0.00043	0.00082	0.00121	0.00158	0.00191
Total CN	mg/L	0.006	0.010	0.015	0.004	0.004	0.004	0.004	0.004	0.008	0.012	0.015	0.018
WAD CN	mg/L	0.0007	0.0013	0.0019	0.0005	0.0006	0.0006	0.0005	0.0006	0.0011	0.0016	0.0021	0.0025
CNO	mg/L	0.55	1.06	1.55	0.38	0.46	0.47	0.45	0.47	0.90	1.33	1.74	2.10
SCN	mg/L	0.008	0.014	0.021	0.026	0.029	0.035	0.041	0.046	0.051	0.056	0.061	0.065
Sulphate	mg/L	7.5	13.4	19.3	25.0	28.9	34.3	39.8	44.7	48.6	52.7	56.7	60.1
Chloride	mg/L	37	57	77	104	120	139	160	177	190	204	217	228
Total Ammonia	mg/L	0.070	0.133	0.194	0.619	0.184	0.224	0.230	0.214	0.263	0.312	0.359	0.399
Nitrate	mg/L	0.35	0.58	0.80	1.51	1.94	2.35	2.80	3.12	3.23	3.35	3.47	3.56
Nitrite	mg/L	0.054	0.102	0.150	0.211	0.201	0.202	0.202	0.204	0.241	0.278	0.314	0.344
Alkalinity	mg/L	16	18	21	25	27	30	32	35	36	38	39	41
OrthoPhosphate-P	mg/L	0.0107	0.0195	0.0282	0.0343	0.0389	0.0464	0.0538	0.0610	0.0670	0.0733	0.0793	0.0844
Phosphate-P	mg/L	0.0142	0.0229	0.0315	0.0383	0.0426	0.0501	0.0575	0.0646	0.0705	0.0767	0.0826	0.0876
Org. Carbon	mg/L	3.0	2.9	2.8	3.4	3.5	3.5	3.6	3.6	3.4	3.4	3.3	3.2
Hardness CaCO3	mg/L	23	29	35	42	46	52	58	62	66	70	74	77
Total Metals													
Aluminum Al	mg/L	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Antimony Sb	mg/L	0.0007	0.0012	0.0018	0.0035	0.0045	0.0053	0.0061	0.0067	0.0070	0.0073	0.0076	0.0078
Arsenic As	mg/L	0.0003	0.0004	0.0006	0.0008	0.0010	0.0011	0.0013	0.0014	0.0015	0.0016	0.0018	0.0018
Barium Ba	mg/L	0.0015	0.0022	0.0028	0.0035	0.0039	0.0045	0.0051	0.0056	0.0060	0.0064	0.0068	0.0072
Beryllium Be	mg/L	0.00012	0.00014	0.00016	0.00024	0.00027	0.00030	0.00033	0.00034	0.00035	0.00036	0.00037	0.00038
Bismuth Bi	mg/L	0.00057	0.00108	0.00159	0.00335	0.00427	0.00499	0.00583	0.00633	0.00660	0.00689	0.00717	0.00741
Boron B	mg/L	0.007	0.008	0.009	0.013	0.014	0.016	0.017	0.018	0.019	0.019	0.020	0.020
Cadmium Cd	mg/L	0.0000044	0.0000075	0.0000105	0.0000163	0.0000195	0.0000229	0.0000266	0.0000293	0.0000312	0.0000332	0.0000351	0.0000367
Calcium Ca	mg/L	21	38	54	67	76	90	104	118	129	141	153	162
Chromium Cr	mg/L	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0008	0.0015	0.0022	0.0028	0.0031	0.0038	0.0044	0.0049	0.0054	0.0059	0.0064	0.0068
Copper Cu	mg/L	0.0011	0.0017	0.0023	0.0028	0.0032	0.0037	0.0042	0.0047	0.0051	0.0055	0.0059	0.0063
Iron Fe	mg/L	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead Pb	mg/L	0.00005	0.00007	0.00009	0.00013	0.00016	0.00018	0.00021	0.00022	0.00023	0.00025	0.00026	0.00027
Lithium Li	mg/L	0.0019	0.0020	0.0022	0.0027	0.0029	0.0031	0.0033	0.0035	0.0035	0.0036	0.0037	0.0038
Magnesium Mg	mg/L	2.5	2.9	3.3	4.2	4.5	5.0	5.5	5.8	6.1	6.3	6.5	6.8
Manganese Mn	mg/L	0.002	0.004	0.006	0.008	0.009	0.011	0.012	0.014	0.015	0.016	0.018	0.019
Mercury Hg	mg/L	0.0000006	0.0000010	0.0000013	0.0000018	0.0000021	0.0000025	0.0000028	0.0000031	0.0000033	0.0000035	0.0000037	0.0000039
Molybdenum Mo	mg/L	0.00072	0.00134	0.00194	0.00238	0.00270	0.00322	0.00375	0.00424	0.00466	0.00510	0.00551	0.00587
Nickel Ni	mg/L	0.0008	0.0013	0.0019	0.0024	0.0028	0.0032	0.0037	0.0042	0.0045	0.0049	0.0052	0.0055
Phosphorus P	mg/L	0.020	0.033	0.047	0.061	0.070	0.083	0.096	0.107	0.116	0.126	0.135	0.143
Potassium K	mg/L	3.8	6.6	9.3	11.4	12.8	15.2	17.6	19.8	21.7	23.7	25.6	27.2
Selenium Se	mg/L	0.00022	0.00023	0.00024	0.00030	0.00031	0.00033	0.00035	0.00036	0.00037	0.00037	0.00037	0.00038
Silicon SiO2	mg/L	0.70	0.92	1.14	1.43	1.57	1.78	2.00	2.18	2.32	2.47	2.62	2.74
Silver Ag	mg/L	0.0000525	0.0000537	0.0000548	0.0000742	0.0000789	0.0000813	0.0000848	0.0000861	0.0000858	0.0000859	0.0000860	0.0000860
Sodium Na	mg/L	11	13	16	19	20	23	25	27	29	31	32	34
Strontium Sr	mg/L	0.017	0.021	0.026	0.032	0.036	0.040	0.045	0.049	0.052	0.056	0.059	0.062
Tellurium Te	mg/L	0.025	0.024	0.024	0.029	0.029	0.029	0.030	0.029	0.029	0.028	0.027	0.027
Thallium Tl	mg/L	0.000017	0.000018	0.000019	0.000024	0.000026	0.000028	0.000030	0.000031	0.000031	0.000032	0.000032	0.000033
Thorium Th	mg/L				0.000007	0.000010	0.000012	0.000014	0.000014	0.000014	0.000014	0.000013	0.000013
Tin Sn	mg/L	0.00013	0.00021	0.00028	0.00056	0.00072	0.00084	0.00097	0.00104	0.00108	0.00112	0.00116	0.00119
Titanium Ti	mg/L	0.0030	0.0030	0.0029	0.0037	0.0037	0.0038	0.0040	0.0040	0.0039	0.0038	0.0038	0.0037
Uranium U	mg/L	0.000025	0.000025	0.000024	0.000036	0.000040	0.000041	0.000043	0.000043	0.000042	0.000041	0.000040	0.000039
Vanadium V	mg/L	0.0004	0.0006	0.0007	0.0011	0.0013	0.0014	0.0016	0.0018	0.0019	0.0019	0.0020	0.0021
Zinc Zn	mg/L	0.0020	0.0034	0.0049	0.0062	0.0071	0.0085	0.0100	0.0112	0.0122	0.0132	0.0142	0.0150
Zirconium Zr	mg/L	0.0025	0.0024	0.0023	0.0030	0.0031	0.0031	0.0032	0.0032	0.0031	0.0030	0.0030	0.0029

Table I-5-c-A.2
20 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L	398	416	434	437	431	452	474	492	504	518	532	543
TSS	mg/L	2.3	2.3	2.3	2.6	2.5	2.6	2.7	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L	0.00225	0.00257	0.00289	0.00018	0.00034	0.00034	0.00033	0.00035	0.00067	0.00099	0.00130	0.00156
Total CN	mg/L	0.022	0.025	0.028	0.002	0.003	0.003	0.003	0.003	0.006	0.010	0.013	0.015
WAD CN	mg/L	0.0030	0.0034	0.0038	0.0002	0.0005	0.0005	0.0004	0.0005	0.0009	0.0013	0.0017	0.0021
CNO	mg/L	2.48	2.83	3.17	0.20	0.37	0.38	0.37	0.38	0.73	1.09	1.42	1.72
SCN	mg/L	0.069	0.073	0.077	0.076	0.075	0.079	0.083	0.087	0.089	0.093	0.096	0.098
Sulphate	mg/L	63.8	67.2	70.5	70.9	70.1	73.9	78.0	81.2	83.5	86.1	88.6	90.8
Chloride	mg/L	240	251	262	268	267	281	297	308	315	323	331	338
Total Ammonia	mg/L	0.444	0.484	0.523	1.117	0.098	0.184	0.187	0.174	0.214	0.255	0.295	0.329
Nitrate	mg/L	3.68	3.77	3.87	4.43	4.54	4.97	5.27	5.49	5.51	5.56	5.60	5.63
Nitrite	mg/L	0.378	0.408	0.438	0.191	0.176	0.046	0.181	0.179	0.209	0.240	0.270	0.296
Alkalinity	mg/L	42	44	45	46	46	48	50	52	52	53	54	55
OrthoPhosphate-P	mg/L	0.0901	0.0952	0.1003	0.0992	0.0973	0.1026	0.1081	0.1129	0.1165	0.1205	0.1244	0.1277
Phosphate-P	mg/L	0.0933	0.0983	0.1033	0.1028	0.1008	0.1061	0.1115	0.1162	0.1197	0.1237	0.1275	0.1308
Org. Carbon	mg/L	3.1	3.1	3.0	3.4	3.5	3.5	3.6	3.6	3.5	3.4	3.3	3.3
Hardness CaCO3	mg/L	81	84	87	89	88	92	96	99	101	104	106	108
Total Metals													
Aluminum Al	mg/L	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0081	0.0084	0.0087	0.0095	0.0098	0.0103	0.0110	0.0113	0.0114	0.0116	0.0118	0.0119
Arsenic As	mg/L	0.0019	0.0020	0.0021	0.0022	0.0022	0.0023	0.0024	0.0025	0.0026	0.0026	0.0027	0.0027
Barium Ba	mg/L	0.0076	0.0080	0.0083	0.0084	0.0083	0.0087	0.0092	0.0095	0.0097	0.0100	0.0103	0.0105
Beryllium Be	mg/L	0.00039	0.00039	0.00040	0.00045	0.00045	0.00047	0.00050	0.00051	0.00051	0.00051	0.00052	0.00052
Bismuth Bi	mg/L	0.00768	0.00792	0.00816	0.00901	0.00926	0.00979	0.01042	0.01074	0.01085	0.01099	0.01113	0.01125
Boron B	mg/L	0.021	0.021	0.022	0.023	0.024	0.025	0.026	0.026	0.027	0.027	0.027	0.027
Cadmium Cd	mg/L	0.0000386	0.0000402	0.0000418	0.0000438	0.0000441	0.0000465	0.0000492	0.0000510	0.0000520	0.0000531	0.0000543	0.0000553
Calcium Ca	mg/L	173	183	192	191	187	198	208	217	224	232	239	245
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.007
Cobalt Co	mg/L	0.0072	0.0076	0.0080	0.0080	0.0078	0.0083	0.0087	0.0091	0.0094	0.0097	0.0100	0.0103
Copper Cu	mg/L	0.0067	0.0070	0.0073	0.0073	0.0072	0.0076	0.0080	0.0083	0.0086	0.0088	0.0091	0.0093
Iron Fe	mg/L	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00028	0.00029	0.00030	0.00032	0.00032	0.00034	0.00036	0.00037	0.00038	0.00038	0.00039	0.00039
Lithium Li	mg/L	0.0038	0.0039	0.0040	0.0043	0.0042	0.0044	0.0046	0.0047	0.0047	0.0047	0.0048	0.0048
Magnesium Mg	mg/L	7.0	7.2	7.4	7.7	7.7	8.1	8.4	8.7	8.8	8.9	9.0	9.2
Manganese Mn	mg/L	0.020	0.021	0.022	0.022	0.022	0.023	0.024	0.025	0.026	0.027	0.028	0.028
Mercury Hg	mg/L	0.0000040	0.0000042	0.0000044	0.0000046	0.0000046	0.0000048	0.0000051	0.0000053	0.0000054	0.0000055	0.0000056	0.0000057
Molybdenum Mo	mg/L	0.00627	0.00662	0.00697	0.00691	0.00678	0.00715	0.00753	0.00787	0.00812	0.00839	0.00867	0.00890
Nickel Ni	mg/L	0.0058	0.0061	0.0064	0.0065	0.0064	0.0067	0.0071	0.0074	0.0076	0.0078	0.0080	0.0082
Phosphorus P	mg/L	0.151	0.159	0.167	0.168	0.166	0.175	0.185	0.192	0.198	0.204	0.209	0.214
Potassium K	mg/L	28.9	30.5	32.1	31.9	31.3	33.0	34.7	36.2	37.3	38.6	39.8	40.8
Selenium Se	mg/L	0.00038	0.00039	0.00039	0.00043	0.00043	0.00044	0.00046	0.00046	0.00046	0.00047	0.00047	0.00047
Silicon SiO2	mg/L	2.88	3.00	3.12	3.18	3.14	3.30	3.46	3.58	3.66	3.75	3.84	3.92
Silver Ag	mg/L	0.0000864	0.0000864	0.0000866	0.0000988	0.0001006	0.0001025	0.0001053	0.0001059	0.0001052	0.0001048	0.0001045	0.0001041
Sodium Na	mg/L	35	36	38	39	38	40	42	43	44	45	46	47
Strontium Sr	mg/L	0.065	0.067	0.070	0.071	0.070	0.074	0.078	0.080	0.082	0.084	0.086	0.088
Tellurium Te	mg/L	0.026	0.025	0.025	0.029	0.029	0.029	0.030	0.029	0.029	0.028	0.027	0.027
Thallium Tl	mg/L	0.000034	0.000034	0.000035	0.000037	0.000038	0.000039	0.000041	0.000041	0.000041	0.000042	0.000042	0.000042
Thorium Th	mg/L	0.000013	0.000012	0.000012	0.000017	0.000019	0.000020	0.000021	0.000022	0.000021	0.000021	0.000020	0.000020
Tin Sn	mg/L	0.00123	0.00126	0.00130	0.00144	0.00149	0.00157	0.00167	0.00172	0.00173	0.00175	0.00177	0.00179
Titanium Ti	mg/L	0.0037	0.0036	0.0036	0.0041	0.0041	0.0042	0.0043	0.0043	0.0042	0.0041	0.0041	0.0040
Uranium U	mg/L	0.000038	0.000038	0.000037	0.000045	0.000047	0.000048	0.000050	0.000050	0.000049	0.000048	0.000047	0.000046
Vanadium V	mg/L	0.0022	0.0023	0.0023	0.0025	0.0025	0.0027	0.0028	0.0029	0.0029	0.0030	0.0030	0.0031
Zinc Zn	mg/L	0.0159	0.0167	0.0175	0.0176	0.0173	0.0183	0.0194	0.0202	0.0208	0.0214	0.0220	0.0226
Zirconium Zr	mg/L	0.0028	0.0028	0.0027	0.0032	0.0032	0.0033	0.0034	0.0033	0.0033	0.0032	0.0031	0.0031

Table I-5-c-A.2
20 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L	550	561	572	564	543	554	566	573	581	591	601	610
TSS	mg/L	2.7	2.6	2.6	2.8	2.7	2.7	2.8	2.7	2.7	2.7	2.7	2.7
Free CN	mg/L	0.00154	0.00153	0.00152									
Total CN	mg/L	0.015	0.015	0.015		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L	0.0021	0.0020	0.0020									
CNO	mg/L	1.69	1.68	1.67									
SCN	mg/L	0.097	0.096	0.096	0.090	0.084	0.083	0.083	0.082	0.081	0.080	0.080	0.079
Sulphate	mg/L	89.8	89.6	89.4	86.0	81.0	81.0	81.2	80.6	80.2	80.0	79.9	79.8
Chloride	mg/L	348	359	371	373	366	379	392	402	411	421	432	442
Total Ammonia	mg/L	0.331	0.336	0.341	0.589	0.011	0.016	0.019	0.011	0.017	0.024	0.030	0.036
Nitrate	mg/L	5.48	5.39	5.30	5.50	5.29	5.48	5.56	5.55	5.44	5.34	5.26	5.17
Nitrite	mg/L	0.310	0.326	0.343	0.141	0.147	0.019	0.021	0.020	0.037	0.054	0.071	0.086
Alkalinity	mg/L	54	54	54	53	51	51	51	50	50	49	49	49
OrthoPhosphate-P	mg/L	0.1320	0.1372	0.1424	0.1405	0.1363	0.1411	0.1459	0.1499	0.1540	0.1587	0.1635	0.1679
Phosphate-P	mg/L	0.1351	0.1402	0.1454	0.1439	0.1397	0.1444	0.1493	0.1532	0.1573	0.1620	0.1668	0.1711
Org. Carbon	mg/L	3.2	3.2	3.2	3.6	3.6	3.7	3.7	3.7	3.7	3.6	3.6	3.6
Hardness CaCO3	mg/L	107	106	105	103	97	97	97	96	95	94	94	93
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0121	0.0123	0.0126	0.0132	0.0132	0.0136	0.0142	0.0144	0.0146	0.0149	0.0151	0.0153
Arsenic As	mg/L	0.0027	0.0027	0.0027	0.0026	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0024	0.0024
Barium Ba	mg/L	0.0104	0.0103	0.0103	0.0099	0.0093	0.0093	0.0094	0.0093	0.0092	0.0091	0.0091	0.0091
Beryllium Be	mg/L	0.00052	0.00053	0.00053	0.00056	0.00055	0.00056	0.00058	0.00058	0.00058	0.00059	0.00059	0.00060
Bismuth Bi	mg/L	0.01144	0.01171	0.01198	0.01259	0.01259	0.01306	0.01361	0.01387	0.01406	0.01429	0.01453	0.01475
Boron B	mg/L	0.027	0.027	0.027	0.028	0.027	0.027	0.028	0.028	0.028	0.028	0.028	0.028
Cadmium Cd	mg/L	0.0000545	0.0000542	0.0000539	0.0000525	0.0000497	0.0000497	0.0000500	0.0000495	0.0000491	0.0000488	0.0000485	0.0000483
Calcium Ca	mg/L	242	241	239	227	211	209	208	206	204	203	202	201
Chromium Cr	mg/L	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cobalt Co	mg/L	0.0101	0.0101	0.0100	0.0095	0.0089	0.0089	0.0089	0.0088	0.0087	0.0087	0.0086	0.0086
Copper Cu	mg/L	0.0092	0.0091	0.0091	0.0087	0.0081	0.0081	0.0081	0.0080	0.0079	0.0079	0.0078	0.0078
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00039	0.00039	0.00039	0.00040	0.00038	0.00039	0.00039	0.00039	0.00039	0.00039	0.00039	0.00039
Lithium Li	mg/L	0.0048	0.0047	0.0047	0.0049	0.0047	0.0047	0.0048	0.0048	0.0047	0.0047	0.0047	0.0047
Magnesium Mg	mg/L	9.1	9.0	9.0	9.0	8.7	8.8	8.8	8.8	8.7	8.7	8.7	8.7
Manganese Mn	mg/L	0.028	0.028	0.028	0.026	0.025	0.025	0.025	0.024	0.024	0.024	0.024	0.024
Mercury Hg	mg/L	0.0000056	0.0000056	0.0000056	0.0000054	0.0000052	0.0000052	0.0000052	0.0000052	0.0000051	0.0000051	0.0000051	0.0000051
Molybdenum Mo	mg/L	0.00877	0.00872	0.00867	0.00821	0.00764	0.00758	0.00754	0.00745	0.00738	0.00734	0.00730	0.00726
Nickel Ni	mg/L	0.0081	0.0081	0.0081	0.0078	0.0074	0.0074	0.0074	0.0074	0.0073	0.0073	0.0073	0.0073
Phosphorus P	mg/L	0.218	0.223	0.228	0.225	0.217	0.222	0.228	0.231	0.235	0.240	0.245	0.249
Potassium K	mg/L	40.3	40.0	39.8	37.7	35.1	34.9	34.7	34.3	34.0	33.8	33.6	33.4
Selenium Se	mg/L	0.00046	0.00046	0.00046	0.00047	0.00046	0.00046	0.00047	0.00046	0.00046	0.00046	0.00045	0.00045
Silicon SiO2	mg/L	3.86	3.84	3.82	3.72	3.51	3.50	3.50	3.47	3.44	3.42	3.40	3.38
Silver Ag	mg/L	0.0001033	0.0001034	0.0001034	0.0001116	0.0001109	0.0001116	0.0001128	0.0001125	0.0001120	0.0001120	0.0001120	0.0001120
Sodium Na	mg/L	46	46	46	44	42	42	42	42	41	41	41	41
Strontium Sr	mg/L	0.087	0.086	0.086	0.083	0.079	0.079	0.079	0.078	0.077	0.077	0.077	0.076
Tellurium Te	mg/L	0.027	0.026	0.026	0.030	0.030	0.030	0.031	0.031	0.030	0.030	0.030	0.030
Thallium Tl	mg/L	0.000041	0.000041	0.000041	0.000042	0.000041	0.000041	0.000041	0.000041	0.000041	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000020	0.000019	0.000019	0.000021	0.000021	0.000022	0.000023	0.000023	0.000022	0.000022	0.000022	0.000022
Tin Sn	mg/L	0.00181	0.00185	0.00189	0.00199	0.00200	0.00207	0.00216	0.00220	0.00223	0.00226	0.00230	0.00233
Titanium Ti	mg/L	0.0040	0.0040	0.0040	0.0044	0.0044	0.0045	0.0046	0.0046	0.0045	0.0045	0.0045	0.0045
Uranium U	mg/L	0.000046	0.000045	0.000045	0.000050	0.000051	0.000051	0.000052	0.000052	0.000052	0.000051	0.000051	0.000051
Vanadium V	mg/L	0.0031	0.0031	0.0031	0.0032	0.0031	0.0032	0.0033	0.0033	0.0033	0.0034	0.0034	0.0034
Zinc Zn	mg/L	0.0223	0.0222	0.0221	0.0212	0.0199	0.0199	0.0200	0.0199	0.0198	0.0197	0.0196	0.0196
Zirconium Zr	mg/L	0.0030	0.0030	0.0030	0.0034	0.0034	0.0034	0.0035	0.0035	0.0035	0.0034	0.0034	0.0034

Table I-5-c-A.2
20 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L	607	606	603	583	551	550	550	545	542	540	538	537
TSS	mg/L	2.6	2.6	2.6	2.8	2.7	2.7	2.8	2.8	2.7	2.7	2.7	2.7
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.079	0.079	0.079	0.075	0.070	0.070	0.069	0.069	0.068	0.068	0.068	0.068
Sulphate	mg/L	79.5	79.2	78.9	75.3	70.6	70.3	70.2	69.5	69.1	68.8	68.6	68.4
Chloride	mg/L	440	438	437	418	393	392	391	387	385	383	382	381
Total Ammonia	mg/L	0.036	0.036	0.036	0.014	0.009	0.004	0.005	0.002	0.002	0.002	0.002	0.002
Nitrate	mg/L	5.08	5.00	4.92	4.88	4.65	4.66	4.69	4.66	4.57	4.49	4.41	4.34
Nitrite	mg/L	0.086	0.085	0.085	0.003	0.003	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	49	48	48	48	46	46	47	46	46	46	46	46
OrthoPhosphate-P	mg/L	0.1671	0.1666	0.1660	0.1580	0.1481	0.1474	0.1470	0.1456	0.1446	0.1441	0.1436	0.1433
Phosphate-P	mg/L	0.1703	0.1698	0.1692	0.1616	0.1516	0.1510	0.1506	0.1491	0.1482	0.1476	0.1471	0.1468
Org. Carbon	mg/L	3.6	3.6	3.6	3.9	3.9	4.0	4.1	4.0	4.0	4.0	4.0	4.0
Hardness CaCO3	mg/L	93	92	92	91	87	87	87	86	86	85	85	85
Total Metals													
Aluminum Al	mg/L	0.05	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0152	0.0152	0.0151	0.0144	0.0135	0.0135	0.0134	0.0133	0.0132	0.0132	0.0131	0.0131
Arsenic As	mg/L	0.0024	0.0024	0.0024	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Barium Ba	mg/L	0.0090	0.0090	0.0090	0.0087	0.0082	0.0082	0.0082	0.0082	0.0081	0.0081	0.0080	0.0080
Beryllium Be	mg/L	0.00059	0.00059	0.00059	0.00058	0.00056	0.00056	0.00056	0.00055	0.00055	0.00055	0.00055	0.00054
Bismuth Bi	mg/L	0.01468	0.01464	0.01459	0.01387	0.01300	0.01294	0.01291	0.01278	0.01270	0.01265	0.01261	0.01258
Boron B	mg/L	0.028	0.028	0.027	0.027	0.026	0.027	0.027	0.027	0.026	0.026	0.026	0.026
Cadmium Cd	mg/L	0.0000481	0.0000480	0.0000478	0.0000469	0.0000448	0.0000449	0.0000453	0.0000450	0.0000447	0.0000445	0.0000444	0.0000443
Calcium Ca	mg/L	200	199	198	189	178	177	176	175	174	173	172	172
Chromium Cr	mg/L	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cobalt Co	mg/L	0.0086	0.0085	0.0085	0.0081	0.0076	0.0076	0.0075	0.0075	0.0074	0.0074	0.0074	0.0073
Copper Cu	mg/L	0.0078	0.0077	0.0077	0.0074	0.0070	0.0070	0.0070	0.0069	0.0069	0.0068	0.0068	0.0068
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00039	0.00039	0.00039	0.00038	0.00036	0.00036	0.00036	0.00036	0.00036	0.00036	0.00036	0.00035
Lithium Li	mg/L	0.0047	0.0047	0.0047	0.0047	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0045	0.0045
Magnesium Mg	mg/L	8.6	8.6	8.6	8.5	8.2	8.2	8.3	8.2	8.1	8.1	8.1	8.1
Manganese Mn	mg/L	0.024	0.024	0.024	0.022	0.021	0.021	0.021	0.021	0.021	0.021	0.020	0.020
Mercury Hg	mg/L	0.0000050	0.0000050	0.0000050	0.0000049	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000046	0.0000046	0.0000046
Molybdenum Mo	mg/L	0.00723	0.00721	0.00718	0.00684	0.00641	0.00638	0.00637	0.00630	0.00626	0.00624	0.00622	0.00620
Nickel Ni	mg/L	0.0073	0.0072	0.0072	0.0069	0.0065	0.0065	0.0065	0.0064	0.0064	0.0063	0.0063	0.0063
Phosphorus P	mg/L	0.248	0.247	0.246	0.236	0.221	0.221	0.220	0.218	0.217	0.216	0.215	0.215
Potassium K	mg/L	33.2	33.1	33.0	31.5	29.6	29.5	29.4	29.2	29.0	28.9	28.8	28.7
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00046	0.00045	0.00046	0.00046	0.00046	0.00046	0.00046	0.00045	0.00045
Silicon SiO2	mg/L	3.37	3.36	3.35	3.27	3.11	3.11	3.12	3.09	3.07	3.06	3.05	3.04
Silver Ag	mg/L	0.0001115	0.0001111	0.0001108	0.0001158	0.0001135	0.0001134	0.0001137	0.0001128	0.0001121	0.0001116	0.0001113	0.0001110
Sodium Na	mg/L	40	40	40	39	38	38	38	38	37	37	37	37
Strontium Sr	mg/L	0.076	0.076	0.076	0.074	0.070	0.070	0.070	0.070	0.069	0.069	0.069	0.069
Tellurium Te	mg/L	0.030	0.030	0.029	0.032	0.032	0.033	0.033	0.033	0.033	0.033	0.033	0.033
Thallium Tl	mg/L	0.000040	0.000040	0.000040	0.000041	0.000040	0.000040	0.000041	0.000040	0.000040	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000022	0.000022	0.000022	0.000023	0.000023	0.000024	0.000025	0.000025	0.000025	0.000025	0.000024	0.000024
Tin Sn	mg/L	0.00232	0.00231	0.00231	0.00221	0.00208	0.00208	0.00208	0.00206	0.00205	0.00204	0.00203	0.00203
Titanium Ti	mg/L	0.0045	0.0045	0.0045	0.0048	0.0047	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0047
Uranium U	mg/L	0.000051	0.000051	0.000050	0.000055	0.000055	0.000056	0.000056	0.000056	0.000056	0.000056	0.000055	0.000055
Vanadium V	mg/L	0.0034	0.0034	0.0034	0.0033	0.0031	0.0031	0.0031	0.0030	0.0030	0.0030	0.0030	0.0030
Zinc Zn	mg/L	0.0195	0.0194	0.0194	0.0185	0.0174	0.0173	0.0174	0.0173	0.0172	0.0171	0.0171	0.0170
Zirconium Zr	mg/L	0.0034	0.0034	0.0034	0.0037	0.0037	0.0037	0.0038	0.0038	0.0038	0.0038	0.0038	0.0037

Table I-5-c-A.2
20 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L	535	534	532	516	490	489	490	486	483	481	479	478
TSS	mg/L	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.067	0.067	0.067	0.064	0.060	0.060	0.060	0.059	0.059	0.059	0.058	0.058
Sulphate	mg/L	68.3	68.1	67.8	64.8	61.1	60.9	60.8	60.2	59.9	59.6	59.4	59.3
Chloride	mg/L	380	379	378	363	343	342	341	338	336	335	334	333
Total Ammonia	mg/L	0.002	0.002	0.002	0.015	0.009	0.004	0.005	0.002	0.002	0.002	0.002	0.002
Nitrate	mg/L	4.26	4.19	4.11	4.04	3.87	3.89	3.92	3.89	3.81	3.73	3.66	3.59
Nitrite	mg/L	0.001	0.001	0.001	0.003	0.003	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	46	45	45	45	44	44	44	44	43	43	43	43
OrthoPhosphate-P	mg/L	0.1429	0.1425	0.1421	0.1355	0.1275	0.1271	0.1268	0.1256	0.1248	0.1243	0.1239	0.1237
Phosphate-P	mg/L	0.1464	0.1460	0.1455	0.1394	0.1313	0.1308	0.1306	0.1293	0.1285	0.1280	0.1276	0.1274
Org. Carbon	mg/L	4.0	4.0	4.0	4.3	4.3	4.3	4.4	4.4	4.3	4.3	4.3	4.3
Hardness CaCO3	mg/L	85	84	84	83	80	80	80	79	79	79	78	78
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0131	0.0130	0.0130	0.0124	0.0117	0.0116	0.0116	0.0115	0.0114	0.0114	0.0113	0.0113
Arsenic As	mg/L	0.0022	0.0022	0.0022	0.0021	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Barium Ba	mg/L	0.0080	0.0080	0.0080	0.0077	0.0073	0.0073	0.0074	0.0073	0.0073	0.0072	0.0072	0.0072
Beryllium Be	mg/L	0.00054	0.00054	0.00054	0.00054	0.00051	0.00051	0.00051	0.00051	0.00051	0.00050	0.00050	0.00050
Bismuth Bi	mg/L	0.01255	0.01251	0.01247	0.01189	0.01119	0.01115	0.01112	0.01102	0.01095	0.01091	0.01087	0.01085
Boron B	mg/L	0.026	0.026	0.026	0.026	0.025	0.025	0.026	0.025	0.025	0.025	0.025	0.025
Cadmium Cd	mg/L	0.0000442	0.0000440	0.0000439	0.0000432	0.0000415	0.0000416	0.0000420	0.0000417	0.0000415	0.0000413	0.0000412	0.0000411
Calcium Ca	mg/L	172	171	170	163	153	153	153	151	150	150	149	149
Chromium Cr	mg/L	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0073	0.0073	0.0073	0.0070	0.0065	0.0065	0.0065	0.0065	0.0064	0.0064	0.0064	0.0064
Copper Cu	mg/L	0.0068	0.0068	0.0067	0.0065	0.0061	0.0061	0.0061	0.0061	0.0060	0.0060	0.0060	0.0060
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00035	0.00035	0.00035	0.00034	0.00033	0.00033	0.00033	0.00033	0.00033	0.00032	0.00032	0.00032
Lithium Li	mg/L	0.0045	0.0045	0.0045	0.0046	0.0044	0.0044	0.0045	0.0045	0.0044	0.0044	0.0044	0.0044
Magnesium Mg	mg/L	8.0	8.0	8.0	8.0	7.7	7.7	7.8	7.7	7.6	7.6	7.6	7.6
Manganese Mn	mg/L	0.020	0.020	0.020	0.019	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Mercury Hg	mg/L	0.0000046	0.0000046	0.0000046	0.0000045	0.0000043	0.0000043	0.0000044	0.0000043	0.0000043	0.0000043	0.0000043	0.0000043
Molybdenum Mo	mg/L	0.00619	0.00617	0.00615	0.00587	0.00552	0.00550	0.00549	0.00544	0.00540	0.00538	0.00537	0.00536
Nickel Ni	mg/L	0.0063	0.0063	0.0062	0.0060	0.0057	0.0056	0.0056	0.0056	0.0056	0.0055	0.0055	0.0055
Phosphorus P	mg/L	0.214	0.214	0.213	0.204	0.193	0.192	0.192	0.190	0.189	0.189	0.188	0.188
Potassium K	mg/L	28.6	28.6	28.5	27.3	25.7	25.6	25.6	25.3	25.2	25.1	25.0	25.0
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00047	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	3.04	3.03	3.02	2.96	2.83	2.83	2.84	2.82	2.80	2.79	2.78	2.77
Silver Ag	mg/L	0.0001108	0.0001104	0.0001101	0.0001148	0.0001127	0.0001127	0.0001130	0.0001122	0.0001115	0.0001110	0.0001107	0.0001105
Sodium Na	mg/L	37	37	37	36	35	35	35	35	35	35	34	34
Strontium Sr	mg/L	0.069	0.068	0.068	0.067	0.064	0.064	0.064	0.064	0.063	0.063	0.063	0.063
Tellurium Te	mg/L	0.033	0.033	0.033	0.035	0.035	0.035	0.036	0.036	0.036	0.036	0.035	0.035
Thallium Tl	mg/L	0.000040	0.000039	0.000039	0.000040	0.000039	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040
Thorium Th	mg/L	0.000024	0.000024	0.000024	0.000026	0.000026	0.000026	0.000027	0.000027	0.000027	0.000027	0.000026	0.000026
Tin Sn	mg/L	0.00202	0.00202	0.00201	0.00193	0.00183	0.00182	0.00183	0.00181	0.00180	0.00179	0.00179	0.00178
Titanium Ti	mg/L	0.0047	0.0047	0.0047	0.0050	0.0049	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0049
Uranium U	mg/L	0.000055	0.000055	0.000055	0.000059	0.000059	0.000059	0.000060	0.000060	0.000059	0.000059	0.000059	0.000059
Vanadium V	mg/L	0.0030	0.0030	0.0030	0.0029	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0026
Zinc Zn	mg/L	0.0170	0.0169	0.0169	0.0162	0.0152	0.0152	0.0153	0.0152	0.0151	0.0151	0.0150	0.0150
Zirconium Zr	mg/L	0.0037	0.0037	0.0037	0.0040	0.0040	0.0040	0.0041	0.0041	0.0041	0.0041	0.0041	0.0040

Table I-5-c-A.2
20 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L	477	476	474	462	440	439	440	437	434	432	431	430
TSS	mg/L	2.8	2.7	2.7	2.9	2.8	2.8	2.9	2.8	2.8	2.8	2.8	2.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.058	0.058	0.058	0.055	0.052	0.052	0.052	0.051	0.051	0.051	0.051	0.051
Sulphate	mg/L	59.2	59.0	58.8	56.4	53.3	53.2	53.1	52.6	52.3	52.1	52.0	51.9
Chloride	mg/L	332	331	330	318	301	301	300	298	296	295	294	294
Total Ammonia	mg/L	0.002	0.002	0.002	0.014	0.008	0.004	0.005	0.002	0.002	0.002	0.002	0.002
Nitrate	mg/L	3.52	3.45	3.38	3.34	3.22	3.24	3.27	3.26	3.18	3.11	3.04	2.98
Nitrite	mg/L	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Alkalinity	mg/L	43	43	43	43	41	42	42	42	41	41	41	41
OrthoPhosphate-P	mg/L	0.1234	0.1230	0.1226	0.1173	0.1107	0.1104	0.1102	0.1092	0.1085	0.1081	0.1078	0.1076
Phosphate-P	mg/L	0.1271	0.1267	0.1263	0.1214	0.1147	0.1143	0.1141	0.1131	0.1124	0.1120	0.1117	0.1115
Org. Carbon	mg/L	4.3	4.3	4.3	4.5	4.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Hardness CaCO3	mg/L	78	78	78	77	74	74	74	74	73	73	73	73
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0113	0.0113	0.0112	0.0107	0.0101	0.0101	0.0101	0.0100	0.0100	0.0099	0.0099	0.0099
Arsenic As	mg/L	0.0019	0.0019	0.0019	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Barium Ba	mg/L	0.0072	0.0072	0.0071	0.0069	0.0066	0.0066	0.0066	0.0066	0.0066	0.0065	0.0065	0.0065
Beryllium Be	mg/L	0.00050	0.00050	0.00050	0.00050	0.00048	0.00048	0.00048	0.00047	0.00047	0.00047	0.00047	0.00047
Bismuth Bi	mg/L	0.01082	0.01079	0.01076	0.01028	0.00971	0.00967	0.00966	0.00957	0.00951	0.00948	0.00945	0.00943
Boron B	mg/L	0.025	0.025	0.025	0.025	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
Cadmium Cd	mg/L	0.0000410	0.0000409	0.0000407	0.0000403	0.0000388	0.0000389	0.0000393	0.0000391	0.0000388	0.0000387	0.0000386	0.0000385
Calcium Ca	mg/L	149	148	148	142	134	133	133	132	131	131	130	130
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cobalt Co	mg/L	0.0063	0.0063	0.0063	0.0060	0.0057	0.0057	0.0057	0.0056	0.0056	0.0056	0.0055	0.0055
Copper Cu	mg/L	0.0060	0.0060	0.0059	0.0057	0.0055	0.0055	0.0055	0.0054	0.0054	0.0054	0.0053	0.0053
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00032	0.00032	0.00032	0.00031	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030
Lithium Li	mg/L	0.0044	0.0044	0.0043	0.0044	0.0043	0.0043	0.0044	0.0043	0.0043	0.0043	0.0043	0.0043
Magnesium Mg	mg/L	7.6	7.5	7.5	7.5	7.3	7.3	7.3	7.3	7.2	7.2	7.2	7.2
Manganese Mn	mg/L	0.018	0.018	0.018	0.017	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Mercury Hg	mg/L	0.0000043	0.0000043	0.0000042	0.0000042	0.0000040	0.0000041	0.0000041	0.0000041	0.0000040	0.0000040	0.0000040	0.0000040
Molybdenum Mo	mg/L	0.00534	0.00533	0.00531	0.00508	0.00480	0.00478	0.00477	0.00473	0.00470	0.00468	0.00467	0.00466
Nickel Ni	mg/L	0.0055	0.0055	0.0055	0.0053	0.0050	0.0050	0.0050	0.0049	0.0049	0.0049	0.0049	0.0049
Phosphorus P	mg/L	0.187	0.187	0.186	0.179	0.170	0.169	0.169	0.168	0.167	0.166	0.166	0.165
Potassium K	mg/L	24.9	24.8	24.7	23.8	22.5	22.4	22.4	22.2	22.1	22.0	21.9	21.9
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00047	0.00046	0.00046	0.00047	0.00046	0.00046	0.00046	0.00046	0.00046
Silicon SiO2	mg/L	2.77	2.76	2.75	2.71	2.60	2.60	2.61	2.59	2.58	2.57	2.56	2.55
Silver Ag	mg/L	0.0001102	0.0001099	0.0001096	0.0001141	0.0001121	0.0001122	0.0001125	0.0001117	0.0001110	0.0001106	0.0001103	0.0001100
Sodium Na	mg/L	34	34	34	34	33	33	33	33	32	32	32	32
Strontium Sr	mg/L	0.063	0.062	0.062	0.061	0.059	0.059	0.059	0.059	0.058	0.058	0.058	0.058
Tellurium Te	mg/L	0.035	0.035	0.035	0.037	0.037	0.038	0.038	0.038	0.038	0.038	0.038	0.037
Thallium Tl	mg/L	0.000039	0.000039	0.000039	0.000040	0.000039	0.000040	0.000040	0.000040	0.000040	0.000040	0.000039	0.000039
Thorium Th	mg/L	0.000026	0.000026	0.000026	0.000027	0.000027	0.000028	0.000029	0.000029	0.000028	0.000028	0.000028	0.000028
Tin Sn	mg/L	0.00178	0.00177	0.00177	0.00170	0.00162	0.00162	0.00162	0.00161	0.00160	0.00159	0.00159	0.00158
Titanium Ti	mg/L	0.0049	0.0049	0.0049	0.0052	0.0051	0.0051	0.0052	0.0052	0.0052	0.0051	0.0051	0.0051
Uranium U	mg/L	0.000059	0.000058	0.000058	0.000062	0.000062	0.000062	0.000063	0.000063	0.000062	0.000062	0.000062	0.000062
Vanadium V	mg/L	0.0026	0.0026	0.0026	0.0026	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
Zinc Zn	mg/L	0.0149	0.0149	0.0149	0.0143	0.0135	0.0135	0.0136	0.0135	0.0134	0.0134	0.0133	0.0133
Zirconium Zr	mg/L	0.0040	0.0040	0.0040	0.0043	0.0042	0.0043	0.0044	0.0043	0.0043	0.0043	0.0043	0.0043

Table I-5-c-A.2
20 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L	429	428	427	417	398	398	399	396	394	392	391	390
TSS	mg/L	2.8	2.8	2.8	2.9	2.8	2.9	2.9	2.9	2.9	2.8	2.8	2.8
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.050	0.050	0.050	0.048	0.045	0.045	0.045	0.045	0.045	0.044	0.044	0.044
Sulphate	mg/L	51.7	51.6	51.4	49.4	46.8	46.7	46.6	46.3	46.0	45.8	45.7	45.6
Chloride	mg/L	293	292	291	281	267	267	267	265	263	262	261	261
Total Ammonia	mg/L	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	2.91	2.85	2.78	2.66	2.52	2.51	2.51	2.49	2.42	2.35	2.29	2.23
Nitrite	mg/L	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	41	41	41	41	40	40	40	40	40	39	39	39
OrthoPhosphate-P	mg/L	0.1074	0.1071	0.1067	0.1023	0.0969	0.0966	0.0964	0.0956	0.0951	0.0947	0.0944	0.0943
Phosphate-P	mg/L	0.1112	0.1109	0.1106	0.1065	0.1009	0.1007	0.1005	0.0997	0.0991	0.0987	0.0985	0.0983
Org. Carbon	mg/L	4.5	4.5	4.5	4.8	4.8	4.8	4.9	4.8	4.8	4.8	4.8	4.8
Hardness CaCO3	mg/L	73	72	72	72	69	69	70	69	69	69	68	68
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0099	0.0098	0.0098	0.0094	0.0089	0.0089	0.0089	0.0088	0.0087	0.0087	0.0087	0.0087
Arsenic As	mg/L	0.0018	0.0018	0.0018	0.0017	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
Barium Ba	mg/L	0.0065	0.0065	0.0064	0.0063	0.0060	0.0060	0.0061	0.0060	0.0060	0.0060	0.0059	0.0059
Beryllium Be	mg/L	0.00047	0.00046	0.00046	0.00046	0.00044	0.00044	0.00044	0.00043	0.00043	0.00043	0.00043	0.00043
Bismuth Bi	mg/L	0.00941	0.00938	0.00935	0.00895	0.00847	0.00845	0.00843	0.00836	0.00831	0.00828	0.00826	0.00824
Boron B	mg/L	0.024	0.024	0.024	0.024	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Cadmium Cd	mg/L	0.0000384	0.0000383	0.0000382	0.0000367	0.0000348	0.0000347	0.0000347	0.0000344	0.0000342	0.0000340	0.0000340	0.0000339
Calcium Ca	mg/L	130	130	129	124	118	117	117	116	115	115	115	114
Chromium Cr	mg/L	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0055	0.0055	0.0055	0.0053	0.0050	0.0050	0.0050	0.0049	0.0049	0.0049	0.0049	0.0048
Copper Cu	mg/L	0.0053	0.0053	0.0053	0.0051	0.0049	0.0049	0.0049	0.0048	0.0048	0.0048	0.0048	0.0048
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00030	0.00029	0.00029	0.00029	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00026
Lithium Li	mg/L	0.0043	0.0042	0.0042	0.0043	0.0042	0.0042	0.0043	0.0042	0.0042	0.0042	0.0042	0.0042
Magnesium Mg	mg/L	7.2	7.1	7.1	7.1	6.9	6.9	7.0	6.9	6.9	6.9	6.9	6.8
Manganese Mn	mg/L	0.016	0.016	0.015	0.015	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
Mercury Hg	mg/L	0.0000040	0.0000040	0.0000040	0.0000038	0.0000037	0.0000036	0.0000037	0.0000036	0.0000036	0.0000036	0.0000036	0.0000036
Molybdenum Mo	mg/L	0.00465	0.00464	0.00462	0.00443	0.00420	0.00419	0.00418	0.00414	0.00412	0.00410	0.00409	0.00408
Nickel Ni	mg/L	0.0048	0.0048	0.0048	0.0046	0.0044	0.0044	0.0044	0.0044	0.0043	0.0043	0.0043	0.0043
Phosphorus P	mg/L	0.165	0.164	0.164	0.158	0.149	0.149	0.149	0.147	0.146	0.146	0.146	0.145
Potassium K	mg/L	21.8	21.8	21.7	20.9	19.8	19.8	19.8	19.6	19.5	19.4	19.4	19.3
Selenium Se	mg/L	0.00046	0.00045	0.00045	0.00046	0.00045	0.00045	0.00046	0.00046	0.00045	0.00045	0.00045	0.00045
Silicon SiO2	mg/L	2.55	2.54	2.53	2.49	2.39	2.39	2.40	2.38	2.37	2.36	2.35	2.35
Silver Ag	mg/L	0.0001098	0.0001095	0.0001092	0.0001119	0.0001093	0.0001090	0.0001089	0.0001079	0.0001073	0.0001069	0.0001066	0.0001064
Sodium Na	mg/L	32	32	32	32	31	31	31	31	30	30	30	30
Strontium Sr	mg/L	0.058	0.058	0.057	0.057	0.054	0.054	0.055	0.054	0.054	0.054	0.054	0.054
Tellurium Te	mg/L	0.037	0.037	0.037	0.039	0.039	0.039	0.040	0.040	0.039	0.039	0.039	0.039
Thallium Tl	mg/L	0.000039	0.000039	0.000039	0.000040	0.000038	0.000039	0.000039	0.000039	0.000039	0.000038	0.000038	0.000038
Thorium Th	mg/L	0.000028	0.000028	0.000028	0.000027	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025
Tin Sn	mg/L	0.00158	0.00158	0.00157	0.00151	0.00144	0.00144	0.00144	0.00143	0.00142	0.00142	0.00141	0.00141
Titanium Ti	mg/L	0.0051	0.0051	0.0051	0.0053	0.0052	0.0053	0.0053	0.0053	0.0053	0.0053	0.0052	0.0052
Uranium U	mg/L	0.000062	0.000061	0.000061	0.000062	0.000061	0.000061	0.000060	0.000060	0.000060	0.000059	0.000059	0.000059
Vanadium V	mg/L	0.0024	0.0024	0.0024	0.0023	0.0022	0.0022	0.0022	0.0022	0.0021	0.0021	0.0021	0.0021
Zinc Zn	mg/L	0.0133	0.0132	0.0132	0.0127	0.0120	0.0120	0.0121	0.0120	0.0120	0.0119	0.0119	0.0119
Zirconium Zr	mg/L	0.0043	0.0043	0.0043	0.0044	0.0044	0.0044	0.0045	0.0045	0.0044	0.0044	0.0044	0.0044

Table I-5-c-A.2
20 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L	390	389	387	379	364	364	365	362	360	359	358	357
TSS	mg/L	2.8	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.044	0.044	0.044	0.042	0.040	0.040	0.040	0.039	0.039	0.039	0.039	0.039
Sulphate	mg/L	45.5	45.4	45.2	43.5	41.4	41.3	41.3	40.9	40.7	40.6	40.4	40.4
Chloride	mg/L	260	260	259	250	239	238	238	237	235	234	234	233
Total Ammonia	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	2.17	2.10	2.04	1.96	1.86	1.85	1.85	1.83	1.77	1.71	1.65	1.59
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	39	39	39	39	38	38	39	38	38	38	38	38
OrthoPhosphate-P	mg/L	0.0941	0.0938	0.0935	0.0898	0.0853	0.0851	0.0850	0.0843	0.0838	0.0835	0.0833	0.0831
Phosphate-P	mg/L	0.0981	0.0978	0.0975	0.0941	0.0895	0.0893	0.0892	0.0885	0.0880	0.0877	0.0874	0.0872
Org. Carbon	mg/L	4.8	4.8	4.7	5.0	4.9	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Hardness CaCO3	mg/L	68	68	68	67	65	66	66	66	65	65	65	65
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Antimony Sb	mg/L	0.0086	0.0086	0.0086	0.0082	0.0078	0.0078	0.0078	0.0078	0.0077	0.0077	0.0077	0.0076
Arsenic As	mg/L	0.0016	0.0016	0.0016	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Barium Ba	mg/L	0.0059	0.0059	0.0059	0.0058	0.0055	0.0055	0.0056	0.0055	0.0055	0.0055	0.0055	0.0054
Beryllium Be	mg/L	0.00043	0.00043	0.00042	0.00042	0.00041	0.00041	0.00041	0.00040	0.00040	0.00040	0.00040	0.00040
Bismuth Bi	mg/L	0.00822	0.00820	0.00818	0.00784	0.00744	0.00742	0.00741	0.00735	0.00731	0.00728	0.00726	0.00725
Boron B	mg/L	0.023	0.023	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022
Cadmium Cd	mg/L	0.0000338	0.0000337	0.0000336	0.0000324	0.0000308	0.0000307	0.0000307	0.0000305	0.0000303	0.0000302	0.0000301	0.0000300
Calcium Ca	mg/L	114	114	114	109	104	104	104	103	102	102	102	101
Chromium Cr	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0048	0.0048	0.0048	0.0046	0.0044	0.0044	0.0044	0.0043	0.0043	0.0043	0.0043	0.0043
Copper Cu	mg/L	0.0048	0.0047	0.0047	0.0046	0.0044	0.0044	0.0044	0.0044	0.0043	0.0043	0.0043	0.0043
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00026	0.00026	0.00026	0.00026	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024
Lithium Li	mg/L	0.0042	0.0041	0.0041	0.0042	0.0041	0.0041	0.0042	0.0041	0.0041	0.0041	0.0041	0.0041
Magnesium Mg	mg/L	6.8	6.8	6.8	6.8	6.6	6.6	6.7	6.6	6.6	6.6	6.6	6.6
Manganese Mn	mg/L	0.014	0.014	0.014	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.012	0.012
Mercury Hg	mg/L	0.0000036	0.0000036	0.0000035	0.0000034	0.0000033	0.0000033	0.0000033	0.0000033	0.0000032	0.0000032	0.0000032	0.0000032
Molybdenum Mo	mg/L	0.00408	0.00407	0.00405	0.00389	0.00370	0.00369	0.00368	0.00365	0.00363	0.00362	0.00361	0.00360
Nickel Ni	mg/L	0.0043	0.0043	0.0043	0.0041	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0038
Phosphorus P	mg/L	0.145	0.145	0.144	0.139	0.132	0.132	0.131	0.130	0.130	0.129	0.129	0.129
Potassium K	mg/L	19.3	19.2	19.2	18.5	17.6	17.6	17.6	17.4	17.3	17.3	17.2	17.2
Selenium Se	mg/L	0.00045	0.00045	0.00045	0.00046	0.00045	0.00045	0.00045	0.00045	0.00045	0.00044	0.00044	0.00044
Silicon SiO2	mg/L	2.34	2.34	2.33	2.30	2.21	2.21	2.22	2.21	2.19	2.19	2.18	2.18
Silver Ag	mg/L	0.0001062	0.0001059	0.0001056	0.0001084	0.0001061	0.0001058	0.0001057	0.0001048	0.0001042	0.0001039	0.0001036	0.0001034
Sodium Na	mg/L	30	30	30	30	29	29	29	29	29	29	29	29
Strontium Sr	mg/L	0.054	0.053	0.053	0.053	0.051	0.051	0.051	0.051	0.051	0.050	0.050	0.050
Tellurium Te	mg/L	0.039	0.039	0.039	0.041	0.040	0.041	0.041	0.041	0.041	0.041	0.041	0.041
Thallium Tl	mg/L	0.000038	0.000038	0.000038	0.000039	0.000038	0.000038	0.000038	0.000038	0.000038	0.000038	0.000037	0.000037
Thorium Th	mg/L	0.000025	0.000024	0.000024	0.000023	0.000022	0.000022	0.000022	0.000022	0.000022	0.000022	0.000022	0.000022
Tin Sn	mg/L	0.00141	0.00140	0.00140	0.00135	0.00129	0.00129	0.00129	0.00128	0.00127	0.00127	0.00126	0.00126
Titanium Ti	mg/L	0.0052	0.0052	0.0052	0.0054	0.0053	0.0054	0.0054	0.0054	0.0054	0.0054	0.0054	0.0053
Uranium U	mg/L	0.000059	0.000059	0.000059	0.000060	0.000058	0.000058	0.000058	0.000058	0.000057	0.000057	0.000057	0.000057
Vanadium V	mg/L	0.0021	0.0021	0.0021	0.0021	0.0020	0.0020	0.0020	0.0019	0.0019	0.0019	0.0019	0.0019
Zinc Zn	mg/L	0.0118	0.0118	0.0118	0.0113	0.0108	0.0108	0.0109	0.0108	0.0107	0.0107	0.0107	0.0107
Zirconium Zr	mg/L	0.0044	0.0044	0.0044	0.0045	0.0045	0.0045	0.0046	0.0045	0.0045	0.0045	0.0045	0.0045

Table I-5-c-A.2
20 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE											
Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L	357	356	355	348	335	335	336	334	332	331	330	329
TSS	mg/L	2.9	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Free CN	mg/L												
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L	0.039	0.039	0.039	0.037	0.035	0.035	0.035	0.035	0.035	0.034	0.034	0.034
Sulphate	mg/L	40.3	40.2	40.1	38.6	36.8	36.7	36.7	36.4	36.2	36.1	36.0	36.0
Chloride	mg/L	233	232	232	224	215	215	215	213	212	211	211	210
Total Ammonia	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.53	1.48	1.42	1.36	1.29	1.29	1.29	1.28	1.22	1.16	1.11	1.05
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	38	38	38	38	37	37	37	37	37	37	37	37
OrthoPhosphate-P	mg/L	0.0830	0.0827	0.0825	0.0794	0.0755	0.0754	0.0753	0.0747	0.0743	0.0741	0.0739	0.0737
Phosphate-P	mg/L	0.0871	0.0868	0.0866	0.0838	0.0798	0.0797	0.0796	0.0790	0.0786	0.0783	0.0781	0.0779
Org. Carbon	mg/L	4.9	4.9	4.9	5.1	5.1	5.1	5.2	5.2	5.1	5.1	5.1	5.1
Hardness CaCO3	mg/L	64	64	64	64	62	62	63	62	62	62	62	61
Total Metals													
Aluminum Al	mg/L	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03
Antimony Sb	mg/L	0.0076	0.0076	0.0076	0.0073	0.0069	0.0069	0.0069	0.0069	0.0068	0.0068	0.0068	0.0068
Arsenic As	mg/L	0.0014	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Barium Ba	mg/L	0.0054	0.0054	0.0054	0.0053	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0050	0.0050
Beryllium Be	mg/L	0.00040	0.00039	0.00039	0.00039	0.00038	0.00038	0.00038	0.00037	0.00037	0.00037	0.00037	0.00037
Bismuth Bi	mg/L	0.00724	0.00722	0.00720	0.00691	0.00658	0.00656	0.00655	0.00650	0.00646	0.00644	0.00643	0.00641
Boron B	mg/L	0.022	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021
Cadmium Cd	mg/L	0.0000300	0.0000299	0.0000298	0.0000288	0.0000274	0.0000274	0.0000272	0.0000272	0.0000270	0.0000269	0.0000268	0.0000268
Calcium Ca	mg/L	101	101	101	97	92	92	92	91	91	91	90	90
Chromium Cr	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0043	0.0043	0.0042	0.0041	0.0039	0.0039	0.0039	0.0038	0.0038	0.0038	0.0038	0.0038
Copper Cu	mg/L	0.0043	0.0043	0.0043	0.0042	0.0040	0.0040	0.0040	0.0039	0.0039	0.0039	0.0039	0.0039
Iron Fe	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lead Pb	mg/L	0.00024	0.00024	0.00024	0.00023	0.00022	0.00022	0.00022	0.00022	0.00022	0.00022	0.00022	0.00022
Lithium Li	mg/L	0.0041	0.0041	0.0040	0.0041	0.0040	0.0040	0.0041	0.0041	0.0040	0.0040	0.0040	0.0040
Magnesium Mg	mg/L	6.5	6.5	6.5	6.5	6.3	6.4	6.4	6.4	6.4	6.3	6.3	6.3
Manganese Mn	mg/L	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
Mercury Hg	mg/L	0.0000032	0.0000032	0.0000032	0.0000031	0.0000030	0.0000030	0.0000030	0.0000030	0.0000029	0.0000029	0.0000029	0.0000029
Molybdenum Mo	mg/L	0.00360	0.00359	0.00358	0.00344	0.00328	0.00327	0.00327	0.00324	0.00322	0.00321	0.00320	0.00320
Nickel Ni	mg/L	0.0038	0.0038	0.0038	0.0037	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
Phosphorus P	mg/L	0.128	0.128	0.128	0.123	0.117	0.117	0.117	0.116	0.115	0.115	0.115	0.114
Potassium K	mg/L	17.2	17.1	17.1	16.5	15.7	15.7	15.7	15.6	15.5	15.5	15.4	15.4
Selenium Se	mg/L	0.00044	0.00044	0.00044	0.00045	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044
Silicon SiO2	mg/L	2.17	2.17	2.16	2.13	2.06	2.06	2.07	2.06	2.05	2.04	2.03	2.03
Silver Ag	mg/L	0.0001032	0.0001029	0.0001026	0.0001054	0.0001033	0.0001031	0.0001030	0.0001022	0.0001016	0.0001013	0.0001010	0.0001008
Sodium Na	mg/L	29	29	28	28	28	28	28	28	28	28	27	27
Strontium Sr	mg/L	0.050	0.050	0.050	0.049	0.048	0.048	0.048	0.048	0.048	0.047	0.047	0.047
Tellurium Te	mg/L	0.041	0.040	0.040	0.042	0.042	0.042	0.043	0.042	0.042	0.042	0.042	0.042
Thallium Tl	mg/L	0.000037	0.000037	0.000037	0.000038	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037
Thorium Th	mg/L	0.000022	0.000022	0.000021	0.000021	0.000020	0.000020	0.000020	0.000019	0.000019	0.000019	0.000019	0.000019
Tin Sn	mg/L	0.00126	0.00126	0.00125	0.00121	0.00116	0.00116	0.00116	0.00115	0.00115	0.00114	0.00114	0.00114
Titanium Ti	mg/L	0.0053	0.0053	0.0053	0.0055	0.0054	0.0055	0.0055	0.0055	0.0055	0.0055	0.0054	0.0054
Uranium U	mg/L	0.000057	0.000057	0.000057	0.000058	0.000057	0.000056	0.000056	0.000056	0.000056	0.000056	0.000055	0.000055
Vanadium V	mg/L	0.0019	0.0019	0.0019	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018	0.0017	0.0017	0.0017
Zinc Zn	mg/L	0.0106	0.0106	0.0106	0.0102	0.0097	0.0097	0.0098	0.0098	0.0097	0.0097	0.0097	0.0096
Zirconium Zr	mg/L	0.0045	0.0045	0.0044	0.0046	0.0045	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046

Table I-5-c-A.2
20 % increase in Background Coppe

Water Quality in TAIL LAKE		Water Quality in TAIL LAKE										
Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L	329	328	327	398	456	531	607	678	674	672	670
TSS	mg/L	2.9	2.9	2.9	3.1	3.1	3.1	3.2	3.2	3.1	3.1	3.1
Free CN	mg/L											
Total CN	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L	0.034	0.034	0.034	0.033	0.031	0.031	0.031	0.031	0.031	0.031	0.031
Sulphate	mg/L	35.9	35.8	35.7	34.5	32.9	32.9	32.9	32.6	32.5	32.4	32.3
Chloride	mg/L	210	209	209	252	288	334	380	423	421	420	418
Total Ammonia	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrate	mg/L	1.00	0.94	0.89	0.85	0.81	0.81	0.81	0.80	0.75	0.69	0.64
Nitrite	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alkalinity	mg/L	37	36	36	37	36	36	36	36	36	36	36
OrthoPhosphate-P	mg/L	0.0736	0.0734	0.0732	0.0705	0.0673	0.0672	0.0671	0.0666	0.0663	0.0660	0.0659
Phosphate-P	mg/L	0.0778	0.0776	0.0774	0.0758	0.0728	0.0728	0.0729	0.0724	0.0720	0.0718	0.0716
Org. Carbon	mg/L	5.1	5.1	5.1	5.3	5.2	5.3	5.3	5.3	5.3	5.3	5.2
Hardness CaCO3	mg/L	61	61	61	61	59	60	60	60	59	59	59
Total Metals												
Aluminum Al	mg/L	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Antimony Sb	mg/L	0.0068	0.0068	0.0067	0.0065	0.0062	0.0062	0.0062	0.0062	0.0061	0.0061	0.0061
Arsenic As	mg/L	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Barium Ba	mg/L	0.0050	0.0050	0.0050	0.0049	0.0047	0.0048	0.0048	0.0048	0.0047	0.0047	0.0047
Beryllium Be	mg/L	0.00037	0.00037	0.00037	0.00037	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035
Bismuth Bi	mg/L	0.00640	0.00638	0.00637	0.00613	0.00584	0.00583	0.00582	0.00578	0.00575	0.00573	0.00571
Boron B	mg/L	0.021	0.021	0.020	0.022	0.022	0.022	0.023	0.022	0.022	0.022	0.022
Cadmium Cd	mg/L	0.0000267	0.0000267	0.0000266	0.0000261	0.0000252	0.0000252	0.0000253	0.0000251	0.0000250	0.0000249	0.0000248
Calcium Ca	mg/L	90	90	90	91	91	96	100	104	103	103	103
Chromium Cr	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt Co	mg/L	0.0038	0.0038	0.0038	0.0036	0.0035	0.0035	0.0035	0.0034	0.0034	0.0034	0.0034
Copper Cu	mg/L	0.0039	0.0039	0.0039	0.0038	0.0037	0.0037	0.0037	0.0037	0.0037	0.0036	0.0036
Iron Fe	mg/L	0.05	0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07
Lead Pb	mg/L	0.00022	0.00022	0.00022	0.00021	0.00020	0.00021	0.00021	0.00020	0.00020	0.00020	0.00020
Lithium Li	mg/L	0.0040	0.0040	0.0040	0.0041	0.0041	0.0041	0.0042	0.0042	0.0041	0.0041	0.0041
Magnesium Mg	mg/L	6.3	6.3	6.3	6.4	6.3	6.4	6.5	6.4	6.4	6.4	6.4
Manganese Mn	mg/L	0.011	0.011	0.011	0.011	0.010	0.010	0.011	0.010	0.010	0.010	0.010
Mercury Hg	mg/L	0.0000029	0.0000029	0.0000029	0.0000037	0.0000039	0.0000040	0.0000042	0.0000042	0.0000042	0.0000042	0.0000041
Molybdenum Mo	mg/L	0.00319	0.00318	0.00317	0.00307	0.00294	0.00294	0.00294	0.00291	0.00290	0.00289	0.00288
Nickel Ni	mg/L	0.0035	0.0034	0.0034	0.0034	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
Phosphorus P	mg/L	0.114	0.114	0.114	0.110	0.105	0.105	0.105	0.104	0.103	0.103	0.103
Potassium K	mg/L	15.4	15.3	15.3	14.9	14.3	14.3	14.3	14.3	14.2	14.1	14.1
Selenium Se	mg/L	0.00044	0.00043	0.00043	0.00049	0.00049	0.00050	0.00051	0.00051	0.00051	0.00051	0.00051
Silicon SiO2	mg/L	2.03	2.02	2.02	2.02	1.97	1.98	1.99	1.98	1.97	1.96	1.95
Silver Ag	mg/L	0.0001006	0.0001004	0.0001001	0.0001032	0.0001016	0.0001015	0.0001015	0.0001007	0.0001002	0.0000999	0.0000996
Sodium Na	mg/L	27	27	27	54	78	103	128	152	151	151	151
Strontium Sr	mg/L	0.047	0.047	0.047	0.047	0.046	0.046	0.047	0.047	0.046	0.046	0.046
Tellurium Te	mg/L	0.042	0.042	0.042	0.043	0.043	0.043	0.044	0.043	0.043	0.043	0.043
Thallium Tl	mg/L	0.000036	0.000036	0.000036	0.000037	0.000036	0.000036	0.000037	0.000037	0.000036	0.000036	0.000036
Thorium Th	mg/L	0.000019	0.000019	0.000019	0.000021	0.000022	0.000022	0.000023	0.000023	0.000022	0.000022	0.000022
Tin Sn	mg/L	0.00114	0.00113	0.00113	0.00110	0.00105	0.00106	0.00106	0.00105	0.00105	0.00104	0.00104
Titanium Ti	mg/L	0.0054	0.0054	0.0054	0.0062	0.0063	0.0065	0.0067	0.0066	0.0066	0.0066	0.0066
Uranium U	mg/L	0.000055	0.000055	0.000055	0.000058	0.000058	0.000058	0.000058	0.000058	0.000058	0.000057	0.000057
Vanadium V	mg/L	0.0017	0.0017	0.0017	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0017
Zinc Zn	mg/L	0.0096	0.0096	0.0096	0.0093	0.0089	0.0089	0.0090	0.0090	0.0090	0.0089	0.0089
Zirconium Zr	mg/L	0.0045	0.0045	0.0045	0.0047	0.0046	0.0046	0.0047	0.0047	0.0047	0.0046	0.0046

Table I-5-c-A.3
20 % increase in Background Copper in Doris Lake

Loadings to Tail Lake (kg/month)												
Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS	81148	78530	81148	117442	100991	86285	86239	83176	78530	81148	81148	73295
TSS	183	177	183	1239	679	337	370	234	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18322	17069	15396	15293	14793	13840	14302	14302	12918
Chloride	49110	47526	49110	82360	70967	57279	58123	52604	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15548	12054	8315	8310	7350	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2122.46	1157.54	308.23	321.20	84.51				
Hardness CaCO3	14992	14508	14992	26182	22102	16893	16949	15634	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.31	12.06	9.21	8.81	5.91	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.47	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.29	2.00	1.75	1.72	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.30	7.36	4.49	4.71	3.43	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42156	42157	41152	39985	40729	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.32	1.26	1.11	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.84	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.53	11.61	9.24	9.33	5.97	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.84	1.14	0.69	0.73	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2866	2079	1456	1461	1201	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.17	4.97	4.80	4.75	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.77	1.58	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7119	7032	6792	6627	6737	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	963	771	630	632	584	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11746	9489	7295	7332	6666	6148	6353	6353	5739
Strontium Sr	12	12	12	21	18	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.74	8.31	2.60	3.24	0.87	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.34	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.42	1.21	0.46	0.55	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.09	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.10	1.03	0.34	0.43	0.12				

Loadings to Tail Lake (kg/month)												
Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS	81148	78530	81148	116158	100401	86136	86015	83118	78530	81148	81148	73295
TSS	183	177	183	1204	665	333	364	233	177	183	183	166
Free CN	1.10	1.06	1.10	1.06	1.10	1.10	1.06	1.10	1.06	1.10	1.10	0.99
Total CN	11	10	11	11	11	11	10	11	10	11	11	10
WAD CN	1.47	1.42	1.47	1.42	1.47	1.47	1.42	1.47	1.42	1.47	1.47	1.32
CNO	1210	1171	1210	1171	1210	1210	1171	1210	1171	1210	1210	1093
SCN	16	16	16	16	16	16	16	16	16	16	16	15
Sulphate	14302	13840	14302	18299	17057	15393	15288	14791	13840	14302	14302	12918
Chloride	49110	47526	49110	82022	70770	57228	58054	52586	47526	49110	49110	44357
Total Ammonia	149	145	149	288	238	187	194	166	145	149	149	135
Nitrate	758	733	758	1855	1453	1051	1108	888	733	758	758	684
Nitrite	116	112	116	139	132	123	121	119	112	116	116	105
Alkalinity	6928	6704	6928	15256	11902	8274	8264	7338	6704	6928	6928	6257
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2052.44	1123.14	299.27	311.88	82.11				
Hardness CaCO3	14992	14508	14992	25797	21891	16837	16879	15616	14508	14992	14992	13541
Total Metals												
Aluminum Al	4.47	4.33	4.47	19.11	12.00	9.14	8.76	5.90	4.33	4.47	4.47	4.04
Antimony Sb	1.32	1.28	1.32	4.67	3.44	2.22	2.44	1.72	1.28	1.32	1.32	1.19
Arsenic As	0.39	0.38	0.39	0.69	0.59	0.47	0.47	0.43	0.38	0.39	0.39	0.36
Barium Ba	1.56	1.51	1.56	2.27	1.99	1.75	1.72	1.62	1.51	1.56	1.56	1.41
Beryllium Be	0.05	0.05	0.05	0.23	0.15	0.08	0.09	0.06	0.05	0.05	0.05	0.04
Bismuth Bi	1.23	1.19	1.23	4.55	3.31	2.10	2.31	1.62	1.19	1.23	1.23	1.11
Boron B	2.80	2.71	2.80	10.16	7.29	4.47	4.69	3.42	2.71	2.80	2.80	2.53
Cadmium Cd	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium Ca	40484	39178	40484	42096	42129	41141	39973	40726	39178	40484	40484	36566
Chromium Cr	1.02	0.99	1.02	1.31	1.26	1.11	1.06	1.04	0.99	1.02	1.02	0.92
Cobalt Co	1.67	1.62	1.67	1.85	1.81	1.73	1.69	1.70	1.62	1.67	1.67	1.51
Copper Cu	1.46	1.41	1.46	1.83	1.69	1.52	1.49	1.48	1.41	1.46	1.46	1.32
Iron Fe	4.63	4.48	4.63	21.04	11.44	9.12	9.21	5.94	4.48	4.63	4.63	4.18
Lead Pb	0.05	0.05	0.05	0.13	0.10	0.07	0.07	0.06	0.05	0.05	0.05	0.04
Lithium Li	0.46	0.45	0.46	1.80	1.13	0.68	0.73	0.54	0.45	0.46	0.46	0.42
Magnesium Mg	1082	1047	1082	2818	2056	1448	1453	1199	1047	1082	1082	977
Manganese Mn	4.56	4.41	4.56	5.16	4.97	4.80	4.74	4.66	4.41	4.56	4.56	4.12
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	1.48	1.43	1.48	1.50	1.52	1.49	1.45	1.48	1.43	1.48	1.48	1.34
Nickel Ni	1.26	1.22	1.26	1.76	1.57	1.38	1.37	1.31	1.22	1.26	1.26	1.14
Phosphorus P	33	32	33	45	40	36	36	35	32	33	33	30
Potassium K	6696	6480	6696	7101	7024	6790	6624	6736	6480	6696	6696	6048
Selenium Se	0.04	0.04	0.04	0.21	0.12	0.06	0.07	0.05	0.04	0.04	0.04	0.03
Silicon SiO2	556	538	556	953	767	629	630	583	538	556	556	502
Silver Ag	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sodium Na	6353	6148	6353	11563	9397	7268	7298	6657	6148	6353	6353	5739
Strontium Sr	12	12	12	21	17	14	14	13	12	12	12	11
Tellurium Te	0.02	0.02	0.02	17.15	8.06	2.52	3.15	0.84	0.02	0.02	0.02	0.02
Thallium Tl	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn	0.18	0.18	0.18	0.74	0.56	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.10	0.09	0.10	2.35	1.18	0.45	0.53	0.22	0.09	0.10	0.10	0.09
Uranium U	0.00	0.00	0.00	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.36	0.35	0.36	1.08	0.79	0.52	0.54	0.43	0.35	0.36	0.36	0.33
Zinc Zn	3.5	3.4	3.5	4.4	4.1	3.8	4.2	3.7	3.4	3.5	3.5	3.2
Zirconium Zr				2.04	1.01	0.34	0.42	0.12				

Loadings to Tail Lake (kg/month)												
Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS	50662	49028	50662	85957	69592	55569	56394	52603	49028	50662	50662	45759
TSS				1007	473	147	184	49				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate	1289	1247	1289	5593	3975	2352	2658	1766	1247	1289	1289	1164
Chloride	49110	47526	49110	81837	70662	57201	58018	52577	47526	49110	49110	44357
Total Ammonia	25	24	25	153	104	58	68	40	24	25	25	22
Nitrate	29	28	29	1036	654	292	365	147	28	29	29	26
Nitrite	64	62	64	86	79	71	70	67	62	64	64	58
Alkalinity				8393	4890	1325	1535	404				
OrthoPhosphate-P	21	21	21	21	22	21	21	21	21	21	21	19
Phosphate-P	21	21	21	24	22	22	21	21	21	21	21	19
Org. Carbon				2014.31	1104.25	294.42	306.95	80.87				
Hardness CaCO3				11079	6783	1816	2333	615				
Total Metals												
Aluminum Al	0.81	0.78	0.81	12.51	6.48	4.67	4.21	1.89	0.78	0.81	0.81	0.73
Antimony Sb	1.21	1.17	1.21	4.55	3.32	2.11	2.33	1.61	1.17	1.21	1.21	1.09
Arsenic As	0.03	0.03	0.03	0.27	0.18	0.08	0.10	0.05	0.03	0.03	0.03	0.02
Barium Ba	0.06	0.06	0.06	0.79	0.48	0.24	0.26	0.12	0.06	0.06	0.06	0.05
Beryllium Be	0.03	0.03	0.03	0.20	0.13	0.06	0.06	0.04	0.03	0.03	0.03	0.03
Bismuth Bi	1.21	1.17	1.21	4.52	3.28	2.08	2.29	1.60	1.17	1.21	1.21	1.09
Boron B	0.60	0.58	0.60	7.27	4.62	2.07	2.32	1.14	0.58	0.60	0.60	0.55
Cadmium Cd	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium Ca	263	254	263	2966	1784	869	984	483	254	263	263	237
Chromium Cr	0.07	0.06	0.07	0.37	0.30	0.16	0.13	0.09	0.06	0.07	0.07	0.06
Cobalt Co	0.06	0.06	0.06	0.28	0.19	0.11	0.13	0.08	0.06	0.06	0.06	0.05
Copper Cu	0.03	0.03	0.03	0.42	0.24	0.09	0.10	0.05	0.03	0.03	0.03	0.03
Iron Fe	0.23	0.23	0.23	15.82	6.53	4.48	4.66	1.45	0.23	0.23	0.23	0.21
Lead Pb	0.01	0.01	0.01	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Lithium Li	0.06	0.06	0.06	1.38	0.71	0.27	0.33	0.14	0.06	0.06	0.06	0.05
Magnesium Mg	121	117	121	1846	1072	479	513	236	117	121	121	110
Manganese Mn	0.16	0.15	0.16	0.88	0.56	0.39	0.48	0.26	0.15	0.16	0.16	0.14
Mercury Hg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molybdenum Mo	0.01	0.01	0.01	0.08	0.05	0.02	0.03	0.02	0.01	0.01	0.01	0.01
Nickel Ni	0.12	0.12	0.12	0.65	0.43	0.24	0.26	0.17	0.12	0.12	0.12	0.11
Phosphorus P	23	22	23	33	29	25	25	24	22	23	23	21
Potassium K	25	24	25	630	345	117	165	64	24	25	25	23
Selenium Se	0.00	0.00	0.00	0.15	0.08	0.02	0.03	0.01	0.00	0.00	0.00	0.00
Silicon SiO2	10	9	10	386	198	73	89	33	9	10	10	9
Silver Ag	0.00	0.00	0.00	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sodium Na	12	12	12	5322	3002	911	1142	311	12	12	12	11
Strontium Sr	0	0	0	9	5	2	2	1	0	0	0	0
Tellurium Te				16.81	7.90	2.46	3.08	0.81				
Thallium Tl	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn	0.18	0.18	0.18	0.73	0.55	0.33	0.37	0.25	0.18	0.18	0.18	0.16
Titanium Ti	0.06	0.06	0.06	2.26	1.12	0.40	0.49	0.18	0.06	0.06	0.06	0.05
Uranium U	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanadium V	0.18	0.18	0.18	0.87	0.59	0.33	0.36	0.24	0.18	0.18	0.18	0.16
Zinc Zn	0.2	0.2	0.2	1.1	0.8	0.5	0.9	0.4	0.2	0.2	0.2	0.2
Zirconium Zr				1.88	0.91	0.30	0.37	0.10				

Loadings to Tail Lake (kg/month)												
Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				36674	18810	4877	7323	1930				
TSS				1000	470	146	183	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				804	489	138	227	64				
Chloride				9669	6270	1658	2258	595				
Total Ammonia				61	37	16	21	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8335	4859	1317	1526	402				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				2000.39	1097.26	292.63	305.13	80.41				
Hardness CaCO3				11002	6740	1805	2319	611				
Total Metals												
Aluminum Al				9.79	4.48	3.35	2.78	0.86				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.17	0.11	0.04	0.05	0.01				
Barium Ba				0.57	0.31	0.14	0.15	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				5.00	2.97	1.03	1.17	0.34				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1978	1068	415	486	135				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.05	0.03	0.01	0.01	0.00				
Copper Cu				0.33	0.17	0.04	0.05	0.01				
Iron Fe				15.00	5.95	4.09	4.25	1.15				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				1.14	0.54	0.17	0.21	0.06				
Magnesium Mg				1386	740	269	282	75				
Manganese Mn				0.29	0.12	0.12	0.18	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.19	0.10	0.03	0.03	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				533	275	73	116	31				
Selenium Se				0.15	0.07	0.02	0.03	0.01				
Silicon SiO2				347	170	56	71	20				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				5241	2951	884	1113	293				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.69	7.85	2.44	3.06	0.81				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.05	0.06	0.02	0.02	0.01				
Titanium Ti				2.02	0.95	0.30	0.37	0.10				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.20	0.10	0.02	0.01	0.00				
Zinc Zn				0.4	0.2	0.1	0.5	0.1				
Zirconium Zr				1.86	0.91	0.30	0.37	0.10				

Loadings to Tail Lake (kg/month)												
Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				36510	18730	4856	7292	1922				
TSS				996	468	146	182	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				801	488	138	226	64				
Chloride				9625	6243	1651	2248	592				
Total Ammonia				61	37	16	21	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8298	4839	1311	1519	400				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1991.43	1092.57	291.38	303.82	80.07				
Hardness CaCO3				10953	6712	1797	2309	609				
Total Metals												
Aluminum Al				9.76	4.47	3.34	2.78	0.85				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.16	0.10	0.04	0.05	0.01				
Barium Ba				0.56	0.31	0.14	0.14	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				4.98	2.96	1.03	1.17	0.34				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1971	1064	414	485	135				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.05	0.03	0.01	0.01	0.00				
Copper Cu				0.33	0.17	0.04	0.05	0.01				
Iron Fe				14.94	5.93	4.08	4.23	1.14				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				1.14	0.54	0.17	0.21	0.06				
Magnesium Mg				1379	737	267	281	75				
Manganese Mn				0.29	0.12	0.12	0.18	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.19	0.10	0.03	0.03	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				531	274	73	116	31				
Selenium Se				0.15	0.07	0.02	0.03	0.01				
Silicon SiO2				346	170	56	71	20				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				5217	2938	881	1108	292				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.61	7.82	2.43	3.04	0.80				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.05	0.06	0.02	0.02	0.01				
Titanium Ti				2.01	0.95	0.30	0.37	0.10				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.20	0.10	0.02	0.01	0.00				
Zinc Zn				0.4	0.2	0.1	0.5	0.1				
Zirconium Zr				1.86	0.90	0.29	0.37	0.10				

Loadings to Tail Lake (kg/month)												
Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				36357	18655	4837	7262	1914				
TSS				992	466	145	182	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				798	486	138	225	64				
Chloride				9585	6218	1645	2239	590				
Total Ammonia				61	37	16	21	7				
Nitrate				470	291	122	157	55				
Nitrite				11	7	3	4	1				
Alkalinity				8263	4819	1306	1513	399				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1983.11	1088.20	290.21	302.60	79.75				
Hardness CaCO3				10907	6685	1790	2300	606				
Total Metals												
Aluminum Al				9.74	4.46	3.33	2.77	0.85				
Antimony Sb				0.06	0.05	0.03	0.05	0.01				
Arsenic As				0.16	0.10	0.04	0.05	0.01				
Barium Ba				0.56	0.31	0.14	0.14	0.04				
Beryllium Be				0.09	0.04	0.01	0.01	0.00				
Bismuth Bi				0.03	0.02	0.01	0.01	0.00				
Boron B				4.97	2.95	1.03	1.16	0.34				
Cadmium Cd				0.01	0.00	0.00	0.00	0.00				
Calcium Ca				1964	1061	413	483	134				
Chromium Cr				0.14	0.13	0.05	0.01	0.00				
Cobalt Co				0.05	0.03	0.01	0.01	0.00				
Copper Cu				0.32	0.17	0.04	0.05	0.01				
Iron Fe				14.88	5.91	4.06	4.21	1.14				
Lead Pb				0.04	0.02	0.01	0.01	0.00				
Lithium Li				1.13	0.54	0.17	0.21	0.06				
Magnesium Mg				1374	734	266	280	75				
Manganese Mn				0.29	0.12	0.12	0.17	0.05				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.19	0.10	0.03	0.03	0.01				
Phosphorus P				6	3	1	1	0				
Potassium K				529	273	72	115	31				
Selenium Se				0.15	0.07	0.02	0.03	0.01				
Silicon SiO2				345	169	56	70	20				
Silver Ag				0.04	0.02	0.00	0.00	0.00				
Sodium Na				5195	2926	877	1104	291				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.55	7.79	2.42	3.03	0.80				
Thallium Tl				0.01	0.01	0.00	0.00	0.00				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				0.05	0.06	0.02	0.02	0.01				
Titanium Ti				2.00	0.94	0.30	0.37	0.10				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.20	0.10	0.02	0.01	0.00				
Zinc Zn				0.4	0.2	0.1	0.5	0.1				
Zirconium Zr				1.85	0.90	0.29	0.37	0.10				

Loadings to Tail Lake (kg/month)												
Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				36214	18584	4819	7235	1907				
TSS				988	465	145	181	48				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				649	393	99	175	46				
Chloride				9547	6195	1638	2231	588				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8230	4801	1301	1507	397				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1975.30	1084.07	289.11	301.44	79.44				
Hardness CaCO3				10864	6659	1783	2291	604				
Total Metals												
Aluminum Al				5.43	1.80	2.20	1.33	0.35				
Antimony Sb				0.04	0.04	0.03	0.04	0.01				
Arsenic As				0.07	0.04	0.01	0.01	0.00				
Barium Ba				0.55	0.30	0.13	0.14	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				3.95	2.32	0.76	0.83	0.22				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1705	901	345	397	105				
Chromium Cr				0.12	0.11	0.04	0.01	0.00				
Cobalt Co				0.03	0.02	0.00	0.01	0.00				
Copper Cu				0.30	0.15	0.03	0.04	0.01				
Iron Fe				13.83	5.27	3.79	3.86	1.02				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.11	0.52	0.16	0.20	0.05				
Magnesium Mg				1343	715	259	271	71				
Manganese Mn				0.26	0.11	0.11	0.17	0.04				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.17	0.08	0.02	0.02	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				520	268	70	113	30				
Selenium Se				0.13	0.06	0.02	0.02	0.01				
Silicon SiO2				296	139	43	54	14				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				5169	2912	872	1097	289				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.46	7.74	2.41	3.01	0.79				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.03	0.05	0.01	0.02	0.00				
Titanium Ti				1.98	0.93	0.29	0.36	0.10				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.16	0.07	0.01	0.00	0.00				
Zinc Zn				0.3	0.1	0.1	0.5	0.1				
Zirconium Zr				1.65	0.77	0.24	0.30	0.08				

Loadings to Tail Lake (kg/month)												
Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				36079	18517	4801	7208	1900				
TSS				984	463	144	180	47				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				646	392	98	175	46				
Chloride				9512	6172	1632	2223	586				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8200	4784	1296	1502	396				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1967.94	1080.16	288.07	300.35	79.16				
Hardness CaCO3				10824	6635	1776	2283	602				
Total Metals												
Aluminum Al				5.41	1.79	2.19	1.33	0.35				
Antimony Sb				0.04	0.04	0.03	0.04	0.01				
Arsenic As				0.07	0.04	0.01	0.01	0.00				
Barium Ba				0.54	0.30	0.13	0.14	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				3.94	2.31	0.76	0.82	0.22				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1699	898	344	396	104				
Chromium Cr				0.12	0.11	0.04	0.01	0.00				
Cobalt Co				0.03	0.02	0.00	0.01	0.00				
Copper Cu				0.30	0.15	0.03	0.04	0.01				
Iron Fe				13.78	5.25	3.77	3.85	1.01				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.11	0.52	0.16	0.20	0.05				
Magnesium Mg				1338	713	258	270	71				
Manganese Mn				0.26	0.11	0.11	0.17	0.04				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.17	0.08	0.02	0.02	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				518	267	70	112	30				
Selenium Se				0.13	0.06	0.02	0.02	0.01				
Silicon SiO2				295	139	43	54	14				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				5149	2901	869	1093	288				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.40	7.72	2.40	3.00	0.79				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.03	0.05	0.01	0.02	0.00				
Titanium Ti				1.97	0.93	0.29	0.36	0.09				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.16	0.07	0.01	0.00	0.00				
Zinc Zn				0.3	0.1	0.1	0.5	0.1				
Zirconium Zr				1.64	0.77	0.24	0.30	0.08				

Loadings to Tail Lake (kg/month)												
Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				35951	18453	4785	7183	1893				
TSS				980	461	144	180	47				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				644	391	98	174	46				
Chloride				9478	6151	1627	2215	584				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8171	4767	1292	1497	394				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				3	1	0	0	0				
Org. Carbon				1960.94	1076.43	287.08	299.31	78.88				
Hardness CaCO3				10785	6612	1770	2275	600				
Total Metals												
Aluminum Al				5.39	1.78	2.19	1.32	0.35				
Antimony Sb				0.04	0.04	0.03	0.04	0.01				
Arsenic As				0.07	0.04	0.01	0.01	0.00				
Barium Ba				0.54	0.30	0.13	0.14	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.00	0.00	0.00	0.00				
Boron B				3.92	2.31	0.76	0.82	0.22				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				1693	895	343	394	104				
Chromium Cr				0.12	0.11	0.04	0.01	0.00				
Cobalt Co				0.03	0.02	0.00	0.01	0.00				
Copper Cu				0.29	0.15	0.03	0.04	0.01				
Iron Fe				13.73	5.23	3.76	3.84	1.01				
Lead Pb				0.02	0.01	0.00	0.00	0.00				
Lithium Li				1.10	0.52	0.16	0.20	0.05				
Magnesium Mg				1333	710	257	269	71				
Manganese Mn				0.26	0.11	0.11	0.17	0.04				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.03	0.02	0.00	0.00	0.00				
Nickel Ni				0.17	0.08	0.02	0.02	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				516	266	70	112	30				
Selenium Se				0.13	0.06	0.02	0.02	0.01				
Silicon SiO2				294	138	43	54	14				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				5131	2891	866	1089	287				
Strontium Sr				7	4	1	2	0				
Tellurium Te				16.34	7.69	2.39	2.99	0.79				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th												
Tin Sn				0.03	0.05	0.01	0.02	0.00				
Titanium Ti				1.96	0.92	0.29	0.36	0.09				
Uranium U				0.02	0.01	0.00	0.00	0.00				
Vanadium V				0.16	0.07	0.01	0.00	0.00				
Zinc Zn				0.3	0.1	0.1	0.5	0.1				
Zirconium Zr				1.63	0.77	0.24	0.30	0.08				

Loadings to Tail Lake (kg/month)												
Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				414040	396604	382981	385372	380099				
TSS				1584	745	232	290	76				
Free CN												
Total CN				1	0	0	0	0				
WAD CN												
CNO												
SCN												
Sulphate				642	389	98	174	46				
Chloride				256286	244263	234422	235613	231768				
Total Ammonia				2	1	0	2	0				
Nitrate				2	1	0	0	0				
Nitrite				1	0	0	0	0				
Alkalinity				8143	4751	1288	1492	393				
OrthoPhosphate-P				1	0	0	0	0				
Phosphate-P				7	3	1	1	0				
Org. Carbon				1954.25	1072.85	286.13	298.32	78.62				
Hardness CaCO3				10748	6590	1764	2267	598				
Total Metals												
Aluminum Al				57.98	26.53	9.88	10.96	2.89				
Antimony Sb				0.06	0.05	0.03	0.04	0.01				
Arsenic As				0.15	0.08	0.02	0.03	0.01				
Barium Ba				0.54	0.30	0.13	0.14	0.04				
Beryllium Be				0.07	0.03	0.00	0.00	0.00				
Bismuth Bi				0.01	0.01	0.00	0.00	0.00				
Boron B				10.47	5.39	1.71	2.02	0.53				
Cadmium Cd				0.00	0.00	0.00	0.00	0.00				
Calcium Ca				24461	23402	22690	22759	22403				
Chromium Cr				0.22	0.16	0.06	0.03	0.01				
Cobalt Co				0.06	0.03	0.01	0.01	0.00				
Copper Cu				0.46	0.23	0.06	0.07	0.02				
Iron Fe				64.83	29.28	11.24	13.19	3.48				
Lead Pb				0.03	0.01	0.00	0.00	0.00				
Lithium Li				1.58	0.74	0.23	0.29	0.08				
Magnesium Mg				2027	1037	358	396	104				
Manganese Mn				1.48	0.68	0.29	0.39	0.10				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				0.10	0.05	0.01	0.02	0.00				
Nickel Ni				0.22	0.11	0.03	0.03	0.01				
Phosphorus P				3	1	0	0	0				
Potassium K				1063	523	150	212	56				
Selenium Se				0.34	0.16	0.05	0.06	0.02				
Silicon SiO2				421	198	62	77	20				
Silver Ag				0.03	0.02	0.00	0.00	0.00				
Sodium Na				140423	133021	127838	128419	126303				
Strontium Sr				11	6	2	2	1				
Tellurium Te				16.29	7.66	2.38	2.98	0.79				
Thallium Tl				0.01	0.00	0.00	0.00	0.00				
Thorium Th				0.02	0.01	0.00	0.00	0.00				
Tin Sn				0.04	0.05	0.02	0.02	0.01				
Titanium Ti				4.94	2.32	0.72	0.90	0.24				
Uranium U				0.03	0.01	0.00	0.00	0.00				
Vanadium V				0.60	0.28	0.07	0.08	0.02				
Zinc Zn				0.5	0.3	0.1	0.5	0.1				
Zirconium Zr				1.64	0.77	0.24	0.30	0.08				

Appendix I

Table I-5-c-B.1
20 % increase in Background Copper in Doris Creek

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)
Discharge rate		400000 m3/year				
Degradation Field(age)		Tail Lk Cu < CME Year		25		
		MMER	CCME	Tail Lake	Doris Creek	L'Roberts L
Maximum Concentration				Year 2	Year 3	Year 3
pH			6 to 9	7 to 8	7 to 8	7 to 8
TDS	mg/L			678	156	167
TSS	mg/L			4.4	6.9	8.1
Free CN	mg/L		0.005	0.0029	0.00007	0.00003
Total CN	mg/L	1.0		0.028	0.003	0.002
WAD CN	mg/L			0.0038	0.0001	0.0000
CNO	mg/L			3.2	0.07	0.04
SCN	mg/L			0.098	0.002	0.001
Sulphate	mg/L			91	4.8	5.6
Chloride	mg/L			442	70	70
Total Ammonia	mg/L		0.97	1.12	0.037	0.020
Nitrate	mg/L		2.9	5.6	0.16	0.08
Nitrite	mg/L		0.018	0.44	0.013	0.007
Alkalinity	mg/L			55	28	26
OrthoPhosphate-P	mg/L			0.1679	0.0046	0.0029
Phosphate-P	mg/L			0.1711	0.0270	0.0260
Org. Carbon	mg/L			6.0	7.5	7.1
Hardness CaCO3	mg/L			108	47	45
Total Metals						
Aluminum Al	mg/L		0.1	0.14	0.08	0.24
Antimony Sb	mg/L			0.0153	0.0031	0.0019
Arsenic As	mg/L	0.5	0.005	0.00	0.0005	0.0005
Barium Ba	mg/L			0.0105	0.0033	0.0052
Beryllium Be	mg/L			0.00060	0.00002	0.00001
Bismuth Bi	mg/L			0.01475	0.00037	0.00027
Boron B	mg/L			0.030	0.034	0.030
Cadmium Cd	mg/L		0.000038	0.000055	0.0000045	0.0000155
Calcium Ca	mg/L			245	14	11
Chromium Cr	mg/L		0.001	0.0065	0.001	0.001
Cobalt Co	mg/L			0.0103	0.0011	0.0005
Copper Cu	mg/L	0.3	0.002	0.009	0.0020	0.0019
Iron Fe	mg/L		0.3	0.16	0.13	0.28
Lead Pb	mg/L	0.2	0.002	0.00040	0.00007	0.00026
Lithium Li	mg/L			0.0049	0.0029	0.0028
Magnesium Mg	mg/L			9.2	7.3	7.2
Manganese Mn	mg/L			0.028	0.021	0.024
Mercury Hg	mg/L		0.0001	0.0000107	0.0000008	0.0000007
Molybdenum Mo	mg/L		0.073	0.0089	0.00036	0.00032
Nickel Ni	mg/L	0.5	0.025	0.008	0.0007	0.0007
Phosphorus P	mg/L			0.249	0.029	0.027
Potassium K	mg/L			41	3.7	3.2
Selenium Se	mg/L		0.001	0.00089	0.00090	0.00083
Silicon SiO2	mg/L			3.9	0.59	0.55
Silver Ag	mg/L		0.0001	0.00012	0.0000047	0.0000050
Sodium Na	mg/L			152	42	39
Strontium Sr	mg/L			0.088	0.043	0.046
Tellurium Te	mg/L			0.049	0.050	0.051
Thallium Tl	mg/L		0.0008	0.000042	0.000031	0.002001
Thorium Th	mg/L			0.000040	0.0000023	0.0000011
Tin Sn	mg/L			0.00233	0.00045	0.00003
Titanium Ti	mg/L			0.0126	0.0062	0.0061
Uranium U	mg/L			0.000068	0.000040	0.000044
Vanadium V	mg/L			0.0034	0.0006	0.0005
Zinc Zn	mg/L	0.5	0.03	0.023	0.0036	0.0053
Zirconium Zr	mg/L			0.0051	0.0050	0.0051

Table I-5-c-B.2

20 % increase in Background Copper in Doris Creek

Water Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter													
TDS	mg/L				140	123	127	147	148				
TSS	mg/L				3.9	5.8	5.9	6.9	6.9				
Free CN	mg/L				0.00003	0.00001	0.00001	0.00001	0.00001				
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.04	0.01	0.01	0.01	0.01				
SCN	mg/L				0.000	0.001	0.001	0.001	0.001				
Sulphate	mg/L				3.2	3.3	3.5	3.7	3.9				
Chloride	mg/L				61	62	60	64	65				
Total Ammonia	mg/L				0.013	0.025	0.021	0.021	0.021				
Nitrate	mg/L				0.05	0.07	0.08	0.09	0.10				
Nitrite	mg/L				0.006	0.007	0.007	0.007	0.007				
Alkalinity	mg/L				27	25	27	27	27				
OrthoPhosphate-P	mg/L				0.0014	0.0015	0.0016	0.0018	0.0020				
Phosphate-P	mg/L				0.0168	0.0184	0.0244	0.0202	0.0204				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				45	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0004	0.0009	0.0029	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00007	0.00011	0.00013	0.00015	0.00017				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000035	0.0000036	0.0000032	0.0000033	0.0000034				
Calcium Ca	mg/L				10	9	9	9	10				
Chromium Cr	mg/L				0.001	0.000	0.000	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0002	0.0002				
Copper Cu	mg/L				0.0015	0.0019	0.0016	0.0018	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.2	6.5	6.6	6.4	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00020	0.00020	0.00024	0.00023	0.00024				
Nickel Ni	mg/L				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.018	0.019	0.026	0.021	0.022				
Potassium K	mg/L				3.0	2.6	2.6	2.6	2.7				
Selenium Se	mg/L				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.52	0.53	0.53	0.54	0.54				
Silver Ag	mg/L				0.0000032	0.0000038	0.0000035	0.0000036	0.0000037				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.040	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.049	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00040	0.00041	0.00041	0.00041	0.00042				
Titanium Ti	mg/L				0.0059	0.0059	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000031	0.000039	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0010	0.0032	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-c-B.2
20 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter													
TDS	mg/L				147	129	132	152	153				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L				0.00007	0.00000	0.00001	0.00001	0.00001				
Total CN	mg/L				0.003	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO	mg/L				0.07	0.00	0.01	0.01	0.01				
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				4.4	4.3	4.4	4.7	4.8				
Chloride	mg/L				65	65	63	68	68				
Total Ammonia	mg/L				0.020	0.037	0.019	0.020	0.020				
Nitrate	mg/L				0.12	0.13	0.14	0.15	0.15				
Nitrite	mg/L				0.013	0.007	0.007	0.004	0.007				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0031	0.0030	0.0030	0.0031	0.0032				
Phosphate-P	mg/L				0.0185	0.0199	0.0258	0.0215	0.0216				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0010	0.0030	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00022	0.00024	0.00025	0.00026	0.00028				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000042	0.0000043	0.0000038	0.0000038	0.0000039				
Calcium Ca	mg/L				13	12	12	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0016	0.0020	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00032	0.00031	0.00034	0.00032	0.00033				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.020	0.022	0.028	0.024	0.024				
Potassium K	mg/L				3.5	3.1	3.1	3.1	3.1				
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.57	0.57	0.57	0.57	0.58				
Silver Ag	mg/L				0.0000039	0.0000043	0.0000041	0.0000041	0.0000042				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00042	0.00043	0.00043	0.00043	0.00043				
Titanium Ti	mg/L				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-c-B.2
20 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter													
TDS	mg/L				150	132	135	155	155				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L				0.00004								
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L				0.0000								
CNO	mg/L				0.04								
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				4.8	4.7	4.7	4.8	4.8				
Chloride	mg/L				68	68	66	70	70				
Total Ammonia	mg/L				0.016	0.025	0.017	0.016	0.016				
Nitrate	mg/L				0.15	0.16	0.15	0.16	0.16				
Nitrite	mg/L				0.011	0.006	0.006	0.003	0.003				
Alkalinity	mg/L				28	26	28	27	27				
OrthoPhosphate-P	mg/L				0.0040	0.0040	0.0039	0.0040	0.0041				
Phosphate-P	mg/L				0.0195	0.0208	0.0267	0.0224	0.0225				
Org. Carbon	mg/L				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0011	0.0031	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00031	0.00033	0.00033	0.00034	0.00035				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000045	0.0000045	0.0000039	0.0000039	0.0000039				
Calcium Ca	mg/L				14	13	12	12	12				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu	mg/L				0.0016	0.0020	0.0017	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0029	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.014	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00036	0.00034	0.00036	0.00033	0.00033				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.022	0.023	0.029	0.025	0.025				
Potassium K	mg/L				3.7	3.2	3.2	3.1	3.1				
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.59	0.58	0.58	0.58	0.58				
Silver Ag	mg/L				0.0000043	0.0000046	0.0000043	0.0000043	0.0000044				
Sodium Na	mg/L				39	33	35	32	32				
Strontium Sr	mg/L				0.042	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.049	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00044	0.00044	0.00044	0.00044	0.00044				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0014	0.0036	0.0033	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-c-B.2
20 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter													
TDS	mg/L				151	132	135	154	154				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.002	0.002	0.002	0.002				
Sulphate	mg/L				4.6	4.4	4.4	4.6	4.6				
Chloride	mg/L				69	69	66	70	70				
Total Ammonia	mg/L				0.009	0.011	0.017	0.016	0.016				
Nitrate	mg/L				0.15	0.15	0.14	0.14	0.14				
Nitrite	mg/L				0.005	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0046	0.0044	0.0042	0.0042	0.0042				
Phosphate-P	mg/L				0.0201	0.0212	0.0270	0.0226	0.0226				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				47	44	44	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0007	0.0011	0.0031	0.0008	0.0008				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00037	0.00036	0.00034	0.00033	0.00033				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000044	0.0000043	0.0000038	0.0000038	0.0000038				
Calcium Ca	mg/L				13	12	12	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu	mg/L				0.0016	0.0020	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.7	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00032	0.00031	0.00033	0.00031	0.00030				
Nickel Ni	mg/L				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.022	0.023	0.029	0.025	0.025				
Potassium K	mg/L				3.5	3.1	3.0	3.0	3.0				
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.57	0.57	0.57	0.57	0.57				
Silver Ag	mg/L				0.0000045	0.0000047	0.0000044	0.0000044	0.0000044				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.043	0.037	0.041	0.041				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00045	0.00045	0.00044	0.00044	0.00044				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-c-B.2
20 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter													
TDS	mg/L				149	130	133	153	153				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.002	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.3	4.2	4.2	4.4	4.4				
Chloride	mg/L				68	68	65	69	69				
Total Ammonia	mg/L				0.008	0.011	0.017	0.016	0.016				
Nitrate	mg/L				0.13	0.13	0.12	0.12	0.12				
Nitrite	mg/L				0.003	0.003	0.003	0.003	0.003				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0040	0.0039	0.0037	0.0037	0.0037				
Phosphate-P	mg/L				0.0195	0.0207	0.0265	0.0221	0.0221				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	44	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0007	0.0011	0.0031	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi	mg/L				0.00032	0.00031	0.00029	0.00029	0.00029				
Boron B	mg/L				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd	mg/L				0.0000043	0.0000043	0.0000037	0.0000037	0.0000037				
Calcium Ca	mg/L				12	11	11	11	11				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo	mg/L				0.00030	0.00029	0.00031	0.00028	0.00028				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P	mg/L				0.022	0.023	0.028	0.024	0.024				
Potassium K	mg/L				3.4	3.0	2.9	2.9	2.9				
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2	mg/L				0.57	0.57	0.56	0.56	0.56				
Silver Ag	mg/L				0.0000045	0.0000047	0.0000043	0.0000043	0.0000044				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.043	0.036	0.041	0.041				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th	mg/L				0.000002	0.000002	0.000002	0.000002	0.000002				
Tin Sn	mg/L				0.00044	0.00044	0.00044	0.00044	0.00044				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0013	0.0035	0.0031	0.0020	0.0020				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-c-B.2
20 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter													
TDS	mg/L				148	129	132	152	152				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				4.1	4.0	4.0	4.2	4.2				
Chloride	mg/L				67	66	64	68	68				
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate	mg/L				0.08	0.08	0.08	0.08	0.08				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0036	0.0035	0.0033	0.0033	0.0033				
Phosphate-P	mg/L				0.0191	0.0203	0.0261	0.0217	0.0217				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	44	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0011	0.0030	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00028	0.00027	0.00026	0.00025	0.00025				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000034	0.0000034	0.0000029	0.0000029	0.0000029				
Calcium Ca	mg/L				12	11	11	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0015	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00028	0.00027	0.00029	0.00027	0.00027				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.020	0.022	0.027	0.023	0.023				
Potassium K	mg/L				3.3	2.9	2.9	2.8	2.8				
Selenium Se	mg/L				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.55	0.55	0.55	0.55	0.55				
Silver Ag	mg/L				0.0000034	0.0000036	0.0000032	0.0000033	0.0000033				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00043	0.00043	0.00043	0.00043	0.00043				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-c-B.2
20 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter													
TDS	mg/L				147	128	131	151	151				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				3.9	3.8	3.9	4.0	4.0				
Chloride	mg/L				66	66	63	67	67				
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate	mg/L				0.07	0.07	0.06	0.06	0.06				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0032	0.0031	0.0030	0.0030	0.0030				
Phosphate-P	mg/L				0.0187	0.0199	0.0258	0.0214	0.0214				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0010	0.0030	0.0007	0.0007				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0031	0.0032	0.0032				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00025	0.00024	0.00023	0.00023	0.00023				
Boron B	mg/L				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000033	0.0000033	0.0000028	0.0000028	0.0000028				
Calcium Ca	mg/L				11	11	10	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0015	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00026	0.00025	0.00028	0.00025	0.00025				
Nickel Ni	mg/L				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P	mg/L				0.020	0.021	0.027	0.023	0.023				
Potassium K	mg/L				3.3	2.9	2.8	2.7	2.7				
Selenium Se	mg/L				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.55	0.55	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000034	0.0000036	0.0000032	0.0000032	0.0000032				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00043	0.00043	0.00042	0.00042	0.00042				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0034	0.0031	0.0019	0.0019				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-c-B.2
20 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter													
TDS	mg/L				146	127	131	150	150				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				3.8	3.7	3.7	3.9	3.9				
Chloride	mg/L				65	65	63	67	67				
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate	mg/L				0.05	0.05	0.05	0.05	0.05				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0029	0.0028	0.0027	0.0027	0.0027				
Phosphate-P	mg/L				0.0184	0.0197	0.0255	0.0211	0.0211				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	45	45				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0006	0.0010	0.0030	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0031	0.0031	0.0031				
Beryllium Be	mg/L				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00022	0.00021	0.00020	0.00020	0.00020				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000032	0.0000032	0.0000027	0.0000027	0.0000027				
Calcium Ca	mg/L				11	10	10	10	10				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0002	0.0002	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0015	0.0019	0.0016	0.0019	0.0019				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00025	0.00024	0.00026	0.00024	0.00024				
Nickel Ni	mg/L				0.0005	0.0007	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.021	0.027	0.022	0.022				
Potassium K	mg/L				3.2	2.8	2.8	2.7	2.7				
Selenium Se	mg/L				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000033	0.0000035	0.0000031	0.0000031	0.0000031				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn	mg/L				0.00042	0.00042	0.00042	0.00042	0.00042				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0012	0.0034	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-c-B.2
20 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter													
TDS	mg/L				145	127	130	149	149				
TSS	mg/L				4.0	5.8	5.9	6.9	6.9				
Free CN	mg/L												
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN	mg/L												
CNO	mg/L												
SCN	mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate	mg/L				3.7	3.5	3.6	3.8	3.8				
Chloride	mg/L				64	64	62	66	66				
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013				
Nitrate	mg/L				0.04	0.04	0.04	0.04	0.04				
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002				
Alkalinity	mg/L				28	26	27	27	27				
OrthoPhosphate-P	mg/L				0.0027	0.0026	0.0025	0.0025	0.0025				
Phosphate-P	mg/L				0.0181	0.0194	0.0253	0.0209	0.0209				
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3	mg/L				46	43	43	44	44				
Total Metals													
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07				
Antimony Sb	mg/L				0.0005	0.0010	0.0029	0.0006	0.0006				
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi	mg/L				0.00020	0.00019	0.00018	0.00018	0.00018				
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd	mg/L				0.0000031	0.0000031	0.0000026	0.0000026	0.0000026				
Calcium Ca	mg/L				11	10	10	9	9				
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co	mg/L				0.0001	0.0002	0.0010	0.0002	0.0002				
Copper Cu	mg/L				0.0015	0.0019	0.0016	0.0018	0.0018				
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09				
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5				
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010				
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo	mg/L				0.00024	0.00023	0.00025	0.00023	0.00023				
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P	mg/L				0.019	0.020	0.026	0.022	0.022				
Potassium K	mg/L				3.2	2.7	2.7	2.7	2.7				
Selenium Se	mg/L				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2	mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag	mg/L				0.0000032	0.0000034	0.0000030	0.0000030	0.0000030				
Sodium Na	mg/L				39	33	34	32	32				
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040				
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th	mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn	mg/L				0.00042	0.00042	0.00042	0.00042	0.00042				
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U	mg/L				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn	mg/L				0.0011	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050				

Table I-5-c-B.2
20 % increase in Backgrou

Water Quality in DORIS CRIWater Quality in DORIS CREEK (d/s of the waterfall)

Date		Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter												
TDS	mg/L				144	128	133	154	156			
TSS	mg/L				4.0	5.8	5.9	6.9	6.9			
Free CN	mg/L											
Total CN	mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN	mg/L											
CNO	mg/L											
SCN	mg/L				0.001	0.001	0.001	0.001	0.001			
Sulphate	mg/L				3.6	3.5	3.5	3.7	3.7			
Chloride	mg/L				64	65	64	69	70			
Total Ammonia	mg/L				0.005	0.008	0.014	0.013	0.013			
Nitrate	mg/L				0.03	0.03	0.02	0.02	0.02			
Nitrite	mg/L				0.002	0.002	0.002	0.002	0.002			
Alkalinity	mg/L				28	26	27	27	27			
OrthoPhosphate-P	mg/L				0.0024	0.0024	0.0023	0.0023	0.0023			
Phosphate-P	mg/L				0.0179	0.0192	0.0251	0.0207	0.0207			
Org. Carbon	mg/L				5.5	5.1	7.4	5.0	5.0			
Hardness CaCO3	mg/L				46	43	43	44	44			
Total Metals												
Aluminum Al	mg/L				0.03	0.06	0.08	0.07	0.07			
Antimony Sb	mg/L				0.0005	0.0010	0.0029	0.0006	0.0006			
Arsenic As	mg/L				0.0005	0.0004	0.0004	0.0004	0.0004			
Barium Ba	mg/L				0.0029	0.0032	0.0030	0.0031	0.0031			
Beryllium Be	mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi	mg/L				0.00018	0.00017	0.00017	0.00017	0.00016			
Boron B	mg/L				0.034	0.022	0.023	0.022	0.022			
Cadmium Cd	mg/L				0.0000031	0.0000031	0.0000025	0.0000025	0.0000025			
Calcium Ca	mg/L				10	10	10	9	9			
Chromium Cr	mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co	mg/L				0.0001	0.0002	0.0009	0.0002	0.0002			
Copper Cu	mg/L				0.0015	0.0019	0.0016	0.0018	0.0018			
Iron Fe	mg/L				0.05	0.12	0.08	0.09	0.09			
Lead Pb	mg/L				0.00002	0.00006	0.00004	0.00004	0.00004			
Lithium Li	mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg	mg/L				7.3	6.6	6.6	6.5	6.5			
Manganese Mn	mg/L				0.007	0.021	0.013	0.010	0.010			
Mercury Hg	mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007			
Molybdenum Mo	mg/L				0.00023	0.00022	0.00025	0.00022	0.00022			
Nickel Ni	mg/L				0.0005	0.0006	0.0005	0.0005	0.0005			
Phosphorus P	mg/L				0.019	0.020	0.026	0.021	0.021			
Potassium K	mg/L				3.1	2.7	2.7	2.6	2.6			
Selenium Se	mg/L				0.00089	0.00057	0.00062	0.00055	0.00055			
Silicon SiO2	mg/L				0.54	0.54	0.53	0.53	0.53			
Silver Ag	mg/L				0.0000031	0.0000034	0.0000030	0.0000030	0.0000030			
Sodium Na	mg/L				39	34	35	34	34			
Strontium Sr	mg/L				0.041	0.042	0.036	0.040	0.040			
Tellurium Te	mg/L				0.050	0.050	0.050	0.050	0.050			
Thallium Tl	mg/L				0.000030	0.000030	0.000030	0.000030	0.000030			
Thorium Th	mg/L				0.000000	0.000000	0.000001	0.000001	0.000001			
Tin Sn	mg/L				0.00042	0.00042	0.00042	0.00042	0.00042			
Titanium Ti	mg/L				0.0060	0.0060	0.0060	0.0060	0.0060			
Uranium U	mg/L				0.000025	0.000030	0.000038	0.000032	0.000032			
Vanadium V	mg/L				0.0006	0.0001	0.0003	0.0002	0.0002			
Zinc Zn	mg/L				0.0011	0.0033	0.0030	0.0019	0.0019			
Zirconium Zr	mg/L				0.0050	0.0050	0.0050	0.0050	0.0050			

Table I-5-c-B.3
20 % increase in Background Copper in Doris Creek

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				1033910	561174	244304	362506	127107				
TSS				29060	26427	11372	16967	5923				
Free CN				0.24	0.04	0.02	0.02	0.01				
Total CN				17	9	4	5	2				
WAD CN				0.32	0.05	0.02	0.03	0.01				
CNO				266	40	21	27	9				
SCN				4	3	1	2	1				
Sulphate				23659	14876	6689	9207	3323				
Chloride				448389	280970	115344	158397	55690				
Total Ammonia				93	116	41	52	18				
Nitrate				369	303	147	212	83				
Nitrite				44	34	14	18	6				
Alkalinity				201382	115893	51970	65469	22902				
OrthoPhosphate-P				10	7	3	4	2				
Phosphate-P				124	84	47	50	18				
Org. Carbon				40053	23233	14257	12235	4271				
Hardness CaCO3				333298	195246	81968	108848	38101				
Total Metals												
Aluminum Al				246	272	154	177	62				
Antimony Sb				2.9	4.1	5.6	1.4	0.5				
Arsenic As				3.6	1.9	0.8	1.0	0.3				
Barium Ba				21	14	6	8	3				
Beryllium Be				0.09	0.05	0.02	0.03	0.01				
Bismuth Bi				0.51	0.50	0.25	0.37	0.14				
Boron B				250	102	44	55	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				70553	42121	17753	22860	8266				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.73	0.91	1.82	0.40	0.15				
Copper Cu				11	9	3	5	2				
Iron Fe				373	562	161	220	77				
Lead Pb				0.16	0.30	0.08	0.10	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53116	29734	12656	15882	5552				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.46	0.94	0.46	0.57	0.21				
Nickel Ni				3.25	2.81	1.00	1.24	0.44				
Phosphorus P				130	89	49	53	19				
Potassium K				21895	12014	5099	6506	2318				
Selenium Se				6.52	2.59	1.18	1.36	0.48				
Silicon SiO2				3849	2418	1025	1324	467				
Silver Ag				0.02	0.02	0.01	0.01	0.00				
Sodium Na				285408	149708	65593	78642	27493				
Strontium Sr				297	191	69	99	34				
Tellurium Te				364	226	95	122	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.01	0.01	0.00	0.00	0.00				
Tin Sn				2.95	1.86	0.79	1.02	0.36				
Titanium Ti				44	27	11	15	5				
Uranium U				0.19	0.14	0.08	0.08	0.03				
Vanadium V				4.12	0.34	0.51	0.43	0.15				
Zinc Zn				7.43	14.84	5.69	4.61	1.64				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORIS Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				1081607	587546	254309	374842	131254				
TSS				29179	26486	11394	16995	5932				
Free CN				0.49	0.02	0.02	0.02	0.01				
Total CN				19	9	4	5	2				
WAD CN				0.66	0.03	0.02	0.03	0.01				
CNO				544	21	17	22	7				
SCN				13	8	3	5	2				
Sulphate				32448	19754	8535	11481	4088				
Chloride				480214	298485	121950	166533	58422				
Total Ammonia				149	169	37	50	17				
Nitrate				894	614	264	362	132				
Nitrite				94	32	13	9	6				
Alkalinity				205571	118168	52830	66531	23259				
OrthoPhosphate-P				23	14	6	8	3				
Phosphate-P				136	91	50	53	19				
Org. Carbon				40083	23233	14257	12235	4271				
Hardness CaCO3				342267	200172	83833	111147	38873				
Total Metals												
Aluminum Al				250	274	155	178	62				
Antimony Sb				4.1	4.7	5.8	1.7	0.6				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.08	0.03	0.04	0.02				
Bismuth Bi				1.64	1.11	0.48	0.64	0.24				
Boron B				252	104	45	55	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				94241	55342	22768	29040	10345				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.73	1.47	2.03	0.66	0.24				
Copper Cu				12	9	3	5	2				
Iron Fe				376	564	162	221	77				
Lead Pb				0.20	0.32	0.09	0.11	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53818	30113	12799	16058	5611				
Manganese Mn				51	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.33	1.42	0.65	0.80	0.29				
Nickel Ni				4.03	3.24	1.16	1.44	0.51				
Phosphorus P				151	100	54	58	20				
Potassium K				25802	14193	5926	7525	2661				
Selenium Se				6.55	2.61	1.19	1.37	0.48				
Silicon SiO2				4189	2605	1096	1411	496				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				289215	151795	66384	79616	27820				
Strontium Sr				304	195	71	100	35				
Tellurium Te				364	226	95	122	43				
Thallium Tl				0.22	0.14	0.06	0.08	0.03				
Thorium Th				0.01	0.01	0.00	0.01	0.00				
Tin Sn				3.12	1.95	0.82	1.06	0.37				
Titanium Ti				44	27	11	15	5				
Uranium U				0.20	0.14	0.08	0.08	0.03				
Vanadium V				4.40	0.49	0.56	0.50	0.18				
Zinc Zn				9.60	16.05	6.15	5.17	1.83				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				1105283	601029	259345	380707	133096				
TSS				29229	26509	11401	17001	5933				
Free CN				0.26								
Total CN				17	9	4	5	2				
WAD CN				0.35								
CNO				287								
SCN				16	10	4	5	2				
Sulphate				35694	21360	9024	11886	4153				
Chloride				498873	309665	126390	172129	60341				
Total Ammonia				118	113	33	40	14				
Nitrate				1139	728	298	391	138				
Nitrite				77	27	11	7	3				
Alkalinity				207063	118874	53033	66676	23269				
OrthoPhosphate-P				30	18	8	10	4				
Phosphate-P				144	95	51	55	19				
Org. Carbon				40113	23247	14262	12243	4273				
Hardness CaCO3				345395	201653	84253	111436	38888				
Total Metals												
Aluminum Al				252	275	155	178	62				
Antimony Sb				4.8	5.1	5.9	1.9	0.7				
Arsenic As				4.0	2.1	0.8	1.1	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.16	0.09	0.04	0.05	0.02				
Bismuth Bi				2.29	1.49	0.63	0.83	0.30				
Boron B				253	104	45	56	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				102239	59127	23819	29713	10349				
Chromium Cr				6	2	1	1	0				
Cobalt Co				2.08	1.63	2.07	0.70	0.24				
Copper Cu				12	9	3	5	2				
Iron Fe				377	564	162	221	77				
Lead Pb				0.22	0.33	0.09	0.12	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				54097	30252	12844	16098	5619				
Manganese Mn				52	96	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.62	1.56	0.68	0.82	0.29				
Nickel Ni				4.32	3.38	1.20	1.47	0.51				
Phosphorus P				161	106	56	61	21				
Potassium K				27117	14815	6098	7635	2661				
Selenium Se				6.56	2.61	1.19	1.37	0.48				
Silicon SiO2				4310	2662	1112	1423	497				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				290550	152427	66564	79741	27828				
Strontium Sr				307	196	71	101	35				
Tellurium Te				364	226	95	122	43				
Thallium Tl				0.23	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.23	2.01	0.85	1.09	0.38				
Titanium Ti				44	27	11	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.54	0.57	0.59	0.53	0.19				
Zinc Zn				10.39	16.43	6.26	5.26	1.84				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				1110695	603049	259709	380483	132779				
TSS				29228	26508	11402	17002	5934				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				13	8	3	4	1				
Sulphate				33894	20216	8560	11277	3932				
Chloride				510184	314392	127599	172873	60315				
Total Ammonia				66	52	33	39	14				
Nitrate				1075	663	269	345	121				
Nitrite				33	12	5	6	2				
Alkalinity				206132	118342	52837	66436	23188				
OrthoPhosphate-P				34	20	8	10	4				
Phosphate-P				148	97	52	56	19				
Org. Carbon				40180	23284	14277	12262	4280				
Hardness CaCO3				343149	200376	83779	110850	38689				
Total Metals												
Aluminum Al				252	275	155	178	62				
Antimony Sb				5.2	5.2	6.0	1.9	0.7				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.17	0.09	0.04	0.05	0.02				
Bismuth Bi				2.74	1.62	0.65	0.82	0.29				
Boron B				253	104	45	56	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				95269	55153	22321	27841	9708				
Chromium Cr				6	2	1	1	0				
Cobalt Co				1.81	1.48	2.01	0.62	0.22				
Copper Cu				12	9	3	5	2				
Iron Fe				377	564	162	221	77				
Lead Pb				0.22	0.33	0.09	0.11	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				54022	30197	12820	16067	5608				
Manganese Mn				52	95	26	26	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.36	1.41	0.63	0.75	0.26				
Nickel Ni				4.17	3.28	1.16	1.42	0.50				
Phosphorus P				165	107	56	61	21				
Potassium K				25960	14157	5851	7326	2555				
Selenium Se				6.56	2.61	1.19	1.37	0.48				
Silicon SiO2				4228	2614	1094	1401	489				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				289621	151896	66367	79498	27745				
Strontium Sr				305	195	70	100	35				
Tellurium Te				365	227	95	122	43				
Thallium Tl				0.22	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.30	2.03	0.85	1.09	0.38				
Titanium Ti				44	27	11	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.58	0.57	0.59	0.52	0.18				
Zinc Zn				9.92	16.14	6.15	5.11	1.79				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				1098454	595915	256962	376997	131567				
TSS				29239	26513	11404	17005	5935				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				12	7	3	3	1				
Sulphate				31989	19109	8133	10735	3744				
Chloride				500090	308524	125335	170000	59317				
Total Ammonia				60	52	33	39	14				
Nitrate				936	573	234	300	105				
Nitrite				19	12	5	6	2				
Alkalinity				205600	118027	52717	66283	23135				
OrthoPhosphate-P				30	18	7	9	3				
Phosphate-P				144	95	51	54	19				
Org. Carbon				40246	23321	14292	12280	4287				
Hardness CaCO3				341769	199567	83468	110456	38552				
Total Metals												
Aluminum Al				252	274	155	178	62				
Antimony Sb				4.8	5.0	5.9	1.8	0.6				
Arsenic As				3.9	2.1	0.8	1.0	0.4				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.16	0.09	0.03	0.04	0.02				
Bismuth Bi				2.38	1.41	0.56	0.72	0.25				
Boron B				253	104	45	56	19				
Cadmium Cd				0.03	0.02	0.01	0.01	0.00				
Calcium Ca				90469	52365	21245	26475	9233				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.61	1.36	1.97	0.56	0.20				
Copper Cu				12	9	3	5	2				
Iron Fe				377	564	162	221	77				
Lead Pb				0.21	0.32	0.09	0.11	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53921	30137	12798	16038	5598				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.18	1.31	0.59	0.70	0.24				
Nickel Ni				4.00	3.19	1.13	1.37	0.48				
Phosphorus P				159	104	55	59	21				
Potassium K				25176	13701	5675	7103	2478				
Selenium Se				6.56	2.61	1.19	1.37	0.48				
Silicon SiO2				4172	2581	1082	1385	483				
Silver Ag				0.03	0.02	0.01	0.01	0.00				
Sodium Na				289049	151561	66239	79335	27688				
Strontium Sr				304	195	70	100	35				
Tellurium Te				365	227	96	122	43				
Thallium Tl				0.22	0.14	0.06	0.08	0.03				
Thorium Th				0.02	0.01	0.00	0.01	0.00				
Tin Sn				3.25	2.00	0.84	1.08	0.38				
Titanium Ti				44	27	12	15	5				
Uranium U				0.20	0.15	0.08	0.08	0.03				
Vanadium V				4.51	0.53	0.57	0.50	0.18				
Zinc Zn				9.49	15.89	6.05	4.99	1.74				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				1088533	590111	254716	374144	130575				
TSS				29247	26518	11406	17007	5936				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				10	6	2	3	1				
Sulphate				30268	18099	7737	10232	3569				
Chloride				491906	303751	123484	167648	58500				
Total Ammonia				36	37	27	31	11				
Nitrate				623	382	156	200	71				
Nitrite				15	9	4	5	2				
Alkalinity				205168	117771	52619	66158	23092				
OrthoPhosphate-P				26	16	6	8	3				
Phosphate-P				140	93	50	53	19				
Org. Carbon				40300	23351	14304	12296	4292				
Hardness CaCO3				340650	198909	83215	110134	38440				
Total Metals												
Aluminum Al				246	271	154	176	61				
Antimony Sb				4.5	4.8	5.8	1.7	0.6				
Arsenic As				3.7	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.13	0.07	0.03	0.03	0.01				
Bismuth Bi				2.06	1.23	0.49	0.63	0.22				
Boron B				252	103	45	55	19				
Cadmium Cd				0.02	0.02	0.01	0.01	0.00				
Calcium Ca				86275	49908	20286	25256	8810				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.41	1.24	1.92	0.51	0.18				
Copper Cu				11	9	3	5	2				
Iron Fe				376	563	162	220	77				
Lead Pb				0.18	0.30	0.08	0.10	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53808	30069	12771	16004	5586				
Manganese Mn				51	95	26	25	9				
Mercury Hg				0.01	0.00	0.00	0.00	0.00				
Molybdenum Mo				2.04	1.22	0.56	0.66	0.23				
Nickel Ni				3.84	3.09	1.09	1.33	0.46				
Phosphorus P				151	99	53	57	20				
Potassium K				24532	13325	5529	6917	2413				
Selenium Se				6.54	2.60	1.18	1.36	0.48				
Silicon SiO2				4069	2519	1056	1352	472				
Silver Ag				0.02	0.02	0.01	0.01	0.00				
Sodium Na				288579	151284	66132	79199	27641				
Strontium Sr				303	194	70	100	35				
Tellurium Te				366	227	96	122	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				3.18	1.97	0.82	1.06	0.37				
Titanium Ti				44	27	12	15	5				
Uranium U				0.19	0.14	0.07	0.08	0.03				
Vanadium V				4.41	0.47	0.55	0.47	0.16				
Zinc Zn				9.02	15.62	5.94	4.85	1.70				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				1080396	585335	252860	371784	129754				
TSS				29254	26521	11407	17009	5936				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				9	5	2	3	1				
Sulphate				29001	17355	7447	9862	3440				
Chloride				485194	299823	121955	165703	57823				
Total Ammonia				36	36	26	31	11				
Nitrate				520	310	124	159	55				
Nitrite				15	9	4	5	2				
Alkalinity				204815	117560	52538	66055	23056				
OrthoPhosphate-P				24	14	6	7	3				
Phosphate-P				138	91	50	53	18				
Org. Carbon				40344	23376	14314	12308	4296				
Hardness CaCO3				339733	198368	83005	109867	38347				
Total Metals												
Aluminum Al				246	271	154	176	61				
Antimony Sb				4.3	4.7	5.7	1.6	0.6				
Arsenic As				3.7	2.0	0.8	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.12	0.06	0.03	0.03	0.01				
Bismuth Bi				1.82	1.09	0.44	0.56	0.19				
Boron B				252	103	45	55	19				
Cadmium Cd				0.02	0.02	0.01	0.01	0.00				
Calcium Ca				83084	48036	19556	24326	8486				
Chromium Cr				5	2	1	1	0				
Cobalt Co				1.27	1.16	1.89	0.47	0.16				
Copper Cu				11	9	3	5	2				
Iron Fe				376	563	162	220	77				
Lead Pb				0.18	0.30	0.08	0.10	0.04				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53741	30028	12755	15984	5579				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.92	1.15	0.53	0.63	0.22				
Nickel Ni				3.73	3.03	1.06	1.29	0.45				
Phosphorus P				147	97	52	55	19				
Potassium K				24010	13020	5410	6766	2361				
Selenium Se				6.54	2.60	1.18	1.36	0.48				
Silicon SiO2				4032	2496	1047	1340	468				
Silver Ag				0.02	0.02	0.01	0.01	0.00				
Sodium Na				288199	151059	66045	79089	27602				
Strontium Sr				302	193	70	99	35				
Tellurium Te				366	227	96	123	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				3.15	1.95	0.82	1.05	0.36				
Titanium Ti				44	27	12	15	5				
Uranium U				0.19	0.14	0.07	0.08	0.03				
Vanadium V				4.36	0.44	0.54	0.46	0.16				
Zinc Zn				8.74	15.45	5.88	4.77	1.67				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORIS Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				1073655	581366	251312	369815	129069				
TSS				29260	26524	11408	17011	5937				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				8	4	2	2	1				
Sulphate				27939	16732	7203	9552	3333				
Chloride				479631	296559	120679	164080	57258				
Total Ammonia				36	36	26	31	11				
Nitrate				393	235	95	121	42				
Nitrite				14	9	4	5	2				
Alkalinity				204523	117384	52470	65969	23026				
OrthoPhosphate-P				21	13	5	7	2				
Phosphate-P				135	90	49	52	18				
Org. Carbon				40381	23396	14322	12319	4300				
Hardness CaCO3				338974	197918	82830	109645	38269				
Total Metals												
Aluminum Al				246	271	153	176	61				
Antimony Sb				4.1	4.6	5.7	1.5	0.5				
Arsenic As				3.7	1.9	0.7	1.0	0.3				
Barium Ba				22	15	6	8	3				
Beryllium Be				0.11	0.06	0.02	0.03	0.01				
Bismuth Bi				1.62	0.97	0.39	0.50	0.17				
Boron B				251	103	44	55	19				
Cadmium Cd				0.02	0.01	0.01	0.01	0.00				
Calcium Ca				80418	46473	18944	23548	8215				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.16	1.09	1.87	0.43	0.15				
Copper Cu				11	9	3	5	2				
Iron Fe				376	563	161	220	77				
Lead Pb				0.17	0.30	0.08	0.10	0.03				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53683	29994	12742	15967	5573				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.82	1.10	0.51	0.60	0.21				
Nickel Ni				3.64	2.97	1.04	1.27	0.44				
Phosphorus P				143	95	51	54	19				
Potassium K				23577	12766	5311	6640	2317				
Selenium Se				6.54	2.60	1.18	1.36	0.48				
Silicon SiO2				3997	2475	1039	1330	464				
Silver Ag				0.02	0.02	0.01	0.01	0.00				
Sodium Na				287885	150872	65973	78997	27570				
Strontium Sr				301	193	70	99	35				
Tellurium Te				366	227	96	123	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				3.12	1.93	0.81	1.04	0.36				
Titanium Ti				44	27	12	15	5				
Uranium U				0.19	0.14	0.07	0.08	0.03				
Vanadium V				4.32	0.42	0.53	0.45	0.16				
Zinc Zn				8.49	15.31	5.82	4.70	1.64				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORI: Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				1068017	578038	250009	368156	128491				
TSS				29265	26526	11410	17012	5937				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				7	4	2	2	1				
Sulphate				27050	16210	6998	9291	3242				
Chloride				474978	293822	119605	162712	56783				
Total Ammonia				36	36	26	31	11				
Nitrate				286	172	69	89	31				
Nitrite				14	9	4	5	2				
Alkalinity				204279	117237	52413	65896	23000				
OrthoPhosphate-P				20	12	5	6	2				
Phosphate-P				134	89	49	51	18				
Org. Carbon				40412	23414	14329	12328	4303				
Hardness CaCO3				338339	197540	82683	109457	38204				
Total Metals												
Aluminum Al				245	270	153	176	61				
Antimony Sb				3.9	4.5	5.7	1.5	0.5				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.11	0.05	0.02	0.03	0.01				
Bismuth Bi				1.45	0.87	0.35	0.45	0.16				
Boron B				251	103	44	55	19				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				78188	45162	18430	22892	7987				
Chromium Cr				5	1	1	1	0				
Cobalt Co				1.06	1.04	1.84	0.40	0.14				
Copper Cu				11	9	3	5	2				
Iron Fe				376	563	161	220	77				
Lead Pb				0.17	0.30	0.08	0.10	0.03				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53634	29965	12731	15952	5568				
Manganese Mn				50	94	26	25	9				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.74	1.05	0.49	0.57	0.20				
Nickel Ni				3.56	2.93	1.03	1.24	0.43				
Phosphorus P				141	93	50	54	19				
Potassium K				23215	12553	5227	6533	2280				
Selenium Se				6.54	2.60	1.18	1.36	0.48				
Silicon SiO2				3967	2458	1032	1322	461				
Silver Ag				0.02	0.02	0.01	0.01	0.00				
Sodium Na				287622	150715	65912	78919	27543				
Strontium Sr				301	193	69	99	35				
Tellurium Te				367	228	96	123	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				3.09	1.91	0.80	1.03	0.36				
Titanium Ti				44	27	12	15	5				
Uranium U				0.19	0.14	0.07	0.08	0.03				
Vanadium V				4.28	0.39	0.52	0.43	0.15				
Zinc Zn				8.29	15.19	5.78	4.64	1.62				
Zirconium Zr				37	23	10	12	4				

Solute Loadings in DORIS CREEK D/S of waterfall (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				1063264	583297	255459	379393	133912				
TSS				29269	26541	11418	17024	5942				
Free CN												
Total CN				14	9	4	5	2				
WAD CN												
CNO												
SCN				6	3	1	2	1				
Sulphate				26301	15768	6824	9069	3165				
Chloride				471054	296777	122895	169548	60094				
Total Ammonia				36	36	26	31	11				
Nitrate				195	117	48	61	21				
Nitrite				14	9	4	5	2				
Alkalinity				204073	117113	52365	65835	22979				
OrthoPhosphate-P				18	11	4	6	2				
Phosphate-P				132	88	48	51	18				
Org. Carbon				40438	23428	14335	12335	4305				
Hardness CaCO3				337804	197221	82559	109298	38148				
Total Metals												
Aluminum Al				245	271	154	176	62				
Antimony Sb				3.7	4.4	5.6	1.5	0.5				
Arsenic As				3.6	1.9	0.7	0.9	0.3				
Barium Ba				21	15	6	8	3				
Beryllium Be				0.10	0.05	0.02	0.03	0.01				
Bismuth Bi				1.31	0.79	0.32	0.41	0.14				
Boron B				251	103	45	55	19				
Cadmium Cd				0.02	0.01	0.00	0.01	0.00				
Calcium Ca				76307	44540	18386	23090	8146				
Chromium Cr				5	1	1	1	0				
Cobalt Co				0.98	0.99	1.82	0.38	0.13				
Copper Cu				11	9	3	5	2				
Iron Fe				375	564	162	221	77				
Lead Pb				0.16	0.29	0.08	0.10	0.03				
Lithium Li				21	13	5	7	2				
Magnesium Mg				53594	29955	12730	15953	5568				
Manganese Mn				49	94	25	25	9				
Mercury Hg				0.00	0.00	0.00	0.00	0.00				
Molybdenum Mo				1.67	1.01	0.47	0.55	0.19				
Nickel Ni				3.50	2.89	1.01	1.23	0.43				
Phosphorus P				138	91	50	53	18				
Potassium K				22910	12385	5163	6453	2252				
Selenium Se				6.53	2.60	1.18	1.37	0.48				
Silicon SiO2				3943	2446	1028	1317	460				
Silver Ag				0.02	0.02	0.01	0.01	0.00				
Sodium Na				287400	153471	68160	83224	29550				
Strontium Sr				300	192	69	99	34				
Tellurium Te				367	228	96	123	43				
Thallium Tl				0.22	0.14	0.06	0.07	0.03				
Thorium Th				0.00	0.00	0.00	0.00	0.00				
Tin Sn				3.07	1.90	0.80	1.02	0.36				
Titanium Ti				44	27	12	15	5				
Uranium U				0.19	0.14	0.07	0.08	0.03				
Vanadium V				4.25	0.39	0.52	0.43	0.15				
Zinc Zn				8.12	15.09	5.74	4.59	1.60				
Zirconium Zr				37	23	10	12	4				

Appendix I

Table I-5-c-C.1
20 % increase in Background Copper in Doris Lake

OUTPUT SUMMARY						Fraction of CCME in Doris Creek (%)	
Discharge rate 400000 m3/year Degradation Field(age) Tail Lk Cu < CME Year 25							
Maximum Concentration		MMER	CCME	Tail Lake Year 2	Doris Creek Year 3	L'Roberts L Year 3	
pH			6 to 9	7 to 8	7 to 8	7 to 8	
TDS	mg/L			678	156	167	
TSS	mg/L			4.4	6.9	8.1	
Free CN	mg/L		0.005	0.0029	0.00007	0.00003	1%
Total CN	mg/L	1.0		0.028	0.003	0.002	
WAD CN	mg/L			0.0038	0.0001	0.0000	
CNO	mg/L			3.2	0.07	0.04	
SCN	mg/L			0.098	0.002	0.001	
Sulphate	mg/L			91	4.8	5.6	
Chloride	mg/L			442	70	70	
Total Ammonia	mg/L		0.97	1.12	0.037	0.020	4%
Nitrate	mg/L		2.9	5.6	0.16	0.08	5%
Nitrite	mg/L		0.018	0.44	0.013	0.007	70%
Alkalinity	mg/L			55	28	26	
OrthoPhosphate-P	mg/L			0.1679	0.0046	0.0029	
Phosphate-P	mg/L			0.1711	0.0270	0.0260	
Org. Carbon	mg/L			6.0	7.5	7.1	
Hardness CaCO3	mg/L			108	47	45	
Total Metals							
Aluminum Al	mg/L		0.1	0.14	0.08	0.24	82%
Antimony Sb	mg/L			0.0153	0.0031	0.0019	
Arsenic As	mg/L	0.5	0.005	0.00	0.0005	0.0005	11%
Barium Ba	mg/L			0.0105	0.0033	0.0052	
Beryllium Be	mg/L			0.00060	0.00002	0.00001	
Bismuth Bi	mg/L			0.01475	0.00037	0.00027	
Boron B	mg/L			0.030	0.034	0.030	
Cadmium Cd	mg/L		0.000038	0.000055	0.0000045	0.0000155	12%
Calcium Ca	mg/L			245	14	11	
Chromium Cr	mg/L		0.001	0.0065	0.001	0.001	78%
Cobalt Co	mg/L			0.0103	0.0011	0.0005	
Copper Cu	mg/L	0.3	0.002	0.009	0.0020	0.0019	100%
Iron Fe	mg/L		0.3	0.16	0.13	0.28	42%
Lead Pb	mg/L	0.2	0.002	0.00040	0.00007	0.00026	4%
Lithium Li	mg/L			0.0049	0.0029	0.0028	
Magnesium Mg	mg/L			9.2	7.3	7.2	
Manganese Mn	mg/L			0.028	0.021	0.024	
Mercury Hg	mg/L		0.0001	0.0000107	0.0000008	0.0000007	1%
Molybdenum Mo	mg/L		0.073	0.0089	0.00036	0.00032	0%
Nickel Ni	mg/L	0.5	0.025	0.008	0.0007	0.0007	3%
Phosphorus P	mg/L			0.249	0.029	0.027	
Potassium K	mg/L			41	3.7	3.2	
Selenium Se	mg/L		0.001	0.00089	0.00090	0.00083	90%
Silicon SiO2	mg/L			3.9	0.59	0.55	
Silver Ag	mg/L		0.0001	0.00012	0.0000047	0.0000050	5%
Sodium Na	mg/L			152	42	39	
Strontium Sr	mg/L			0.088	0.043	0.046	
Tellurium Te	mg/L			0.049	0.050	0.051	
Thallium Tl	mg/L		0.0008	0.000042	0.000031	0.002001	4%
Thorium Th	mg/L			0.000040	0.0000023	0.0000011	
Tin Sn	mg/L			0.00233	0.00045	0.00003	
Titanium Ti	mg/L			0.0126	0.0062	0.0061	
Uranium U	mg/L			0.000068	0.000040	0.000044	
Vanadium V	mg/L			0.0034	0.0006	0.0005	
Zinc Zn	mg/L	0.5	0.03	0.023	0.0036	0.0053	12%
Zirconium Zr	mg/L			0.0051	0.0050	0.0051	

Table I-5-c-C.2
20 % increase in Background Copper in Doris Creek

Water Quality in Little Roberst Lake Outflow

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS mg/L				152	152	142	163	163				
TSS mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN mg/L				0.00002	0.00000	0.00000	0.00000	0.00000				
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO mg/L				0.02	0.00	0.01	0.01	0.01				
SCN mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate mg/L				4.0	4.0	5.0	4.9	4.9				
Chloride mg/L				62	59	58	67	67				
Total Ammonia mg/L				0.009	0.014	0.004	0.011	0.011				
Nitrate mg/L				0.03	0.04	0.04	0.05	0.05				
Nitrite mg/L				0.004	0.005	0.003	0.005	0.005				
Alkalinity mg/L				23	23	24	25	25				
OrthoPhosphate-P mg/L				0.0013	0.0014	0.0015	0.0015	0.0016				
Phosphate-P mg/L				0.0244	0.0164	0.0075	0.0196	0.0197				
Org. Carbon mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3 mg/L				43	38	41	45	45				
Total Metals												
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb mg/L				0.0004	0.0018	0.0012	0.0007	0.0007				
Arsenic As mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0051	0.0034	0.0045	0.0042	0.0042				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00012	0.00014	0.00015	0.00016	0.00017				
Boron B mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd mg/L				0.0000030	0.0000046	0.0000151	0.0000027	0.0000027				
Calcium Ca mg/L				8	7	8	9	9				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0003	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.0	5.1	5.2	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000006	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00020	0.00019	0.00027	0.00023	0.00024				
Nickel Ni mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K mg/L				2.8	2.3	2.3	2.6	2.7				
Selenium Se mg/L				0.00064	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.52	0.52	0.52	0.52	0.53				
Silver Ag mg/L				0.0000044	0.0000019	0.0000043	0.0000027	0.0000028				
Sodium Na mg/L				38	31	34	36	36				
Strontium Sr mg/L				0.044	0.037	0.039	0.046	0.046				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000100	0.000300	0.000300	0.002000	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00000	0.00001	0.00001	0.00001	0.00001				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U mg/L				0.000036	0.000032	0.000035	0.000043	0.000043				
Vanadium V mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0035	0.0017	0.0016	0.0052	0.0052				
Zirconium Zr mg/L				0.0050	0.0051	0.0051	0.0051	0.0051				

Table I-5-c-C.2
20 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS mg/L				155	155	145	165	166				
TSS mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN mg/L				0.00003	0.00000	0.00000	0.00000	0.00000				
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO mg/L				0.04	0.00	0.00	0.00	0.00				
SCN mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate mg/L				4.6	4.5	5.5	5.3	5.4				
Chloride mg/L				64	61	60	68	68				
Total Ammonia mg/L				0.013	0.020	0.003	0.011	0.011				
Nitrate mg/L				0.06	0.07	0.07	0.08	0.08				
Nitrite mg/L				0.007	0.005	0.002	0.003	0.004				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0022	0.0022	0.0021	0.0022	0.0023				
Phosphate-P mg/L				0.0252	0.0172	0.0082	0.0202	0.0203				
Org. Carbon mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb mg/L				0.0005	0.0018	0.0013	0.0007	0.0007				
Arsenic As mg/L				0.0004	0.0004	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00020	0.00021	0.00021	0.00022	0.00022				
Boron B mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd mg/L				0.0000033	0.0000049	0.0000154	0.0000029	0.0000030				
Calcium Ca mg/L				10	9	9	10	10				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00026	0.00024	0.00031	0.00028	0.00028				
Nickel Ni mg/L				0.0007	0.0006	0.0007	0.0006	0.0007				
Phosphorus P mg/L				0.026	0.018	0.009	0.021	0.021				
Potassium K mg/L				3.1	2.5	2.5	2.8	2.9				
Selenium Se mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag mg/L				0.0000048	0.0000022	0.0000046	0.0000030	0.0000030				
Sodium Na mg/L				38	31	34	36	36				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti mg/L				0.0060	0.0060	0.0060	0.0060	0.0061				
Uranium U mg/L				0.000036	0.000033	0.000035	0.000043	0.000043				
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr mg/L				0.0050	0.0051	0.0051	0.0051	0.0051				

Table I-5-c-C.2
20 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS mg/L				157	157	146	166	167				
TSS mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN mg/L				0.00002								
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L				0.0000								
CNO mg/L				0.02								
SCN mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate mg/L				4.8	4.7	5.6	5.4	5.4				
Chloride mg/L				65	62	61	69	70				
Total Ammonia mg/L				0.011	0.013	0.002	0.009	0.009				
Nitrate mg/L				0.08	0.08	0.07	0.08	0.08				
Nitrite mg/L				0.006	0.004	0.002	0.003	0.003				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0027	0.0026	0.0026	0.0026	0.0027				
Phosphate-P mg/L				0.0257	0.0177	0.0086	0.0207	0.0207				
Org. Carbon mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb mg/L				0.0006	0.0019	0.0013	0.0008	0.0008				
Arsenic As mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0043	0.0043				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00024	0.00025	0.00025	0.00025	0.00026				
Boron B mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd mg/L				0.0000035	0.0000050	0.0000155	0.0000030	0.0000030				
Calcium Ca mg/L				11	9	9	10	10				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0003	0.0004	0.0005	0.0002	0.0002				
Copper Cu mg/L				0.0013	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00010	0.00026	0.00026				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00028	0.00026	0.00032	0.00028	0.00028				
Nickel Ni mg/L				0.0007	0.0006	0.0007	0.0007	0.0007				
Phosphorus P mg/L				0.027	0.019	0.010	0.022	0.022				
Potassium K mg/L				3.2	2.6	2.6	2.9	2.9				
Selenium Se mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.55	0.55	0.54	0.54	0.54				
Silver Ag mg/L				0.0000050	0.0000023	0.0000047	0.0000031	0.0000031				
Sodium Na mg/L				38	32	34	36	36				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00002	0.00002	0.00002	0.00003	0.00003				
Titanium Ti mg/L				0.0060	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000036	0.000033	0.000035	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0037	0.0019	0.0018	0.0053	0.0053				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-c-C.2
20 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS mg/L				157	157	146	166	166				
TSS mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate mg/L				4.7	4.6	5.5	5.3	5.3				
Chloride mg/L				66	63	62	70	70				
Total Ammonia mg/L				0.007	0.007	0.002	0.009	0.009				
Nitrate mg/L				0.08	0.08	0.07	0.07	0.07				
Nitrite mg/L				0.003	0.002	0.000	0.002	0.002				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0029	0.0028	0.0027	0.0027	0.0027				
Phosphate-P mg/L				0.0260	0.0179	0.0088	0.0208	0.0208				
Org. Carbon mg/L				6.0	4.0	7.0	5.0	5.0				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb mg/L				0.0006	0.0019	0.0013	0.0008	0.0008				
Arsenic As mg/L				0.0005	0.0004	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00027	0.00026	0.00025	0.00025	0.00025				
Boron B mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd mg/L				0.0000034	0.0000049	0.0000154	0.0000029	0.0000029				
Calcium Ca mg/L				10	9	9	10	10				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00026	0.00024	0.00031	0.00027	0.00027				
Nickel Ni mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.027	0.019	0.010	0.022	0.022				
Potassium K mg/L				3.1	2.5	2.5	2.8	2.8				
Selenium Se mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag mg/L				0.0000050	0.0000024	0.0000048	0.0000031	0.0000031				
Sodium Na mg/L				38	31	34	36	36				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00003	0.00003	0.00003	0.00003	0.00003				
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-c-C.2
20 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS mg/L				156	156	146	166	166				
TSS mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate mg/L				4.6	4.4	5.4	5.2	5.2				
Chloride mg/L				65	62	61	69	69				
Total Ammonia mg/L				0.007	0.007	0.002	0.009	0.009				
Nitrate mg/L				0.07	0.07	0.06	0.06	0.06				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				24	24	25	26	26				
OrthoPhosphate-P mg/L				0.0027	0.0026	0.0025	0.0025	0.0025				
Phosphate-P mg/L				0.0257	0.0176	0.0085	0.0205	0.0205				
Org. Carbon mg/L				6.0	4.0	7.0	5.1	5.1				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb mg/L				0.0006	0.0019	0.0013	0.0007	0.0007				
Arsenic As mg/L				0.0004	0.0004	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00025	0.00024	0.00023	0.00023	0.00023				
Boron B mg/L				0.030	0.020	0.028	0.027	0.027				
Cadmium Cd mg/L				0.0000033	0.0000049	0.0000154	0.0000029	0.0000029				
Calcium Ca mg/L				10	9	8	9	9				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00026	0.00026				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.1	5.1	5.3	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo mg/L				0.00025	0.00023	0.00030	0.00026	0.00026				
Nickel Ni mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.027	0.019	0.009	0.021	0.021				
Potassium K mg/L				3.0	2.5	2.5	2.8	2.8				
Selenium Se mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.54	0.54	0.54	0.54	0.54				
Silver Ag mg/L				0.0000050	0.0000024	0.0000047	0.0000031	0.0000031				
Sodium Na mg/L				38	31	34	36	36				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000101	0.000301	0.000301	0.002001	0.002001				
Thorium Th mg/L				0.000001	0.000001	0.000001	0.000001	0.000001				
Tin Sn mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000037	0.000033	0.000035	0.000044	0.000044				
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0037	0.0019	0.0017	0.0053	0.0053				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-c-C.2
20 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS mg/L				156	155	145	165	165				
TSS mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate mg/L				4.5	4.3	5.3	5.1	5.1				
Chloride mg/L				65	62	61	68	68				
Total Ammonia mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate mg/L				0.05	0.04	0.04	0.04	0.04				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				23	23	24	25	25				
OrthoPhosphate-P mg/L				0.0024	0.0024	0.0023	0.0023	0.0023				
Phosphate-P mg/L				0.0255	0.0174	0.0083	0.0203	0.0203				
Org. Carbon mg/L				6.0	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb mg/L				0.0005	0.0018	0.0013	0.0007	0.0007				
Arsenic As mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00023	0.00022	0.00021	0.00021	0.00021				
Boron B mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd mg/L				0.0000029	0.0000044	0.0000150	0.0000025	0.0000025				
Calcium Ca mg/L				9	8	8	9	9				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00024	0.00022	0.00029	0.00025	0.00025				
Nickel Ni mg/L				0.0007	0.0006	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.026	0.018	0.009	0.021	0.021				
Potassium K mg/L				3.0	2.4	2.4	2.7	2.7				
Selenium Se mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag mg/L				0.0000045	0.0000018	0.0000042	0.0000026	0.0000026				
Sodium Na mg/L				38	31	34	36	36				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000036	0.000032	0.000034	0.000043	0.000043				
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0036	0.0018	0.0017	0.0053	0.0053				
Zirconium Zr mg/L				0.0050	0.0050	0.0050	0.0050	0.0051				

Table I-5-c-C.2
20 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS mg/L				155	155	145	165	165				
TSS mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.001	0.001	0.001	0.001	0.001				
Sulphate mg/L				4.4	4.3	5.2	5.0	5.0				
Chloride mg/L				64	61	60	68	68				
Total Ammonia mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate mg/L				0.04	0.04	0.03	0.04	0.04				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				23	23	24	25	25				
OrthoPhosphate-P mg/L				0.0022	0.0022	0.0021	0.0021	0.0021				
Phosphate-P mg/L				0.0253	0.0172	0.0082	0.0202	0.0202				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb mg/L				0.0005	0.0018	0.0013	0.0007	0.0007				
Arsenic As mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0052	0.0035	0.0045	0.0042	0.0042				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00021	0.00020	0.00020	0.00020	0.00020				
Boron B mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd mg/L				0.0000029	0.0000044	0.0000149	0.0000024	0.0000024				
Calcium Ca mg/L				9	8	8	9	9				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00023	0.00022	0.00028	0.00024	0.00024				
Nickel Ni mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.026	0.018	0.009	0.021	0.021				
Potassium K mg/L				2.9	2.4	2.4	2.7	2.7				
Selenium Se mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag mg/L				0.0000045	0.0000018	0.0000042	0.0000025	0.0000025				
Sodium Na mg/L				38	31	34	36	36				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn mg/L				0.00002	0.00002	0.00002	0.00002	0.00002				
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000036	0.000032	0.000034	0.000043	0.000043				
Vanadium V mg/L				0.0005	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0036	0.0018	0.0017	0.0052	0.0052				
Zirconium Zr mg/L				0.0050	0.0051	0.0051	0.0051	0.0051				

Table I-5-c-C.2
20 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS mg/L				155	154	144	164	164				
TSS mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.001	0.000	0.000	0.000	0.000				
Sulphate mg/L				4.3	4.2	5.1	4.9	4.9				
Chloride mg/L				64	61	60	68	68				
Total Ammonia mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate mg/L				0.03	0.03	0.02	0.03	0.03				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				23	23	24	25	25				
OrthoPhosphate-P mg/L				0.0021	0.0020	0.0020	0.0020	0.0020				
Phosphate-P mg/L				0.0251	0.0171	0.0080	0.0200	0.0200				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb mg/L				0.0005	0.0018	0.0013	0.0007	0.0007				
Arsenic As mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00020	0.00019	0.00019	0.00019	0.00019				
Boron B mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd mg/L				0.0000028	0.0000043	0.0000149	0.0000024	0.0000024				
Calcium Ca mg/L				9	8	8	9	9				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0004	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0014	0.0017	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00023	0.00021	0.00028	0.00024	0.00024				
Nickel Ni mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.026	0.018	0.009	0.021	0.021				
Potassium K mg/L				2.9	2.4	2.4	2.7	2.7				
Selenium Se mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.53	0.53	0.53	0.53	0.53				
Silver Ag mg/L				0.0000044	0.0000018	0.0000041	0.0000025	0.0000025				
Sodium Na mg/L				38	31	34	36	36				
Strontium Sr mg/L				0.045	0.038	0.040	0.046	0.046				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn mg/L				0.00002	0.00002	0.00001	0.00001	0.00002				
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000036	0.000032	0.000034	0.000043	0.000043				
Vanadium V mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0036	0.0018	0.0017	0.0052	0.0052				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-c-C.2
20 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS mg/L				154	154	144	164	164				
TSS mg/L				7.0	8.0	4.0	5.0	5.0				
Free CN mg/L												
Total CN mg/L				0.002	0.002	0.002	0.002	0.002				
WAD CN mg/L												
CNO mg/L												
SCN mg/L				0.000	0.000	0.000	0.000	0.000				
Sulphate mg/L				4.2	4.1	5.1	4.9	4.9				
Chloride mg/L				64	61	59	67	67				
Total Ammonia mg/L				0.005	0.005	0.000	0.007	0.007				
Nitrate mg/L				0.02	0.02	0.02	0.02	0.02				
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002				
Alkalinity mg/L				23	23	24	25	25				
OrthoPhosphate-P mg/L				0.0020	0.0019	0.0019	0.0019	0.0019				
Phosphate-P mg/L				0.0250	0.0170	0.0079	0.0199	0.0199				
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1				
Hardness CaCO3 mg/L				44	39	41	45	45				
Total Metals												
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15				
Antimony Sb mg/L				0.0005	0.0018	0.0012	0.0007	0.0007				
Arsenic As mg/L				0.0004	0.0003	0.0005	0.0004	0.0004				
Barium Ba mg/L				0.0051	0.0035	0.0045	0.0042	0.0042				
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi mg/L				0.00018	0.00018	0.00018	0.00018	0.00018				
Boron B mg/L				0.029	0.020	0.028	0.026	0.026				
Cadmium Cd mg/L				0.0000028	0.0000043	0.0000148	0.0000023	0.0000023				
Calcium Ca mg/L				9	8	8	9	9				
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000				
Cobalt Co mg/L				0.0002	0.0003	0.0004	0.0002	0.0002				
Copper Cu mg/L				0.0012	0.0013	0.0016	0.0019	0.0019				
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16				
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00025	0.00025				
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg mg/L				7.0	5.1	5.3	7.2	7.2				
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008				
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Molybdenum Mo mg/L				0.00022	0.00020	0.00027	0.00023	0.00023				
Nickel Ni mg/L				0.0007	0.0005	0.0007	0.0006	0.0006				
Phosphorus P mg/L				0.025	0.017	0.008	0.020	0.020				
Potassium K mg/L				2.9	2.4	2.3	2.6	2.6				
Selenium Se mg/L				0.00065	0.00037	0.00083	0.00060	0.00060				
Silicon SiO2 mg/L				0.53	0.52	0.52	0.52	0.52				
Silver Ag mg/L				0.0000044	0.0000017	0.0000041	0.0000024	0.0000024				
Sodium Na mg/L				38	31	34	36	36				
Strontium Sr mg/L				0.045	0.037	0.040	0.046	0.046				
Tellurium Te mg/L				0.050	0.050	0.050	0.050	0.050				
Thallium Tl mg/L				0.000100	0.000300	0.000300	0.002000	0.002000				
Thorium Th mg/L				0.000000	0.000000	0.000000	0.000000	0.000000				
Tin Sn mg/L				0.00001	0.00001	0.00001	0.00001	0.00001				
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061				
Uranium U mg/L				0.000036	0.000032	0.000034	0.000043	0.000043				
Vanadium V mg/L				0.0004	0.0001	0.0005	0.0003	0.0003				
Zinc Zn mg/L				0.0036	0.0018	0.0016	0.0052	0.0052				
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051				

Table I-5-c-C.2
20 % increase in Background Coppe

Water Quality in Little Roberst Lake Water Quality in Little Roberst Lake Outflow

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16
Parameter											
TDS mg/L				154	155	145	166	167			
TSS mg/L				7.0	8.0	4.0	5.0	5.0			
Free CN mg/L											
Total CN mg/L				0.002	0.002	0.002	0.002	0.002			
WAD CN mg/L											
CNO mg/L											
SCN mg/L				0.000	0.000	0.000	0.000	0.000			
Sulphate mg/L				4.2	4.1	5.0	4.8	4.8			
Chloride mg/L				63	61	60	69	69			
Total Ammonia mg/L				0.005	0.005	0.000	0.007	0.007			
Nitrate mg/L				0.02	0.02	0.01	0.02	0.02			
Nitrite mg/L				0.002	0.002	0.000	0.002	0.002			
Alkalinity mg/L				23	23	24	25	25			
OrthoPhosphate-P mg/L				0.0019	0.0018	0.0018	0.0018	0.0018			
Phosphate-P mg/L				0.0249	0.0169	0.0078	0.0198	0.0198			
Org. Carbon mg/L				6.1	4.1	7.1	5.1	5.1			
Hardness CaCO3 mg/L				44	39	41	45	45			
Total Metals											
Aluminum Al mg/L				0.24	0.11	0.19	0.15	0.15			
Antimony Sb mg/L				0.0005	0.0018	0.0012	0.0007	0.0007			
Arsenic As mg/L				0.0004	0.0003	0.0005	0.0004	0.0004			
Barium Ba mg/L				0.0051	0.0035	0.0045	0.0042	0.0042			
Beryllium Be mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Bismuth Bi mg/L				0.00017	0.00017	0.00017	0.00017	0.00017			
Boron B mg/L				0.029	0.020	0.028	0.026	0.026			
Cadmium Cd mg/L				0.0000027	0.0000043	0.0000148	0.0000023	0.0000023			
Calcium Ca mg/L				9	8	8	9	9			
Chromium Cr mg/L				0.001	0.000	0.001	0.000	0.000			
Cobalt Co mg/L				0.0002	0.0003	0.0004	0.0002	0.0002			
Copper Cu mg/L				0.0012	0.0013	0.0016	0.0019	0.0019			
Iron Fe mg/L				0.28	0.14	0.18	0.16	0.16			
Lead Pb mg/L				0.00007	0.00005	0.00009	0.00025	0.00025			
Lithium Li mg/L				0.0028	0.0028	0.0028	0.0028	0.0028			
Magnesium Mg mg/L				7.0	5.1	5.3	7.2	7.2			
Manganese Mn mg/L				0.024	0.009	0.013	0.008	0.008			
Mercury Hg mg/L				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006			
Molybdenum Mo mg/L				0.00022	0.00020	0.00027	0.00023	0.00023			
Nickel Ni mg/L				0.0007	0.0005	0.0007	0.0006	0.0006			
Phosphorus P mg/L				0.025	0.017	0.008	0.020	0.020			
Potassium K mg/L				2.9	2.3	2.3	2.6	2.6			
Selenium Se mg/L				0.00065	0.00037	0.00083	0.00060	0.00060			
Silicon SiO2 mg/L				0.52	0.52	0.52	0.52	0.52			
Silver Ag mg/L				0.0000044	0.0000017	0.0000041	0.0000024	0.0000024			
Sodium Na mg/L				38	32	34	37	37			
Strontium Sr mg/L				0.045	0.037	0.040	0.046	0.046			
Tellurium Te mg/L				0.050	0.051	0.050	0.051	0.051			
Thallium Tl mg/L				0.000100	0.000300	0.000300	0.002000	0.002000			
Thorium Th mg/L				0.000000	0.000000	0.000000	0.000000	0.000000			
Tin Sn mg/L				0.00001	0.00001	0.00001	0.00001	0.00001			
Titanium Ti mg/L				0.0061	0.0061	0.0061	0.0061	0.0061			
Uranium U mg/L				0.000036	0.000032	0.000034	0.000043	0.000043			
Vanadium V mg/L				0.0004	0.0001	0.0005	0.0003	0.0003			
Zinc Zn mg/L				0.0036	0.0018	0.0016	0.0052	0.0052			
Zirconium Zr mg/L				0.0051	0.0051	0.0051	0.0051	0.0051			

Table I-5-c-C.3
20 % increase in Background Copper in Doris Creek

Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 1 Mar-07	Year 1 Apr-07	Year 1 May-07	Year 1 Jun-07	Year 1 Jul-07	Year 1 Aug-07	Year 1 Sep-07	Year 1 Oct-07	Year 1 Nov-07	Year 1 Dec-07	Year 1 Jan-08	Year 1 Feb-08
Parameter												
TDS				140	123	127	147	148				
TSS				3.9	5.8	5.9	6.9	6.9				
Free CN				0.00003	0.00001	0.00001	0.00001	0.00001				
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN				0.0000	0.0000	0.0000	0.0000	0.0000				
CNO				0.04	0.01	0.01	0.01	0.01				
SCN				0.000	0.001	0.001	0.001	0.001				
Sulphate				3.2	3.3	3.5	3.7	3.9				
Chloride				61	62	60	64	65				
Total Ammonia				0.013	0.025	0.021	0.021	0.021				
Nitrate				0.05	0.07	0.08	0.09	0.10				
Nitrite				0.006	0.007	0.007	0.007	0.007				
Alkalinity				27	25	27	27	27				
OrthoPhosphate-P				0.0014	0.0015	0.0016	0.0018	0.0020				
Phosphate-P				0.0168	0.0184	0.0244	0.0202	0.0204				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				45	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0004	0.0009	0.0029	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00007	0.00011	0.00013	0.00015	0.00017				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000035	0.0000036	0.0000032	0.0000033	0.0000034				
Calcium Ca				10	9	9	9	10				
Chromium Cr				0.001	0.000	0.000	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0002	0.0002				
Copper Cu				0.0015	0.0019	0.0016	0.0018	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.2	6.5	6.6	6.4	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00020	0.00020	0.00024	0.00023	0.00024				
Nickel Ni				0.0004	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.018	0.019	0.026	0.021	0.022				
Potassium K				3.0	2.6	2.6	2.6	2.7				
Selenium Se				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.52	0.53	0.53	0.54	0.54				
Silver Ag				0.0000032	0.0000038	0.0000035	0.0000036	0.0000037				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.040	0.042	0.036	0.040	0.040				
Tellurium Te				0.049	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000016	0.0000018	0.0000019	0.0000019	0.0000020				
Tin Sn				0.00040	0.00041	0.00041	0.00041	0.00042				
Titanium Ti				0.0059	0.0059	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000031	0.000039	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0010	0.0032	0.0030	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 2 Feb-08	Year 2 Mar-08	Year 2 Apr-08	Year 2 May-08	Year 2 Jun-08	Year 2 Jul-08	Year 2 Aug-08	Year 2 Sep-08	Year 2 Oct-08	Year 2 Nov-08	Year 2 Dec-08	Year 2 Jan-09
Parameter												
TDS				147	129	132	152	153				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN				0.00007	0.00000	0.00001	0.00001	0.00001				
Total CN				0.003	0.002	0.002	0.002	0.002				
WAD CN				0.0001	0.0000	0.0000	0.0000	0.0000				
CNO				0.07	0.00	0.01	0.01	0.01				
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				4.4	4.3	4.4	4.7	4.8				
Chloride				65	65	63	68	68				
Total Ammonia				0.020	0.037	0.019	0.020	0.020				
Nitrate				0.12	0.13	0.14	0.15	0.15				
Nitrite				0.013	0.007	0.007	0.004	0.007				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0031	0.0030	0.0030	0.0031	0.0032				
Phosphate-P				0.0185	0.0199	0.0258	0.0215	0.0216				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	44	44	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0010	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00022	0.00024	0.00025	0.00026	0.00028				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000042	0.0000043	0.0000038	0.0000038	0.0000039				
Calcium Ca				13	12	12	12	12				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0011	0.0003	0.0003				
Copper Cu				0.0016	0.0020	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00032	0.00031	0.00034	0.00032	0.00033				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.020	0.022	0.028	0.024	0.024				
Potassium K				3.5	3.1	3.1	3.1	3.1				
Selenium Se				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.57	0.57	0.57	0.57	0.58				
Silver Ag				0.0000039	0.0000043	0.0000041	0.0000041	0.0000042				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000031	0.000031				
Thorium Th				0.0000019	0.0000020	0.0000021	0.0000021	0.0000021				
Tin Sn				0.00042	0.00043	0.00043	0.00043	0.00043				
Titanium Ti				0.0059	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 3 Mar-09	Year 3 Apr-09	Year 3 May-09	Year 3 Jun-09	Year 3 Jul-09	Year 3 Aug-09	Year 3 Sep-09	Year 3 Oct-09	Year 3 Nov-09	Year 3 Dec-09	Year 3 Jan-10	Year 3 Feb-10
Parameter												
TDS				150	132	135	155	155				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN				0.00004								
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN				0.0000								
CNO				0.04								
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				4.8	4.7	4.7	4.8	4.8				
Chloride				68	68	66	70	70				
Total Ammonia				0.016	0.025	0.017	0.016	0.016				
Nitrate				0.15	0.16	0.15	0.16	0.16				
Nitrite				0.011	0.006	0.006	0.003	0.003				
Alkalinity				28	26	28	27	27				
OrthoPhosphate-P				0.0040	0.0040	0.0039	0.0040	0.0041				
Phosphate-P				0.0195	0.0208	0.0267	0.0224	0.0225				
Org. Carbon				5.4	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0011	0.0031	0.0008	0.0008				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00031	0.00033	0.00033	0.00034	0.00035				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000045	0.0000045	0.0000039	0.0000039	0.0000039				
Calcium Ca				14	13	12	12	12				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0003	0.0004	0.0011	0.0003	0.0003				
Copper Cu				0.0016	0.0020	0.0017	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0029	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.021	0.014	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00036	0.00034	0.00036	0.00033	0.00033				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.022	0.023	0.029	0.025	0.025				
Potassium K				3.7	3.2	3.2	3.1	3.1				
Selenium Se				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.59	0.58	0.58	0.58	0.58				
Silver Ag				0.0000043	0.0000046	0.0000043	0.0000043	0.0000044				
Sodium Na				39	33	35	32	32				
Strontium Sr				0.042	0.043	0.037	0.041	0.041				
Tellurium Te				0.049	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000021	0.0000021	0.0000021	0.0000021	0.0000022				
Tin Sn				0.00044	0.00044	0.00044	0.00044	0.00044				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0014	0.0036	0.0033	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 4 Mar-10	Year 4 Apr-10	Year 4 May-10	Year 4 Jun-10	Year 4 Jul-10	Year 4 Aug-10	Year 4 Sep-10	Year 4 Oct-10	Year 4 Nov-10	Year 4 Dec-10	Year 4 Jan-11	Year 4 Feb-11
Parameter												
TDS				151	132	135	154	154				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.002	0.002	0.002	0.002				
Sulphate				4.6	4.4	4.4	4.6	4.6				
Chloride				69	69	66	70	70				
Total Ammonia				0.009	0.011	0.017	0.016	0.016				
Nitrate				0.15	0.15	0.14	0.14	0.14				
Nitrite				0.005	0.003	0.003	0.003	0.003				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0046	0.0044	0.0042	0.0042	0.0042				
Phosphate-P				0.0201	0.0212	0.0270	0.0226	0.0226				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				47	44	44	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0011	0.0031	0.0008	0.0008				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00037	0.00036	0.00034	0.00033	0.00033				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000044	0.0000043	0.0000038	0.0000038	0.0000038				
Calcium Ca				13	12	12	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0003	0.0003				
Copper Cu				0.0016	0.0020	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.7	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00032	0.00031	0.00033	0.00031	0.00030				
Nickel Ni				0.0006	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.022	0.023	0.029	0.025	0.025				
Potassium K				3.5	3.1	3.0	3.0	3.0				
Selenium Se				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.57	0.57	0.57	0.57	0.57				
Silver Ag				0.0000045	0.0000047	0.0000044	0.0000044	0.0000044				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.043	0.037	0.041	0.041				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000021	0.0000022	0.0000022	0.0000022	0.0000022				
Tin Sn				0.00045	0.00045	0.00044	0.00044	0.00044				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0035	0.0032	0.0021	0.0021				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 5 Mar-11	Year 5 Apr-11	Year 5 May-11	Year 5 Jun-11	Year 5 Jul-11	Year 5 Aug-11	Year 5 Sep-11	Year 5 Oct-11	Year 5 Nov-11	Year 5 Dec-11	Year 5 Jan-12	Year 5 Feb-12
Parameter												
TDS				149	130	133	153	153				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.002	0.001	0.001	0.001	0.001				
Sulphate				4.3	4.2	4.2	4.4	4.4				
Chloride				68	68	65	69	69				
Total Ammonia				0.008	0.011	0.017	0.016	0.016				
Nitrate				0.13	0.13	0.12	0.12	0.12				
Nitrite				0.003	0.003	0.003	0.003	0.003				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0040	0.0039	0.0037	0.0037	0.0037				
Phosphate-P				0.0195	0.0207	0.0265	0.0221	0.0221				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	44	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0007	0.0011	0.0031	0.0007	0.0007				
Arsenic As				0.0005	0.0005	0.0004	0.0004	0.0004				
Barium Ba				0.0030	0.0033	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00002	0.00002	0.00002	0.00002				
Bismuth Bi				0.00032	0.00031	0.00029	0.00029	0.00029				
Boron B				0.034	0.023	0.023	0.023	0.023				
Cadmium Cd				0.0000043	0.0000043	0.0000037	0.0000037	0.0000037				
Calcium Ca				12	11	11	11	11				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0016	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00003	0.00007	0.00005	0.00005	0.00005				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000008	0.0000008	0.0000008	0.0000008	0.0000008				
Molybdenum Mo				0.00030	0.00029	0.00031	0.00028	0.00028				
Nickel Ni				0.0005	0.0007	0.0006	0.0006	0.0006				
Phosphorus P				0.022	0.023	0.028	0.024	0.024				
Potassium K				3.4	3.0	2.9	2.9	2.9				
Selenium Se				0.00089	0.00057	0.00062	0.00056	0.00056				
Silicon SiO2				0.57	0.57	0.56	0.56	0.56				
Silver Ag				0.0000045	0.0000047	0.0000043	0.0000043	0.0000044				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.043	0.036	0.041	0.041				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000031	0.000031	0.000031	0.000031	0.000031				
Thorium Th				0.0000022	0.0000022	0.0000022	0.0000022	0.0000023				
Tin Sn				0.00044	0.00044	0.00044	0.00044	0.00044				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000027	0.000032	0.000040	0.000033	0.000033				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0013	0.0035	0.0031	0.0020	0.0020				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 6 Feb-12	Year 6 Mar-12	Year 6 Apr-12	Year 6 May-12	Year 6 Jun-12	Year 6 Jul-12	Year 6 Aug-12	Year 6 Sep-12	Year 6 Oct-12	Year 6 Nov-12	Year 6 Dec-12	Year 6 Jan-13
Parameter												
TDS				148	129	132	152	152				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				4.1	4.0	4.0	4.2	4.2				
Chloride				67	66	64	68	68				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.08	0.08	0.08	0.08	0.08				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0036	0.0035	0.0033	0.0033	0.0033				
Phosphate-P				0.0191	0.0203	0.0261	0.0217	0.0217				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	44	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0011	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00028	0.00027	0.00026	0.00025	0.00025				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000034	0.0000034	0.0000029	0.0000029	0.0000029				
Calcium Ca				12	11	11	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0015	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00028	0.00027	0.00029	0.00027	0.00027				
Nickel Ni				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.020	0.022	0.027	0.023	0.023				
Potassium K				3.3	2.9	2.9	2.8	2.8				
Selenium Se				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.55	0.55	0.55	0.55	0.55				
Silver Ag				0.0000034	0.0000036	0.0000032	0.0000033	0.0000033				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000006	0.0000006	0.0000006	0.0000006	0.0000007				
Tin Sn				0.00043	0.00043	0.00043	0.00043	0.00043				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0034	0.0031	0.0020	0.0020				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 7 Mar-13	Year 7 Apr-13	Year 7 May-13	Year 7 Jun-13	Year 7 Jul-13	Year 7 Aug-13	Year 7 Sep-13	Year 7 Oct-13	Year 7 Nov-13	Year 7 Dec-13	Year 7 Jan-14	Year 7 Feb-14
Parameter												
TDS				147	128	131	151	151				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				3.9	3.8	3.9	4.0	4.0				
Chloride				66	66	63	67	67				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.07	0.07	0.06	0.06	0.06				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0032	0.0031	0.0030	0.0030	0.0030				
Phosphate-P				0.0187	0.0199	0.0258	0.0214	0.0214				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0010	0.0030	0.0007	0.0007				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0031	0.0032	0.0032				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00025	0.00024	0.00023	0.00023	0.00023				
Boron B				0.034	0.023	0.023	0.022	0.022				
Cadmium Cd				0.0000033	0.0000033	0.0000028	0.0000028	0.0000028				
Calcium Ca				11	11	10	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0003	0.0010	0.0002	0.0002				
Copper Cu				0.0015	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00026	0.00025	0.00028	0.00025	0.00025				
Nickel Ni				0.0005	0.0007	0.0006	0.0005	0.0005				
Phosphorus P				0.020	0.021	0.027	0.023	0.023				
Potassium K				3.3	2.9	2.8	2.7	2.7				
Selenium Se				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.55	0.55	0.54	0.54	0.54				
Silver Ag				0.0000034	0.0000036	0.0000032	0.0000032	0.0000032				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000006	0.0000006	0.0000006	0.0000006	0.0000006				
Tin Sn				0.00043	0.00043	0.00042	0.00042	0.00042				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0034	0.0031	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 8 Mar-14	Year 8 Apr-14	Year 8 May-14	Year 8 Jun-14	Year 8 Jul-14	Year 8 Aug-14	Year 8 Sep-14	Year 8 Oct-14	Year 8 Nov-14	Year 8 Dec-14	Year 8 Jan-15	Year 8 Feb-15
Parameter												
TDS				146	127	131	150	150				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				3.8	3.7	3.7	3.9	3.9				
Chloride				65	65	63	67	67				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.05	0.05	0.05	0.05	0.05				
Nitrite				0.0020	0.0020	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0029	0.0028	0.0027	0.0027	0.0027				
Phosphate-P				0.0184	0.0197	0.0255	0.0211	0.0211				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	45	45				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0006	0.0010	0.0030	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0031	0.0031	0.0031				
Beryllium Be				0.00002	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00022	0.00021	0.00020	0.00020	0.00020				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000032	0.0000032	0.0000027	0.0000027	0.0000027				
Calcium Ca				11	10	10	10	10				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0002	0.0002	0.0010	0.0002	0.0002				
Copper Cu				0.0015	0.0019	0.0016	0.0019	0.0019				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00007	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00025	0.00024	0.00026	0.00024	0.00024				
Nickel Ni				0.0005	0.0007	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.021	0.027	0.022	0.022				
Potassium K				3.2	2.8	2.8	2.7	2.7				
Selenium Se				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.54	0.54	0.54	0.54	0.54				
Silver Ag				0.0000033	0.0000035	0.0000031	0.0000031	0.0000031				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000006	0.0000005	0.0000005	0.0000005	0.0000005				
Tin Sn				0.00042	0.00042	0.00042	0.00042	0.00042				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0012	0.0034	0.0030	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 9 Mar-15	Year 9 Apr-15	Year 9 May-15	Year 9 Jun-15	Year 9 Jul-15	Year 9 Aug-15	Year 9 Sep-15	Year 9 Oct-15	Year 9 Nov-15	Year 9 Dec-15	Year 9 Jan-16	Year 9 Feb-16
Parameter												
TDS				145	127	130	149	149				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				3.7	3.5	3.6	3.8	3.8				
Chloride				64	64	62	66	66				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.04	0.04	0.04	0.04	0.04				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0027	0.0026	0.0025	0.0025	0.0025				
Phosphate-P				0.0181	0.0194	0.0253	0.0209	0.0209				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0005	0.0010	0.0029	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00020	0.00019	0.00018	0.00018	0.00018				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000031	0.0000031	0.0000026	0.0000026	0.0000026				
Calcium Ca				11	10	10	9	9				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0010	0.0002	0.0002				
Copper Cu				0.0015	0.0019	0.0016	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00024	0.00023	0.00025	0.00023	0.00023				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.020	0.026	0.022	0.022				
Potassium K				3.2	2.7	2.7	2.7	2.7				
Selenium Se				0.00089	0.00057	0.00061	0.00055	0.00055				
Silicon SiO2				0.54	0.54	0.54	0.54	0.54				
Silver Ag				0.0000032	0.0000034	0.0000030	0.0000030	0.0000030				
Sodium Na				39	33	34	32	32				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000005	0.0000005	0.0000005	0.0000005	0.0000005				
Tin Sn				0.00042	0.00042	0.00042	0.00042	0.00042				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000026	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Loadings in Little Robert: Loadings in Little Roberts Creek Outflow (kg/month)

Date	Year 10 Feb-16	Year 10 Mar-16	Year 10 Apr-16	Year 10 May-16	Year 10 Jun-16	Year 10 Jul-16	Year 10 Aug-16	Year 10 Sep-16	Year 10 Oct-16	Year 10 Nov-16	Year 10 Dec-16	Year 10 Jan-17
Parameter												
TDS				144	128	133	154	156				
TSS				4.0	5.8	5.9	6.9	6.9				
Free CN												
Total CN				0.002	0.002	0.002	0.002	0.002				
WAD CN												
CNO												
SCN				0.001	0.001	0.001	0.001	0.001				
Sulphate				3.6	3.5	3.5	3.7	3.7				
Chloride				64	65	64	69	70				
Total Ammonia				0.005	0.008	0.014	0.013	0.013				
Nitrate				0.03	0.03	0.02	0.02	0.02				
Nitrite				0.002	0.002	0.002	0.002	0.002				
Alkalinity				28	26	27	27	27				
OrthoPhosphate-P				0.0024	0.0024	0.0023	0.0023	0.0023				
Phosphate-P				0.0179	0.0192	0.0251	0.0207	0.0207				
Org. Carbon				5.5	5.1	7.4	5.0	5.0				
Hardness CaCO3				46	43	43	44	44				
Total Metals												
Aluminum Al				0.03	0.06	0.08	0.07	0.07				
Antimony Sb				0.0005	0.0010	0.0029	0.0006	0.0006				
Arsenic As				0.0005	0.0004	0.0004	0.0004	0.0004				
Barium Ba				0.0029	0.0032	0.0030	0.0031	0.0031				
Beryllium Be				0.00001	0.00001	0.00001	0.00001	0.00001				
Bismuth Bi				0.00018	0.00017	0.00017	0.00017	0.00016				
Boron B				0.034	0.022	0.023	0.022	0.022				
Cadmium Cd				0.0000031	0.0000031	0.0000025	0.0000025	0.0000025				
Calcium Ca				10	10	10	9	9				
Chromium Cr				0.001	0.000	0.001	0.000	0.000				
Cobalt Co				0.0001	0.0002	0.0009	0.0002	0.0002				
Copper Cu				0.0015	0.0019	0.0016	0.0018	0.0018				
Iron Fe				0.05	0.12	0.08	0.09	0.09				
Lead Pb				0.00002	0.00006	0.00004	0.00004	0.00004				
Lithium Li				0.0028	0.0028	0.0028	0.0028	0.0028				
Magnesium Mg				7.3	6.6	6.6	6.5	6.5				
Manganese Mn				0.007	0.021	0.013	0.010	0.010				
Mercury Hg				0.0000007	0.0000007	0.0000007	0.0000007	0.0000007				
Molybdenum Mo				0.00023	0.00022	0.00025	0.00022	0.00022				
Nickel Ni				0.0005	0.0006	0.0005	0.0005	0.0005				
Phosphorus P				0.019	0.020	0.026	0.021	0.021				
Potassium K				3.1	2.7	2.7	2.6	2.6				
Selenium Se				0.00089	0.00057	0.00062	0.00055	0.00055				
Silicon SiO2				0.54	0.54	0.53	0.53	0.53				
Silver Ag				0.0000031	0.0000034	0.0000030	0.0000030	0.0000030				
Sodium Na				39	34	35	34	34				
Strontium Sr				0.041	0.042	0.036	0.040	0.040				
Tellurium Te				0.050	0.050	0.050	0.050	0.050				
Thallium Tl				0.000030	0.000030	0.000030	0.000030	0.000030				
Thorium Th				0.0000004	0.0000005	0.0000005	0.0000005	0.0000005				
Tin Sn				0.00042	0.00042	0.00042	0.00042	0.00042				
Titanium Ti				0.0060	0.0060	0.0060	0.0060	0.0060				
Uranium U				0.000025	0.000030	0.000038	0.000032	0.000032				
Vanadium V				0.0006	0.0001	0.0003	0.0002	0.0002				
Zinc Zn				0.0011	0.0033	0.0030	0.0019	0.0019				
Zirconium Zr				0.0050	0.0050	0.0050	0.0050	0.0050				

Appendix J
Varian Inductively Coupled Plasma MS Product Information

Technical Memorandum

To:	Brian Labadie, MHBL	Date:	October 25, 2005
cc:	Project File	From:	John Chapman
Subject:	Doris North Project - Varian Inductively Coupled Plasma MS Product Information	Project #:	1CM014.006

1 Description of the unit proposed for the Doris North Project

See attached Technical Brochure.

2 Analytical Laboratory Set-up

Due to the extremely low detection limits of the unit and the extremely low values to be measured all potential contamination exposures must be limited. In discussions with Varian it has been decided that a small self contained trailer unit would be erected near the North Dam (in close proximity to the Tail Lake discharge pump) well away from the mill site and any potential dust emissions. The Laboratory would be cordoned off into three areas, a change room, a sample prep room and an analytical room. The entire Laboratory would be equipped with its own HVAC system. Laboratory employees would be required to wear clothing suitable for the Laboratory environment and change when coming on and off shift.

3 Training

Varian provides all of the training needs to operate the system. Programs include both classroom (Toronto or Edmonton) and on-site programs. The onsite programs are geared specifically to the work to be undertaken by the “technicians”.

4 Technical Support

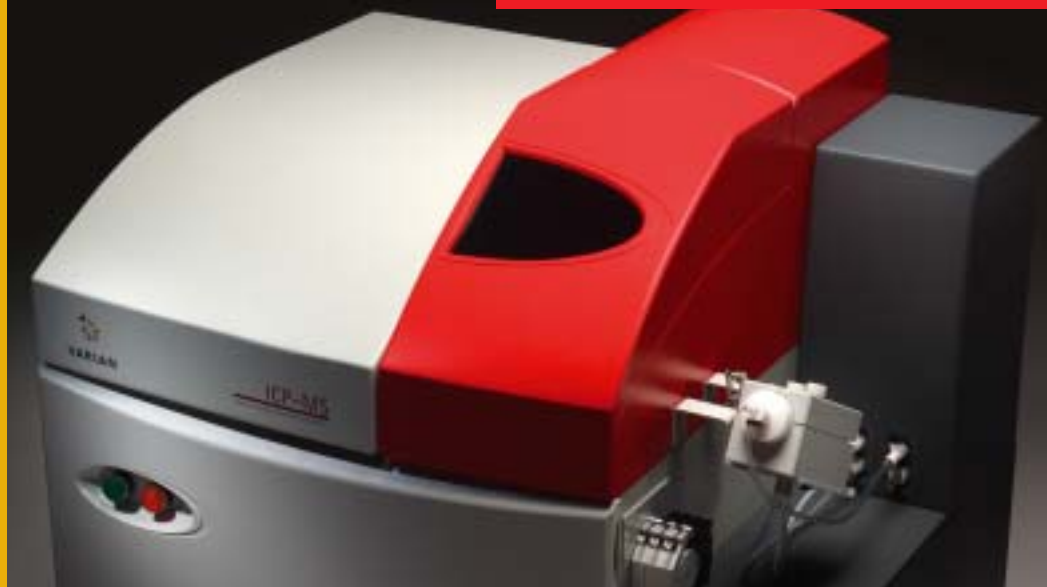
Varian would send a field rep to site prior to the commencement of the annual discharge from Tail Lake. The purpose would be to ensure the unit is properly calibrated and to provide any refresher training. In addition Varian has a full compliment of technicians available in Edmonton and could be on site within a day or two if needed. Another feature of the unit is the ability to have the units performance monitored from Varian’s Edmonton or Toronto facilities from which a fully trained Varian technician could instruct a MHBL Instrument Technician to effect minor adjustments.

5 Operation

Operations of the analytical Laboratory would be seasonal and used strictly as an environmental Laboratory. In addition to providing control assays for the annual water discharge from Tail Lake the unit would prove invaluable in the broadening of the Hope Bay water quality data base. Varian estimates that from the time a sample enters the prep room until a result is available requires 45 minutes. This implies that any rationale sampling frequency set out within the water license can easily be achieved.

ICP-MS

Varian
ICP-MS



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With greater ease-of-use and the highest sensitivity, Varian sets a new direction in ICP-MS.

The Varian ICP-MS with tunable sensitivity is ideal for environmental, semiconductor, and laser ablation geochemistry applications. With Varian's ICP-MS you can choose workhorse conditions for routine operation at high concentrations and gigahertz performance for the ultimate detection limits.

Varian's unique ion-mirror* reflects analyte ions through 90 degrees while neutrals and photons pass through the hollow structure. This produces the highest signal-to-background ratio available and the lowest detection limits.

The Varian ICP-MS is the world's first ICP-MS with tunable gigahertz sensitivity, providing one thousand million counts per second for every part per million. This sensitivity does not compromise performance, with the formation of oxide and doubly charged interferences remaining very low ($\text{CeO}^+/\text{Ce}^+ < 3\%$, $\text{Ce}^{++}/\text{Ce}^+ < 2\%$).

The all-digital, extended range detector provides nine orders of linear dynamic range without digital to analog cross calibration. This means the detector is more reliable, easier to use and offers linear performance from parts per trillion to hundreds of parts per million.

The ICP-Expert software that controls the Varian ICP-MS provides one step optimization and method development. Standard preparation is easy, as ICP-Expert can instruct you on what solutions to make and how to make them.

To further enhance productivity, we've sped up the slowest part of the analysis – sample introduction. Our new SPS-3 is Varian's fastest ever autosampler, while the diluter further extends linear dynamic range, maximizing productivity for very concentrated samples.

The ICP-MS features an all-Varian manufactured and guaranteed vacuum system, and the hollow ion mirror is virtually maintenance free. Both turbomolecular pumps are easily accessible, with the first pump swinging away to provide access to the ion optics system. For peace of mind, the detector has a one year guarantee.

If you need a competitive edge in performance and technology, Varian's new ICP-MS is better by ninety degrees.

* Patent pending





"The 90 degree reflecting ion optics revolutionizes ICP-MS performance"

When you require high sample throughput and the ultimate in analytical performance, the Varian ICP-MS delivers.

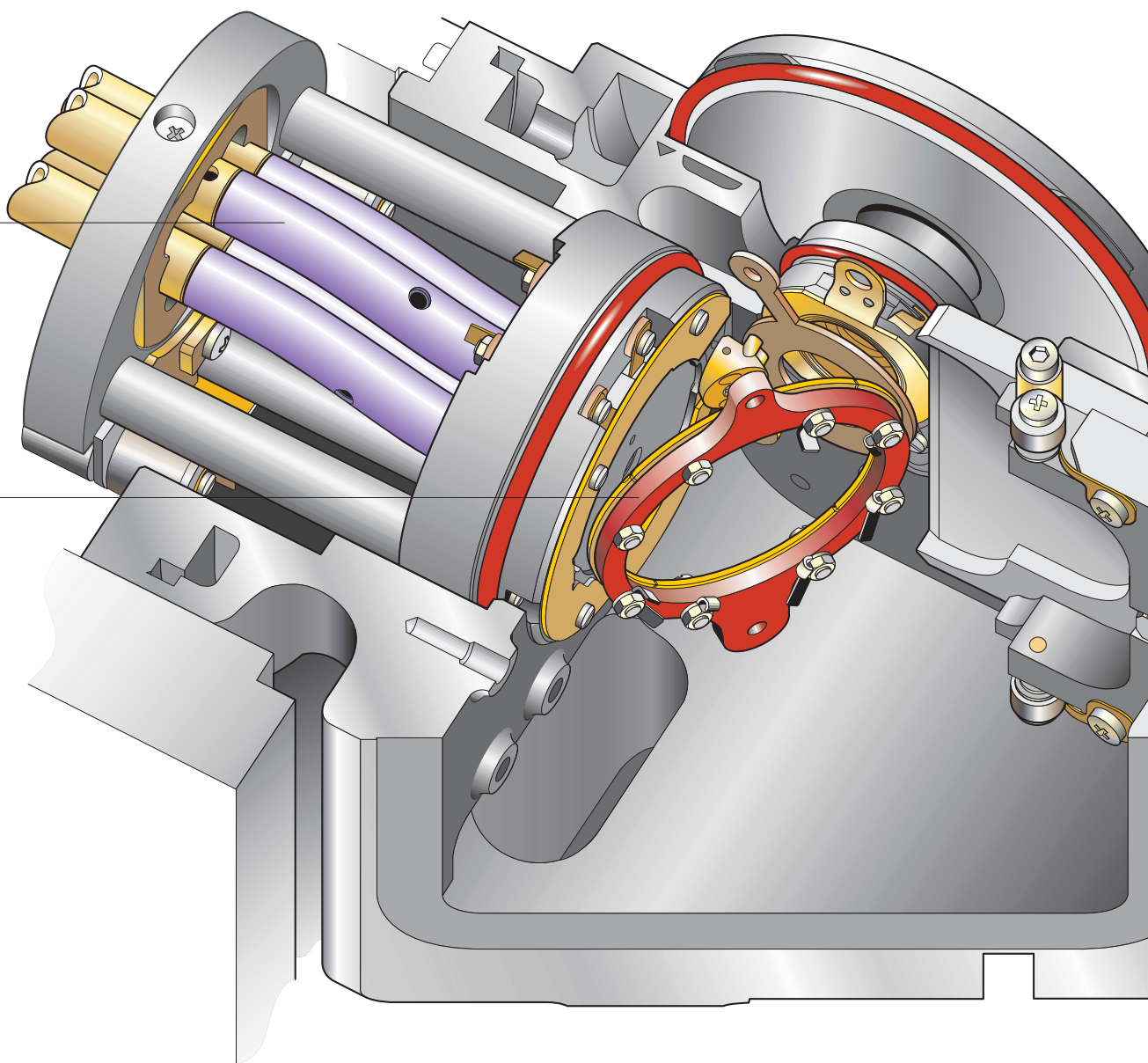
All-Digital Extended Dynamic Range Detector

At last, an all-digital Extended Dynamic Range system that works! Varian's nine orders detector achieves linear performance from ppt to hundreds of ppm without clumsy digital to analog cross calibrations. Ease-of-use, fewer dilutions and a guaranteed one year detector lifetime mean greater productivity and lower running costs for your laboratory.

Low noise quadrupole with curved fringe rods* for ultimate efficiency and low background.

* Patent applied for

Varian's ion mirror reflects the ion beam through 90 degrees, focusing the analyte ions into the quadrupole with the highest possible efficiency. By keeping photons and neutrals away from the mass analyzer, the ion mirror greatly reduces background signal.



Industry benchmark sensitivity, patented Turner Interlaced Coils, and 27MHz plasma combine to deliver the remarkable performance of the Varian ICP-MS.

Isotope/Species	Typical Hot Plasma Performance
⁹ Be	> 50 Million cps/ppm
¹¹⁵ In	> 1000 Million cps/ppm
²³² Th	> 500 Million cps/ppm
CeO ⁺ /Ce ⁺	< 3%

Isotope/Species	Typical Cool Plasma Performance
⁷ Li	> 2000 Million cps/ppm
²³ Na	> 1000 Million cps/ppm
²⁴ Mg	> 500 Million cps/ppm
⁴⁰ Ca	> 100 Million cps/ppm
⁵⁶ Fe	> 100 Million cps/ppm

Solutions for Environmental Speciation

Determining the oxidation state or molecular form of an element requires high sensitivity, accurate separation and rapid measurement. Varian makes elemental and molecular speciation easy with:

- Varian-manufactured ICP-MS and HPLC systems
- Fast 3 MHz quadrupole scanning for superior transient peak resolution and precision
- Gigahertz ICP-MS sensitivity providing better multi-element detection limits and faster scan rates

Real Gigahertz Sensitivity for Semiconductor Applications

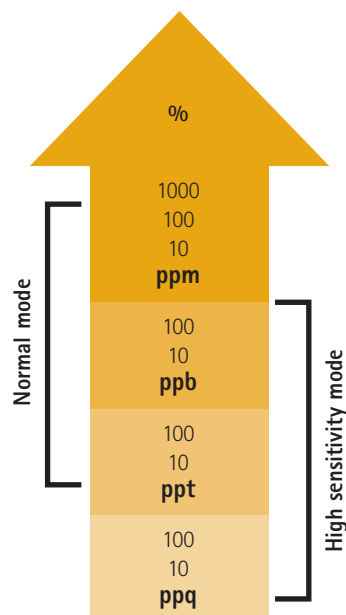
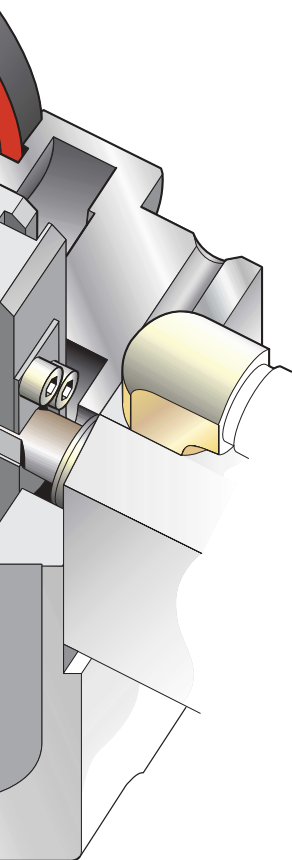
Varian's tunable gigahertz sensitivity sets a new benchmark in elemental detection limits. For semiconductor applications, the push continues to lower acceptance limits of contaminants both in process chemicals and final products. The very low detection limits achievable with the Varian ICP-MS make it ideal for these applications.

Unmatched Sensitivity for Laser Ablation

Varian's ICP-MS takes your laboratory to the leading edge of laser ablation performance with tunable gigahertz sensitivity unmatched by any commercially available quadrupole ICP-MS.

With the Varian ICP-MS you can:

- Use the smallest possible spot sizes for characterizing fluid inclusions or individual crystals, and identifying microscopic features
- Examine the finest details of art pieces, jewelry or artefacts with minimal damage and cost
- Scan for accurate isotope ratios for geochronology, palaeothermometry, marine science and climatology



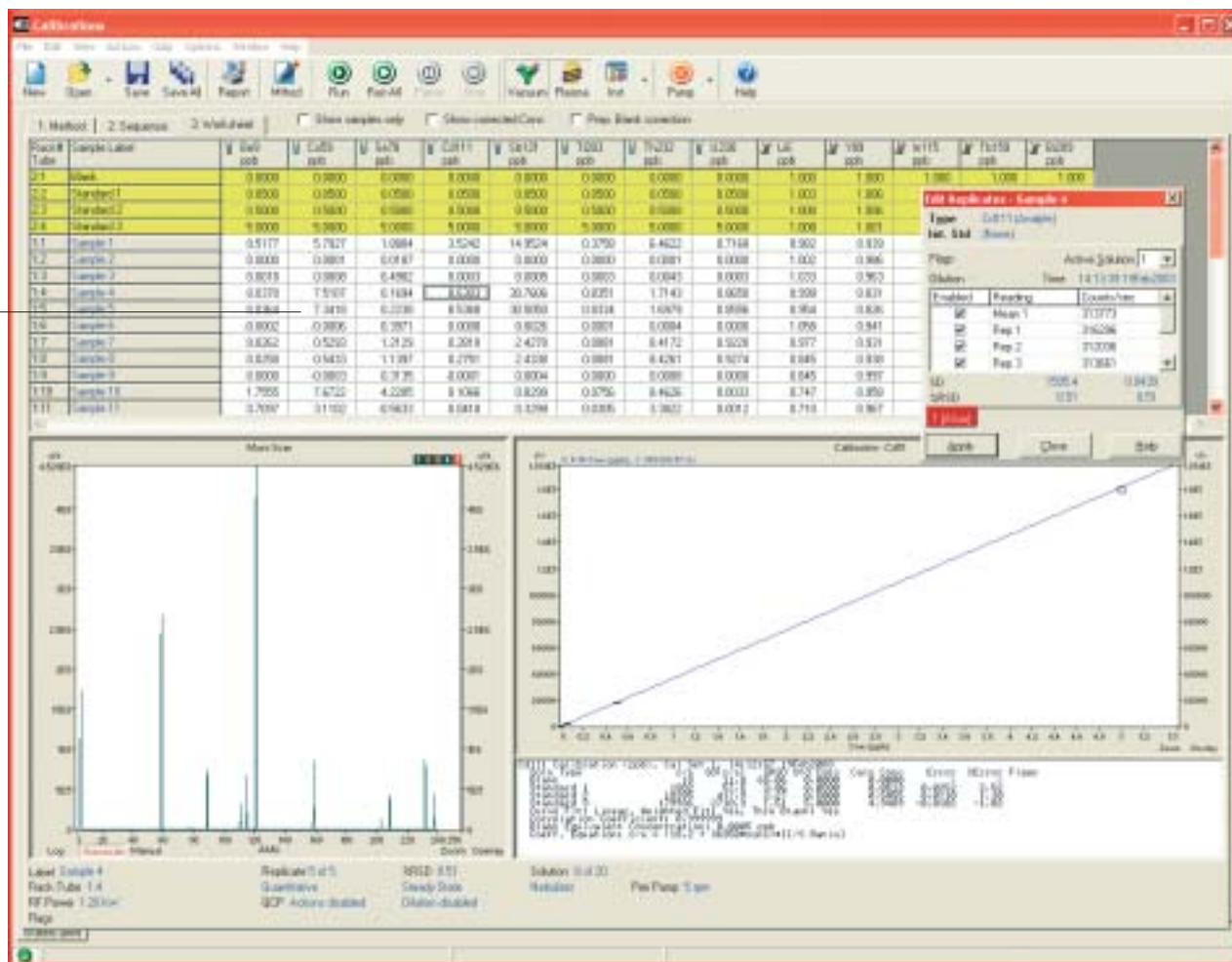
In high sensitivity mode, oxides such as CeO remain at <3% and can be further reduced under normal mode conditions to <1%.

ICP-Expert software for ICP-MS – setting the benchmark for ease-of-use

Varian's ICP-MS software is compatible with Microsoft's Windows® XP and 2000 for optimum connectivity and compatibility with all of your desktop applications.

Each worksheet cell gives all the results you need – including concentrations, intensities, statistics, replicate readings and graphical mass scans.

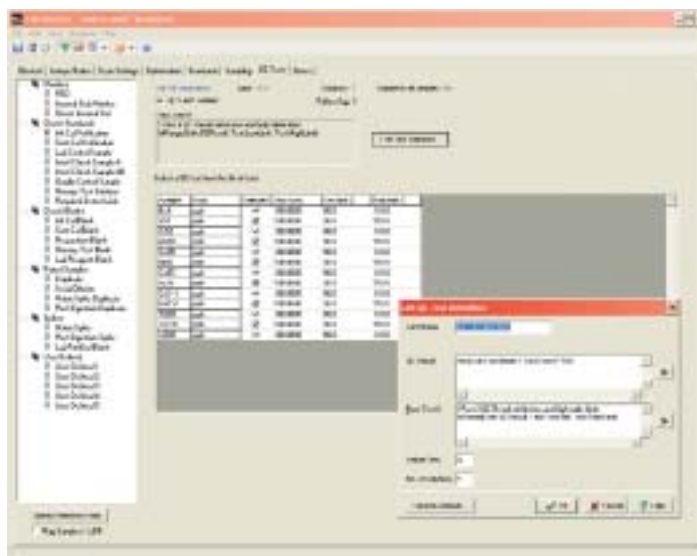
ICP-Expert switches automatically between multiple method condition sets within a single sample, giving optimum performance for specific element suites, without having to rerun samples.



If you thought ICP-MS was difficult to use, think again. Varian redefines ease-of-use with our new web-integrated ICP-MS worksheet software. ICP-Expert features a range of automated options, including setup and initialization routines such as plasma alignment, mass calibration and resolution tests. Varian's AutoMax makes method development easy by automating all ion optics, nebulizer and plasma settings for optimum results.

ICP-Expert includes wizards to guide you through every aspect of the analysis, from method development to analysis setup. The unique standards preparation wizard outlines how to prepare calibration standards, including which pipettes and flasks to use. You can then use Smart Rinse to maximize your sample throughput. Smart Rinse automatically spends less time rinsing samples that don't need it and more time rinsing those that do.

Varian's web-integrated ICP-Expert software directly links you to all of Varian's support resources. You can download the latest methods and application notes and access the latest software upgrades and product announcements. You can also get expert advice from MassNet, our ICP-MS user forum. In fact, with Varian's ICP-Expert software, ICP-MS has never been easier.



Ensuring the quality of your data is simple. Whether you're analyzing a check standard with each batch or a range of blanks, quality controls, spikes and duplicates, ICP-Expert's Quality Control Protocols can be customized to your needs. The software includes compatible methods for US EPA 6020, 200.8 and 1638.



With intuitive one-button instrument set-up and optimization, Varian's ICP-MS software gets you up and running quickly.



The online video help includes complete hardware setup and routine maintenance procedures.

Varian Spectroscopy and Chromatography Supplies – Performance, Selection, and Value

Varian's 50-plus years of continuous innovation in analytical instrumentation assures you the best in high performance products. Varian is committed to providing analytical products and supplies at affordable prices, supported by superior customer service. To maximize the performance of the Varian ICP-MS, and other Varian MS instruments, ensure you select Varian consumables.

Sample introduction systems

Every analysis presents its own unique challenges. Varian's comprehensive range of sample introduction components for both ICP and ICP-MS allow you to tailor your instrument to achieve the best, most accurate results as quickly as possible.

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Thousands of products for GC, LC, MS, AA, ICP, ICP-MS, UV-Vis, Fluorescence and sample preparation from Varian and other leading manufacturers are highlighted in our latest catalogs. Call today to request your free copy or shop online at www.varianinc.com

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Superior customer support

To maximize instrument productivity and uptime, Varian provides a worldwide network of factory-trained service personnel who are able to offer a range of services, including Telediagnosics®, Varian's remote diagnosis service. Telediagnosics minimizes on-site calls and reduces downtime, saving both time and money.

Safety

It is Varian's policy to manufacture safe products and to meet all legal requirements governing the design, manufacture and sale of safe products. As with all similar products, some or all of the following hazards may be present: high temperatures, high pressure gases, explosive gases, magnetic and radio frequency radiation, UV and visible light and electricity. Each product is designed to protect operators from potential hazards. Varian supplies instructions that describe the correct procedures for the operation and maintenance of each product.

The Varian ICP-MS instrument is designed to be used to determine trace elements.

CE The Varian ICP-MS is certified to comply with the requirements of the EMC and LV directives of the European Union.





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quadrupole setting new
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Our new ICP-MS complements Varian's range of innovative spectrometry products. Varian offers a complete line including benchtop and portable gas chromatographs (GC and Micro-GC), gas chromatograph/mass spectrometer (GC/MS and GC/MS/MS) systems, liquid chromatograph/mass spectrometer (LC/MS and LC/MS/MS) systems, chromatographic columns and supplies, and custom solutions.

Varian MS instruments maximize laboratory efficiency with easy-to-use, reliable products supported by superior customer service.

The Varian 1200LC/MS

- Productivity with the only single quadrupole that can be upgraded to the full selectivity of triple quadrupole MS/MS at any time
- Superior performance with robust and sensitive Atmospheric Pressure Ionizations (API) interface
- Keep pace with changing applications by adding the analytical capabilities of a GC interface for EI, PCI, or NCI

The Varian Saturn 2200 GC/MS

- Sets the industry standard for EI and CI sensitivity
- Add GC and MS options, any or all, as needed
- Highly productive, easy-to use options include gas and liquid CI, MS/MS, and Chromatoprobe for solid samples
- Element-specific GC detectors for complimentary compound identification

Varian Saturn 2200 GC/MS. The world's most versatile GC and flexible MS provides the highest level of performance and easily expands to support any application.



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