

Appendix 13-E

Contaminants of Potential Concern (COPC)
Screening Results for Brucejack Creek (BJ 200m D/S),
Modelled Cases 1 to 9

Table 13-E1. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Basecase

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.779	1.231	0.4	-	n/a	0.1	n/a	0.272	0.447	0.1	-	n/a	0.02	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.406	0.775	0.2	-	n/a	0.04	n/a	0.303	0.408	0.2	-	n/a	0.02	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	2.10	2.31	0.01	-	n/a	0.004	n/a	6.38	7.60	0.04	-	n/a	0.013	n/a
High Flow	-	150	600	0.324	1.00	2.21	2.31	0.01	-	n/a	0.004	n/a	5.85	6.94	0.04	-	n/a	0.012	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	1.78	2.91	0.6	-	n/a	0.1	n/a	0.234	0.323	0.1	-	n/a	0.01	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.893	1.94	0.3	-	n/a	0.1	n/a	0.219	0.228	0.1	-	n/a	0.01	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00815	0.0121	0.41	0.05	n/a	0.01	n/a	0.00514	0.00656	0.26	0.03	n/a	0.01	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00481	0.00822	0.24	0.03	n/a	0.01	n/a	0.00507	0.00605	0.25	0.03	n/a	0.01	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	46.3	65.6	0.4	-	n/a	0.5	n/a	29.0	33.8	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	31.7	48.9	0.2	-	n/a	0.4	n/a	28.1	32.0	0.2	-	n/a	0.2	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.0119	0.0212	-	-	n/a	-	n/a	0.0102	0.0260	-	-	n/a	n/a	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.0158	0.0201	-	0.8	n/a	1.0	n/a	0.0173	0.0243	-	0.9	n/a	1.2	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0372	0.0882	0.7	-	n/a	0.9	n/a	0.0487	0.104	1.0	-	n/a	1.0	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0622	0.0839	1.2	-	0.2	0.8	n/a	0.0730	0.0976	1.5	-	0.2	1.0	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00503	0.00612	1.0	-	n/a	1.2	1.6	0.00534	0.00626	1.1	-	2.4	1.3	1.6
High Flow	-	0.0050	-	0.0018	0.0046	0.00424	0.00550	0.8	-	n/a	1.1	1.2	0.00495	0.00579	1.0	-	n/a	1.2	1.3
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000030	0.000042	3.1	0.2	n/a	0.1	n/a	0.000020	0.000032	2.1	0.2	n/a	0.1	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000023	0.000030	2.5	0.2	n/a	0.1	n/a	0.000023	0.000029	2.5	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00017	0.00023	0.2	-	n/a	0.2	n/a	0.00067	0.00083	0.7	-	n/a	0.8	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00012	0.00018	0.1	-	n/a	0.2	n/a	0.00059	0.00074	0.6	-	n/a	0.7	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00052	0.00080	0.1	-	n/a	0.01	n/a	0.00034	0.00054	0.1	-	n/a	0.005	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00033	0.00054	0.1	-	n/a	0.005	n/a	0.00034	0.00049	0.1	-	n/a	0.004	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00039	0.00054	0.4	0.1	n/a	0.1	n/a	0.00098	0.00135	1.0	0.2	n/a	0.3	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00046	0.00053	0.5	0.1	n/a	0.1	n/a	0.00098	0.00125	1.1	0.2	n/a	0.3	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.0459	0.127	0.05	-	n/a	0.1	n/a	0.106	0.209	0.1	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.088	0.120	0.1	-	n/a	0.1	n/a	0.141	0.194	0.1	-	n/a	0.2	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E1. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Basecase

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00015	0.00017	0.038	0.018	n/a	0.013	n/a	0.00010	0.0002	0.03	0.01	n/a	0.02	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00015	0.00016	0.039	0.018	n/a	0.013	n/a	0.00014	0.0002	0.04	0.02	n/a	0.02	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.1186	0.1901	0.2	-	n/a	0.2	n/a	0.0708	0.1114	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0668	0.1255	0.1	-	n/a	0.2	n/a	0.0678	0.1003	0.1	-	n/a	0.1	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000011	0.000015	0.5	-	n/a	0.7	n/a	0.000007	0.000013	0.4	-	n/a	0.7	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000011	0.000014	0.6	-	n/a	0.7	n/a	0.000007	0.000012	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00217	0.00306	0.002	-	n/a	0.002	n/a	0.00450	0.00567	0.004	-	n/a	0.003	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00144	0.00236	0.001	-	n/a	0.001	n/a	0.00390	0.00502	0.004	-	n/a	0.003	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00107	0.00160	0.04	-	n/a	0.1	n/a	0.00066	0.00079	0.03	-	n/a	0.03	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00067	0.00114	0.03	-	n/a	0.05	n/a	0.00061	0.00074	0.02	-	n/a	0.03	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00036	0.00040	0.2	-	n/a	0.2	n/a	0.00056	0.00066	0.3	-	n/a	0.3	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00034	0.00039	0.2	-	n/a	0.2	n/a	0.00052	0.00061	0.3	-	n/a	0.3	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.0000107	0.0000221	0.21	0.03	n/a	0.2	n/a	0.00002	0.00004	0.4	0.06	n/a	0.4	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.0000163	0.0000211	0.33	0.05	n/a	0.2	n/a	0.00003	0.00004	0.5	0.08	n/a	0.4	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000055	0.000082	0.2	-	n/a	0.3	n/a	0.000020	0.000024	0.1	-	n/a	0.1	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000034	0.000060	0.1	-	n/a	0.2	n/a	0.000019	0.000023	0.1	-	n/a	0.1	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0047	0.0062	0.6	0.3	n/a	0.3	n/a	0.0060	0.0122	0.8	0.3	n/a	0.7	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0039	0.0046	0.5	0.2	n/a	0.2	n/a	0.0061	0.0114	0.8	0.3	n/a	0.6	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0138	0.0159	0.3	-	n/a	0.2	n/a	0.0237	0.0290	0.5	-	n/a	0.3	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0132	0.0152	0.3	-	n/a	0.2	n/a	0.0219	0.0266	0.4	-	n/a	0.3	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0149	0.0162	0.04	-	n/a	0.05	n/a	0.074	0.096	0.2	-	n/a	0.3	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0156	0.0161	0.04	-	n/a	0.05	n/a	0.066	0.086	0.2	-	n/a	0.2	n/a

Notes:

- no guideline available

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	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)							Post-closure Phase (3 Years)						
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.162	0.338	0.1	-	n/a	0.02	n/a	0.0719	0.213	0.04	-	n/a	0.01	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.198	0.303	0.1	-	n/a	0.01	n/a	0.134	0.199	0.1	-	n/a	0.01	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	5.02	6.76	0.03	-	n/a	0.011	n/a	2.75	3.41	0.02	-	n/a	0.006	n/a
High Flow	-	150	600	0.324	1.00	4.30	5.82	0.03	-	n/a	0.010	n/a	2.71	3.21	0.02	-	n/a	0.005	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	0.123	0.144	0.04	-	n/a	0.004	n/a	0.107	0.118	0.04	-	n/a	0.004	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.122	0.137	0.04	-	n/a	0.004	n/a	0.109	0.116	0.04	-	n/a	0.004	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00392	0.00545	0.2	0.02	n/a	0.01	n/a	0.00252	0.00333	0.1	0.01	n/a	0.003	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00372	0.00489	0.2	0.02	n/a	0.005	n/a	0.00268	0.00319	0.1	0.01	n/a	0.003	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	28.7	36.0	0.2	-	n/a	0.3	n/a	27.2	35.0	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	24.8	28.1	0.2	-	n/a	0.2	n/a	21.6	26.4	0.2	-	n/a	0.2	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.00816	0.02374	-	-	n/a	n/a	n/a	0.0071	0.0222	-	-	n/a	n/a	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.01592	0.02244	-	0.8	n/a	1.1	n/a	0.0151	0.0212	-	0.8	n/a	1.1	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0633	0.0957	1.3	-	0.9	1.0	n/a	0.0732	0.0920	1.5	-	n/a	0.9	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0781	0.0915	1.6	-	0.2	0.9	n/a	0.0772	0.0889	1.5	-	0.2	0.9	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00494	0.00673	1.0	-	n/a	1.3	1.8	0.00525	0.00683	1.0	-	n/a	1.4	1.8
High Flow	-	0.0050	-	0.0018	0.0046	0.00409	0.00513	0.8	-	n/a	1.0	n/a	0.00389	0.00505	0.8	-	n/a	1.0	n/a
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000040	0.000074	4.2	0.3	n/a	0.2	n/a	0.000050	0.000078	5.2	0.4	n/a	0.2	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000030	0.000047	3.3	0.2	n/a	0.1	n/a	0.000029	0.000046	3.1	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00029	0.00040	0.3	-	n/a	0.4	n/a	0.00013	0.00019	0.1	-	n/a	0.2	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00022	0.00033	0.2	-	n/a	0.3	n/a	0.00011	0.00013	0.1	-	n/a	0.1	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00021	0.00029	0.1	-	n/a	0.003	n/a	0.00016	0.00020	0.04	-	n/a	0.002	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00020	0.00026	0.1	-	n/a	0.002	n/a	0.00016	0.00018	0.04	-	n/a	0.002	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00100	0.00122	1.1	0.3	n/a	0.3	n/a	0.00075	0.00102	0.8	0.2	n/a	0.2	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00086	0.00108	1.0	0.2	n/a	0.3	n/a	0.00062	0.00069	0.7	0.2	n/a	0.2	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.131	0.192	0.1	-	n/a	0.2	n/a	0.153	0.201	0.2	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.139	0.156	0.1	-	n/a	0.2	n/a	0.134	0.144	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

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	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)							Post-closure Phase (3 Years)						
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Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00067	0.0016	0.2	0.082	n/a	0.121	n/a	0.00102	0.0017	0.3	0.1	n/a	0.1	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00041	0.0010	0.1	0.050	n/a	0.080	n/a	0.00046	0.0010	0.1	0.1	n/a	0.1	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.0461	0.0599	0.1	-	n/a	0.1	n/a	0.0363	0.0544	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0383	0.0490	0.1	-	n/a	0.1	n/a	0.0263	0.0315	0.04	-	n/a	0.04	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000009	0.000015	0.5	-	n/a	0.7	n/a	0.000011	0.000015	0.6	-	n/a	0.8	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000007	0.000011	0.4	-	n/a	0.5	n/a	0.000008	0.000011	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00177	0.00218	0.002	-	n/a	0.001	n/a	0.00122	0.00148	0.001	-	n/a	0.001	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00146	0.00182	0.001	-	n/a	0.001	n/a	0.00105	0.00119	0.001	-	n/a	0.001	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00042	0.00050	0.02	-	n/a	0.0	n/a	0.00033	0.00036	0.01	-	n/a	0.01	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00039	0.00046	0.02	-	n/a	0.02	n/a	0.00032	0.00034	0.01	-	n/a	0.01	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00036	0.00039	0.2	-	n/a	0.2	n/a	0.00031	0.00034	0.2	-	n/a	0.2	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00033	0.00036	0.2	-	n/a	0.2	n/a	0.00029	0.00031	0.1	-	n/a	0.2	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.00004	0.00008	0.8	0.1	n/a	0.8	n/a	0.00005	0.00008	1.1	0.2	n/a	0.8	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.00003	0.00005	0.6	0.09	n/a	0.5	n/a	0.00003	0.00005	0.65	0.09	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000013	0.000015	0.04	-	n/a	0.05	n/a	0.000012	0.000013	0.04	-	n/a	0.04	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000013	0.000014	0.04	-	n/a	0.05	n/a	0.000011	0.000012	0.04	-	n/a	0.04	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0102	0.0124	1.4	0.6	n/a	0.7	n/a	0.0070	0.0107	0.9	0.4	n/a	0.6	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0079	0.0103	1.1	0.4	n/a	0.6	n/a	0.0048	0.0066	0.6	0.3	n/a	0.4	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0140	0.0174	0.3	-	n/a	0.2	n/a	0.0100	0.0117	0.2	-	n/a	0.1	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0126	0.0156	0.3	-	n/a	0.2	n/a	0.0094	0.0104	0.2	-	n/a	0.1	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0388	0.0470	0.1	-	n/a	0.1	n/a	0.0255	0.0336	0.07	-	n/a	0.1	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0316	0.0403	0.09	-	n/a	0.1	n/a	0.0209	0.0251	0.06	-	n/a	0.07	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E2. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, High K (Upper Case)

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.604	0.906	0.3	-	n/a	0.04	n/a	0.388	0.622	0.2	-	n/a	0.03	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.368	0.631	0.2	-	n/a	0.03	n/a	0.391	0.565	0.2	-	n/a	0.03	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	2.11	2.30	0.01	-	n/a	0.004	n/a	16.39	20.04	0.11	-	n/a	0.033	n/a
High Flow	-	150	600	0.324	1.00	2.21	2.29	0.01	-	n/a	0.004	n/a	14.30	17.67	0.10	-	n/a	0.029	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	2.87	4.26	1.0	-	n/a	0.1	n/a	0.505	0.762	0.2	-	n/a	0.02	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	1.69	3.48	0.6	-	n/a	0.11	n/a	0.446	0.489	0.1	-	n/a	0.01	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00695	0.0098	0.3	0.04	n/a	0.01	n/a	0.00903	0.01136	0.45	0.05	n/a	0.01	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00468	0.00734	0.2	0.03	n/a	0.01	n/a	0.00830	0.01027	0.42	0.05	n/a	0.01	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	67.6	92.7	0.5	-	n/a	0.7	n/a	46.8	56.4	0.4	-	n/a	0.4	n/a
High Flow	-	128	-	12.5	38.0	46.8	78.7	0.4	-	n/a	0.6	n/a	43.0	51.6	0.3	-	n/a	0.4	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.0099	0.0202	-	-	n/a	-	n/a	0.0102	0.0252	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.0144	0.0190	-	0.7	n/a	1.0	0.5	0.0162	0.0234	-	0.8	n/a	1.2	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0365	0.0847	0.7	-	n/a	0.8	n/a	0.0575	0.114	1.1	-	0.8	1.1	1.0
High Flow	-	0.05	0.10	0.352	1.05	0.0589	0.0800	1.2	-	0.2	0.8	n/a	0.0767	0.1052	1.5	-	0.2	1.1	0.1
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00630	0.00786	1.3	-	2.9	1.6	2.0	0.00681	0.00802	1.4	-	3.1	1.6	2.1
High Flow	-	0.0050	-	0.0018	0.0046	0.00511	0.00715	1.0	-	n/a	1.4	1.6	0.00619	0.00733	1.2	-	3.4	1.5	1.6
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000045	0.000061	4.7	0.3	n/a	0.1	n/a	0.000040	0.000054	4.2	0.3	n/a	0.1	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000033	0.000051	3.6	0.3	n/a	0.11	n/a	0.000039	0.000049	4.3	0.3	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00024	0.00032	0.2	-	n/a	0.3	n/a	0.00105	0.00148	1.0	-	n/a	1.5	9.3
High Flow	-	-	0.0010	0.00020	0.00059	0.00017	0.00027	0.2	-	n/a	0.3	n/a	0.00090	0.00130	0.9	-	n/a	1.3	2.2
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00083	0.00119	0.2	-	n/a	0.011	n/a	0.00043	0.00066	0.1	-	n/a	0.006	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00055	0.00098	0.1	-	n/a	0.009	n/a	0.00041	0.00059	0.1	-	n/a	0.005	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00042	0.00054	0.4	0.1	n/a	0.1	n/a	0.00129	0.00245	1.4	0.3	n/a	0.6	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00047	0.00053	0.5	0.1	n/a	0.1	n/a	0.00124	0.00226	1.4	0.3	n/a	0.5	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.0430	0.121	0.04	-	n/a	0.1	n/a	0.109	0.209	0.1	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.081	0.114	0.1	-	n/a	0.1	n/a	0.137	0.192	0.1	-	n/a	0.2	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E2. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, High K (Upper Case)

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00020	0.00025	0.05	0.02	n/a	0.02	n/a	0.00013	0.0002	0.03	0.02	n/a	0.02	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00018	0.00021	0.05	0.02	n/a	0.02	n/a	0.00016	0.0002	0.04	0.02	n/a	0.02	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.1972	0.2881	0.3	-	n/a	0.4	n/a	0.0978	0.1476	0.1	-	n/a	0.2	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.1223	0.2360	0.2	-	n/a	0.3	n/a	0.0897	0.1321	0.1	-	n/a	0.2	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000011	0.000014	0.5	-	n/a	0.7	n/a	0.000008	0.000013	0.4	-	n/a	0.7	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000011	0.000013	0.6	-	n/a	0.7	n/a	0.000008	0.000012	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00318	0.00440	0.003	-	n/a	0.002	n/a	0.00514	0.00644	0.005	-	n/a	0.003	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00216	0.00376	0.002	-	n/a	0.002	n/a	0.00445	0.00570	0.004	-	n/a	0.003	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00164	0.00232	0.07	-	n/a	0.09	n/a	0.00082	0.00100	0.03	-	n/a	0.04	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00108	0.00194	0.04	-	n/a	0.08	n/a	0.00075	0.00092	0.03	-	n/a	0.04	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00039	0.00043	0.2	-	n/a	0.2	n/a	0.00067	0.00079	0.3	-	n/a	0.4	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00036	0.00042	0.2	-	n/a	0.2	n/a	0.00061	0.00072	0.3	-	n/a	0.4	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.0000111	0.0000214	0.2	0.03	n/a	0.2	n/a	0.00002	0.00004	0.5	0.07	n/a	0.4	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.0000159	0.0000204	0.3	0.05	n/a	0.2	n/a	0.00003	0.00004	0.5	0.08	n/a	0.4	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000086	0.000122	0.3	-	n/a	0.4	n/a	0.000024	0.000029	0.1	-	n/a	0.1	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000056	0.000102	0.2	-	n/a	0.3	n/a	0.000022	0.000027	0.1	-	n/a	0.1	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0067	0.0088	0.9	0.4	n/a	0.3	n/a	0.0082	0.0287	1.1	0.4	n/a	0.9	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0052	0.0074	0.7	0.3	n/a	0.2	n/a	0.0080	0.0255	1.1	0.4	n/a	0.8	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0158	0.0183	0.3	-	n/a	0.2	n/a	0.0345	0.0443	0.7	-	n/a	0.4	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0144	0.0175	0.3	-	n/a	0.2	n/a	0.0309	0.0397	0.6	-	n/a	0.4	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0150	0.0161	0.04	-	n/a	0.05	n/a	0.080	0.105	0.2	-	n/a	0.3	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0155	0.0161	0.04	-	n/a	0.05	n/a	0.071	0.094	0.2	-	n/a	0.3	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E2. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, High K (Upper Case)

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.171	0.352	0.1	-	n/a	0.02	n/a	0.0735	0.217	0.04	-	n/a	0.01	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.204	0.315	0.1	-	n/a	0.01	n/a	0.135	0.202	0.1	-	n/a	0.01	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	11.3	17.3	0.08	-	n/a	0.029	n/a	3.80	5.56	0.03	-	n/a	0.009	n/a
High Flow	-	150	600	0.324	1.00	8.70	13.5	0.06	-	n/a	0.022	n/a	3.45	4.89	0.02	-	n/a	0.008	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	0.145	0.178	0.05	-	n/a	0.005	n/a	0.111	0.125	0.04	-	n/a	0.004	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.137	0.164	0.05	-	n/a	0.005	n/a	0.112	0.122	0.04	-	n/a	0.004	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00610	0.00884	0.30	0.03	n/a	0.009	n/a	0.00288	0.00405	0.1	0.02	n/a	0.004	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00524	0.00755	0.26	0.03	n/a	0.008	n/a	0.00294	0.00377	0.1	0.02	n/a	0.004	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	41.4	48.0	0.3	-	n/a	0.4	n/a	29.3	39.5	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	33.7	41.9	0.3	-	n/a	0.3	n/a	23.1	28.6	0.2	-	n/a	0.2	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.00849	0.02421	-	-	n/a	n/a	n/a	0.0072	0.0223	-	-	n/a	n/a	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.01615	0.02283	-	0.8	1.0	1.1	0.6	0.0152	0.0213	-	0.8	n/a	1.1	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0674	0.1017	1.3	-	1.0	1.0	n/a	0.074	0.093	1.5	-	1.0	0.9	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0810	0.0965	1.6	-	0.2	1.0	n/a	0.078	0.090	1.6	-	0.2	0.9	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00591	0.00747	1.2	-	2.7	1.5	1.9	0.00541	0.00717	1.1	-	2.5	1.4	1.9
High Flow	-	0.0050	-	0.0018	0.0046	0.00477	0.00571	1.0	-	n/a	1.1	1.2	0.00401	0.00522	0.8	-	n/a	1.0	n/a
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000053	0.000084	5.6	0.4	n/a	0.2	n/a	0.000052	0.000082	5.4	0.4	n/a	0.2	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000039	0.000052	4.3	0.3	n/a	0.1	n/a	0.000030	0.000049	3.3	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00036	0.00051	0.4	-	n/a	0.5	n/a	0.00014	0.00022	0.1	-	n/a	0.2	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00027	0.00041	0.3	-	n/a	0.4	n/a	0.00011	0.00015	0.1	-	n/a	0.2	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00027	0.00038	0.1	-	n/a	0.003	n/a	0.00017	0.00022	0.04	-	n/a	0.002	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00024	0.00033	0.1	-	n/a	0.003	n/a	0.00016	0.00020	0.04	-	n/a	0.002	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00175	0.00238	1.9	0.4	n/a	0.6	n/a	0.00088	0.00128	0.9	0.2	n/a	0.3	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00138	0.00199	1.5	0.3	n/a	0.5	n/a	0.00071	0.00088	0.8	0.2	n/a	0.2	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.144	0.202	0.1	-	n/a	0.2	n/a	0.155	0.205	0.2	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.148	0.171	0.1	-	n/a	0.2	n/a	0.135	0.148	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E2. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, High K (Upper Case)

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00071	0.0016	0.19	0.09	n/a	0.1	n/a	0.00102	0.0017	0.3	0.1	n/a	0.1	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00044	0.0010	0.11	0.05	n/a	0.08	n/a	0.00046	0.0010	0.1	0.06	n/a	0.08	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.0643	0.0840	0.1	-	n/a	0.1	n/a	0.0394	0.0609	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0510	0.0712	0.1	-	n/a	0.1	n/a	0.0285	0.0347	0.04	-	n/a	0.04	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000010	0.000015	0.5	-	n/a	0.7	n/a	0.000011	0.000016	0.6	-	n/a	0.8	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000008	0.000011	0.4	-	n/a	0.6	n/a	0.000008	0.000011	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00215	0.00280	0.002	-	n/a	0.001	n/a	0.00129	0.00161	0.001	-	n/a	0.001	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00172	0.00228	0.002	-	n/a	0.001	n/a	0.00109	0.00125	0.001	-	n/a	0.001	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00057	0.00074	0.02	-	n/a	0.03	n/a	0.00035	0.00042	0.01	-	n/a	0.02	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00050	0.00065	0.02	-	n/a	0.03	n/a	0.00034	0.00038	0.01	-	n/a	0.02	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00044	0.00052	0.2	-	n/a	0.3	n/a	0.00032	0.00037	0.2	-	n/a	0.2	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00038	0.00045	0.2	-	n/a	0.2	n/a	0.00030	0.00032	0.1	-	n/a	0.2	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.00004	0.00008	0.8	0.11	n/a	0.8	n/a	0.00005	0.00008	1.1	0.2	n/a	0.8	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.00003	0.00005	0.6	0.09	n/a	0.5	n/a	0.00003	0.00005	0.6	0.09	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000016	0.000019	0.05	-	n/a	0.06	n/a	0.000012	0.000014	0.04	-	n/a	0.05	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000015	0.000018	0.05	-	n/a	0.06	n/a	0.000012	0.000013	0.04	-	n/a	0.04	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0206	0.0285	2.8	1.1	6.0	0.9	n/a	0.0088	0.0144	1.2	0.5	n/a	0.4	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0152	0.0230	2.0	0.8	n/a	0.7	n/a	0.0061	0.0084	0.8	0.3	n/a	0.3	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0181	0.0238	0.4	-	n/a	0.2	n/a	0.0107	0.0132	0.2	-	n/a	0.1	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0155	0.0206	0.3	-	n/a	0.2	n/a	0.0099	0.0115	0.2	-	n/a	0.1	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0513	0.0679	0.1	-	n/a	0.2	n/a	0.0275	0.0381	0.1	-	n/a	0.1	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0403	0.0555	0.1	-	n/a	0.2	n/a	0.0224	0.0273	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E3. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Low K

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.779	1.231	0.4	-	n/a	0.06	n/a	0.272	0.447	0.1	-	n/a	0.02	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.406	0.775	0.2	-	n/a	0.04	n/a	0.303	0.408	0.2	-	n/a	0.02	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	2.10	2.31	0.01	-	n/a	0.004	n/a	6.46	7.74	0.04	-	n/a	0.013	n/a
High Flow	-	150	600	0.324	1.00	2.21	2.31	0.01	-	n/a	0.004	n/a	5.91	7.06	0.04	-	n/a	0.012	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	1.78	2.91	0.6	-	n/a	0.09	n/a	0.234	0.323	0.08	-	n/a	0.01	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.89	1.94	0.3	-	n/a	0.06	n/a	0.219	0.228	0.07	-	n/a	0.007	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00815	0.0121	0.4	0.05	n/a	0.01	n/a	0.00515	0.00656	0.26	0.03	n/a	0.01	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00481	0.00823	0.2	0.03	n/a	0.01	n/a	0.00508	0.00605	0.25	0.03	n/a	0.01	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	46.6	65.7	0.4	-	n/a	0.5	n/a	30.6	35.9	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	32.1	49.3	0.3	-	n/a	0.4	n/a	29.4	33.9	0.2	-	n/a	0.3	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.0119	0.0212	-	-	n/a	n/a	n/a	0.0123	0.0288	-	-	n/a	n/a	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.0158	0.0202	-	0.8	n/a	1.0	n/a	0.0191	0.0269	-	1.0	n/a	1.3	0.7
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0385	0.0905	0.8	-	0.5	0.9	n/a	0.0502	0.105	1.0	-	0.7	1.1	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0637	0.0860	1.3	-	0.2	0.9	n/a	0.0742	0.0993	1.5	-	0.2	1.0	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00529	0.00639	1.1	-	n/a	1.3	n/a	0.00789	0.00952	1.6	-	n/a	1.9	2.5
High Flow	-	0.0050	-	0.0018	0.0046	0.00453	0.00583	0.9	-	n/a	1.2	1.3	0.00712	0.00867	1.4	-	n/a	1.7	1.9
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000035	0.000044	3.7	0.3	n/a	0.1	n/a	0.000026	0.000040	2.8	0.2	n/a	0.1	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000029	0.000036	3.2	0.2	n/a	0.08	n/a	0.000028	0.000037	3.1	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00017	0.00023	0.2	-	n/a	0.2	n/a	0.00080	0.00101	0.8	-	n/a	1.0	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00012	0.00018	0.1	-	n/a	0.2	n/a	0.00069	0.00089	0.7	-	n/a	0.9	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00062	0.00084	0.2	-	n/a	0.008	n/a	0.00037	0.00055	0.1	-	n/a	0.005	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00044	0.00068	0.1	-	n/a	0.006	n/a	0.00037	0.00050	0.1	-	n/a	0.005	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00039	0.00054	0.4	0.1	n/a	0.1	n/a	0.00101	0.00139	1.1	0.3	n/a	0.3	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00046	0.00053	0.5	0.1	n/a	0.1	n/a	0.00101	0.00128	1.1	0.3	n/a	0.3	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.0462	0.127	0.05	-	n/a	0.1	n/a	0.126	0.228	0.1	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.088	0.121	0.1	-	n/a	0.1	n/a	0.157	0.211	0.2	-	n/a	0.2	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E3. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Low K

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00015	0.00018	0.04	0.02	n/a	0.01	n/a	0.00011	0.0002	0.03	0.01	n/a	0.02	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00016	0.00017	0.04	0.02	n/a	0.01	n/a	0.00015	0.0002	0.04	0.02	n/a	0.02	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.1212	0.1905	0.2	-	n/a	0.2	n/a	0.0729	0.1127	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0697	0.1288	0.1	-	n/a	0.2	n/a	0.0695	0.1015	0.1	-	n/a	0.1	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000011	0.000016	0.6	-	n/a	0.8	n/a	0.000008	0.000015	0.4	-	n/a	0.7	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000012	0.000015	0.6	-	n/a	0.7	n/a	0.000008	0.000013	0.4	-	n/a	0.7	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00229	0.00308	0.002	-	n/a	0.002	n/a	0.00705	0.00910	0.007	-	n/a	0.005	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00157	0.00252	0.002	-	n/a	0.001	n/a	0.00606	0.00798	0.006	-	n/a	0.004	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00117	0.00161	0.05	-	n/a	0.06	n/a	0.00082	0.00100	0.03	-	n/a	0.04	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00079	0.00128	0.03	-	n/a	0.05	n/a	0.00075	0.00092	0.03	-	n/a	0.04	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00042	0.00049	0.2	-	n/a	0.2	n/a	0.00069	0.00083	0.3	-	n/a	0.4	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00041	0.00047	0.2	-	n/a	0.2	n/a	0.00062	0.00076	0.3	-	n/a	0.4	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.0000111	0.0000227	0.2	0.03	n/a	0.2	n/a	0.00003	0.00006	0.7	0.10	n/a	0.6	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.0000167	0.0000217	0.3	0.05	n/a	0.2	n/a	0.00004	0.00005	0.7	0.11	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000059	0.000083	0.2	-	n/a	0.3	n/a	0.000024	0.000030	0.1	-	n/a	0.1	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000038	0.000065	0.1	-	n/a	0.2	n/a	0.000022	0.000028	0.1	-	n/a	0.1	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.00486	0.00628	0.6	0.3	n/a	0.2	n/a	0.00606	0.01228	0.8	0.3	n/a	0.4	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.00402	0.00474	0.5	0.2	n/a	0.1	n/a	0.00617	0.01142	0.8	0.3	n/a	0.3	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0150	0.0176	0.3	-	n/a	0.2	n/a	0.0252	0.0309	0.5	-	n/a	0.3	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0146	0.0168	0.3	-	n/a	0.2	n/a	0.0231	0.0283	0.5	-	n/a	0.3	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0153	0.0168	0.04	-	n/a	0.05	n/a	0.0936	0.1159	0.3	-	n/a	0.3	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0160	0.0167	0.05	-	n/a	0.05	n/a	0.0823	0.1034	0.2	-	n/a	0.3	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E3. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Low K

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.162	0.338	0.1	-	n/a	0.02	n/a	0.0719	0.213	0.04	-	n/a	0.01	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.198	0.303	0.1	-	n/a	0.01	n/a	0.134	0.199	0.1	-	n/a	0.01	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	5.2	6.9	0.03	-	n/a	0.012	n/a	2.91	3.58	0.02	-	n/a	0.006	n/a
High Flow	-	150	600	0.324	1.00	4.43	5.9	0.03	-	n/a	0.010	n/a	2.84	3.35	0.02	-	n/a	0.006	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	0.123	0.144	0.04	-	n/a	0.004	n/a	0.107	0.118	0.04	-	n/a	0.004	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.122	0.137	0.04	-	n/a	0.004	n/a	0.109	0.116	0.04	-	n/a	0.004	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00392	0.00545	0.2	0.02	n/a	0.005	n/a	0.00252	0.00333	0.1	0.01	n/a	0.003	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00372	0.00489	0.2	0.02	n/a	0.005	n/a	0.00268	0.00319	0.1	0.01	n/a	0.003	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	29.1	36.3	0.2	-	n/a	0.3	n/a	27.4	35.2	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	25.0	28.4	0.2	-	n/a	0.2	n/a	21.8	26.6	0.2	-	n/a	0.2	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.00857	0.02427	-	-	n/a	n/a	n/a	0.0073	0.0225	-	-	n/a	n/a	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.01623	0.02289	-	0.8	n/a	1.1	0.6	0.0153	0.0214	-	0.8	n/a	1.1	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0635	0.0960	1.3	-	0.9	1.0	n/a	0.073	0.092	1.5	-	1.0	0.9	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0783	0.0918	1.6	-	0.2	0.9	n/a	0.077	0.089	1.5	-	0.2	0.9	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00625	0.00800	1.2	-	n/a	1.6	2.1	0.00640	0.00802	1.3	-	n/a	1.6	2.1
High Flow	-	0.0050	-	0.0018	0.0046	0.00517	0.00615	1.0	-	n/a	1.2	n/a	0.00487	0.00605	1.0	-	n/a	1.2	n/a
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000041	0.000075	4.3	0.3	n/a	0.2	n/a	0.000050	0.000078	5.3	0.4	n/a	0.2	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000031	0.000048	3.4	0.2	n/a	0.1	n/a	0.000029	0.000047	3.2	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00031	0.00044	0.3	-	n/a	0.4	n/a	0.00014	0.00020	0.1	-	n/a	0.2	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00024	0.00035	0.2	-	n/a	0.3	n/a	0.00011	0.00014	0.1	-	n/a	0.1	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00021	0.00029	0.1	-	n/a	0.003	n/a	0.00016	0.00020	0.04	-	n/a	0.002	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00021	0.00027	0.1	-	n/a	0.002	n/a	0.00016	0.00018	0.04	-	n/a	0.002	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00101	0.00123	1.1	0.3	n/a	0.3	n/a	0.00076	0.00103	0.8	0.2	n/a	0.2	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00087	0.00110	1.0	0.2	n/a	0.3	n/a	0.00063	0.00069	0.7	0.2	n/a	0.2	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.134	0.195	0.1	-	n/a	0.2	n/a	0.154	0.202	0.2	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.141	0.159	0.1	-	n/a	0.2	n/a	0.135	0.145	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E3. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Low K

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00068	0.0016	0.2	0.08	n/a	0.1	n/a	0.00102	0.0017	0.3	0.1	n/a	0.1	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00041	0.0010	0.1	0.05	n/a	0.08	n/a	0.00046	0.0010	0.1	0.06	n/a	0.08	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.0468	0.0606	0.1	-	n/a	0.1	n/a	0.0370	0.0551	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0389	0.0497	0.06	-	n/a	0.1	n/a	0.0269	0.0320	0.04	-	n/a	0.0	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000009	0.000015	0.5	-	n/a	0.7	n/a	0.000011	0.000016	0.6	-	n/a	0.8	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000008	0.000011	0.4	-	n/a	0.6	n/a	0.000008	0.000011	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00248	0.00311	0.002	-	n/a	0.002	n/a	0.00169	0.00200	0.002	-	n/a	0.001	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00201	0.00256	0.002	-	n/a	0.001	n/a	0.00144	0.00161	0.001	-	n/a	0.001	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00044	0.00054	0.02	-	n/a	0.02	n/a	0.00034	0.00038	0.01	-	n/a	0.02	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00041	0.00049	0.02	-	n/a	0.02	n/a	0.00033	0.00035	0.01	-	n/a	0.01	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00037	0.00041	0.2	-	n/a	0.2	n/a	0.00032	0.00035	0.2	-	n/a	0.2	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00034	0.00038	0.2	-	n/a	0.2	n/a	0.00030	0.00032	0.1	-	n/a	0.2	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.00004	0.00008	0.8	0.1	n/a	0.8	n/a	0.00005	0.00008	1.1	0.15	n/a	0.8	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.00003	0.00005	0.6	0.09	n/a	0.5	n/a	0.00003	0.00005	0.7	0.09	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000014	0.000016	0.05	-	n/a	0.05	n/a	0.000012	0.000013	0.04	-	n/a	0.04	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000013	0.000015	0.04	-	n/a	0.05	n/a	0.000012	0.000012	0.04	-	n/a	0.04	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0103	0.0124	1.4	0.6	n/a	0.4	n/a	0.0071	0.0107	0.9	0.4	n/a	0.3	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0080	0.0104	1.1	0.4	n/a	0.3	n/a	0.0049	0.0066	0.7	0.3	n/a	0.2	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0143	0.0177	0.3	-	n/a	0.2	n/a	0.0101	0.0119	0.2	-	n/a	0.1	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0128	0.0159	0.3	-	n/a	0.2	n/a	0.0095	0.0105	0.2	-	n/a	0.1	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0417	0.0516	0.1	-	n/a	0.1	n/a	0.0261	0.0348	0.1	-	n/a	0.1	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0336	0.0437	0.1	-	n/a	0.1	n/a	0.0214	0.0258	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E4. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, 100 Year Wet

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.779	1.231	0.4	-	n/a	0.06	n/a	0.272	0.447	0.1	-	n/a	0.02	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.406	0.775	0.2	-	n/a	0.04	n/a	0.303	0.408	0.2	-	n/a	0.02	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	2.10	2.31	0.01	-	n/a	0.004	n/a	6.46	7.74	0.04	-	n/a	0.013	n/a
High Flow	-	150	600	0.324	1.00	2.21	2.31	0.01	-	n/a	0.004	n/a	5.91	7.06	0.04	-	n/a	0.012	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	1.78	2.91	0.6	-	n/a	0.09	n/a	0.234	0.323	0.1	-	n/a	0.01	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.893	1.94	0.3	-	n/a	0.06	n/a	0.219	0.228	0.1	-	n/a	0.01	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00815	0.0121	0.4	0.05	n/a	0.01	n/a	0.00515	0.00656	0.3	0.03	n/a	0.01	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00481	0.00823	0.2	0.03	n/a	0.01	n/a	0.00508	0.00605	0.3	0.03	n/a	0.01	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	46.6	65.7	0.4	-	n/a	0.5	n/a	30.6	35.9	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	32.1	49.3	0.3	-	n/a	0.4	n/a	29.4	33.9	0.2	-	n/a	0.3	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.0119	0.0212	-	-	n/a	-	n/a	0.0123	0.0288	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.0158	0.0202	-	0.8	n/a	1.0	0.5	0.0191	0.0269	-	1.0	n/a	1.3	0.7
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0385	0.0905	0.8	-	0.5	0.9	0.8	0.0502	0.105	1.0	-	0.7	1.1	1.0
High Flow	-	0.05	0.10	0.352	1.05	0.0637	0.0860	1.3	-	0.2	0.9	0.1	0.0742	0.0993	1.5	-	0.2	1.0	0.1
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00529	0.00639	1.1	-	n/a	1.3	1.7	0.00789	0.00952	1.6	-	3.6	1.9	2.5
High Flow	-	0.0050	-	0.0018	0.0046	0.00453	0.00583	0.9	-	n/a	1.1	1.3	0.00712	0.00867	1.4	-	n/a	1.7	1.9
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000035	0.000044	3.7	0.3	n/a	0.1	n/a	0.000026	0.000040	2.8	0.2	n/a	0.1	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000029	0.000036	3.2	0.2	n/a	0.1	n/a	0.000028	0.000037	3.1	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00017	0.00023	0.2	-	n/a	0.2	n/a	0.00080	0.00101	0.8	-	n/a	1.0	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00012	0.00018	0.1	-	n/a	0.2	n/a	0.00069	0.00089	0.7	-	n/a	0.9	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00062	0.00084	0.2	-	n/a	0.008	n/a	0.00037	0.00055	0.1	-	n/a	0.005	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00044	0.00068	0.1	-	n/a	0.006	n/a	0.00037	0.00050	0.1	-	n/a	0.005	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00039	0.00054	0.4	0.1	n/a	0.1	n/a	0.00101	0.00139	1.1	0.3	n/a	0.3	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00046	0.00053	0.5	0.1	n/a	0.1	n/a	0.00101	0.00128	1.1	0.3	n/a	0.3	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.0462	0.127	0.05	-	n/a	0.1	n/a	0.126	0.228	0.1	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.088	0.121	0.1	-	n/a	0.1	n/a	0.157	0.211	0.2	-	n/a	0.2	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E4. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, 100 Year Wet

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00015	0.00018	0.04	0.02	n/a	0.01	n/a	0.00011	0.0002	0.03	0.01	n/a	0.02	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00016	0.00017	0.04	0.02	n/a	0.01	n/a	0.00015	0.0002	0.04	0.02	n/a	0.02	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.1212	0.1905	0.2	-	n/a	0.2	n/a	0.0729	0.1127	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0697	0.1288	0.1	-	n/a	0.2	n/a	0.0695	0.1015	0.1	-	n/a	0.1	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000011	0.000016	0.6	-	n/a	0.8	n/a	0.000008	0.000015	0.4	-	n/a	0.7	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000012	0.000015	0.6	-	n/a	0.7	n/a	0.000008	0.000013	0.4	-	n/a	0.7	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00229	0.00308	0.002	-	n/a	0.002	n/a	0.00705	0.00910	0.007	-	n/a	0.005	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00157	0.00252	0.002	-	n/a	0.001	n/a	0.00606	0.00798	0.006	-	n/a	0.004	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00117	0.00161	0.05	-	n/a	0.06	n/a	0.00082	0.00100	0.03	-	n/a	0.04	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00079	0.00128	0.03	-	n/a	0.05	n/a	0.00075	0.00092	0.03	-	n/a	0.04	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00042	0.00049	0.2	-	n/a	0.2	n/a	0.00069	0.00083	0.3	-	n/a	0.4	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00041	0.00047	0.2	-	n/a	0.2	n/a	0.00062	0.00076	0.3	-	n/a	0.4	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.0000111	0.0000227	0.2	0.03	n/a	0.2	n/a	0.00003	0.00006	0.7	0.10	n/a	0.6	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.0000167	0.0000217	0.3	0.05	n/a	0.2	n/a	0.00004	0.00005	0.7	0.11	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000059	0.000083	0.2	-	n/a	0.3	n/a	0.000024	0.000030	0.1	-	n/a	0.1	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000038	0.000065	0.1	-	n/a	0.2	n/a	0.000022	0.000028	0.1	-	n/a	0.1	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0049	0.0063	0.6	0.3	n/a	0.2	n/a	0.0061	0.0123	0.8	0.3	n/a	0.4	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0040	0.0047	0.5	0.2	n/a	0.1	n/a	0.0062	0.0114	0.8	0.3	n/a	0.3	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0150	0.0176	0.3	-	n/a	0.2	n/a	0.0252	0.0309	0.5	-	n/a	0.3	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0146	0.0168	0.3	-	n/a	0.2	n/a	0.0231	0.0283	0.5	-	n/a	0.3	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0153	0.0168	0.04	-	n/a	0.05	n/a	0.094	0.116	0.3	-	n/a	0.3	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0160	0.0167	0.05	-	n/a	0.05	n/a	0.082	0.103	0.2	-	n/a	0.3	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E4. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, 100 Year Wet

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.162	0.338	0.1	-	n/a	0.02	n/a	0.0719	0.213	0.04	-	n/a	0.01	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.198	0.303	0.1	-	n/a	0.01	n/a	0.134	0.199	0.1	-	n/a	0.01	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	5.17	6.90	0.03	-	n/a	0.012	n/a	2.91	3.58	0.02	-	n/a	0.006	n/a
High Flow	-	150	600	0.324	1.00	4.43	5.95	0.03	-	n/a	0.010	n/a	2.84	3.35	0.02	-	n/a	0.006	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	0.123	0.144	0.04	-	n/a	0.004	n/a	0.107	0.118	0.04	-	n/a	0.004	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.122	0.137	0.04	-	n/a	0.004	n/a	0.109	0.116	0.04	-	n/a	0.004	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00392	0.00545	0.20	0.02	n/a	0.01	n/a	0.00252	0.00333	0.13	0.01	n/a	0.003	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00372	0.00489	0.19	0.02	n/a	0.005	n/a	0.00268	0.00319	0.13	0.01	n/a	0.003	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	29.1	36.3	0.2	-	n/a	0.3	n/a	27.4	35.2	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	25.0	28.4	0.2	-	n/a	0.2	n/a	21.8	26.6	0.2	-	n/a	0.2	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.00857	0.02427	-	-	n/a	-	n/a	0.0073	0.0225	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.01623	0.02289	-	0.8	n/a	1.1	0.6	0.0153	0.0214	-	0.8	n/a	1.1	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0635	0.0960	1.3	-	0.9	1.0	0.9	0.073	0.092	1.5	-	1.0	0.9	0.8
High Flow	-	0.05	0.10	0.352	1.05	0.0783	0.0918	1.6	-	0.2	0.9	0.1	0.077	0.089	1.5	-	0.2	0.9	0.1
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00625	0.00800	1.2	-	n/a	1.6	2.1	0.00640	0.00802	1.3	-	n/a	1.6	2.1
High Flow	-	0.0050	-	0.0018	0.0046	0.00517	0.00615	1.0	-	n/a	1.2	n/a	0.00487	0.00605	1.0	-	n/a	1.2	n/a
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000041	0.000075	4.3	0.3	n/a	0.2	n/a	0.000050	0.000078	5.3	0.4	n/a	0.2	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000031	0.000048	3.4	0.2	n/a	0.1	n/a	0.000029	0.000047	3.2	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00031	0.00044	0.3	-	n/a	0.4	n/a	0.00014	0.00020	0.1	-	n/a	0.2	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00024	0.00035	0.2	-	n/a	0.3	n/a	0.00011	0.00014	0.1	-	n/a	0.1	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00021	0.00029	0.1	-	n/a	0.003	n/a	0.00016	0.00020	0.0	-	n/a	0.002	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00021	0.00027	0.1	-	n/a	0.002	n/a	0.00016	0.00018	0.0	-	n/a	0.002	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00101	0.00123	1.1	0.3	n/a	0.3	n/a	0.00076	0.00103	0.8	0.2	n/a	0.2	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00087	0.00110	1.0	0.2	n/a	0.3	n/a	0.00063	0.00069	0.7	0.2	n/a	0.2	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.134	0.195	0.1	-	n/a	0.2	n/a	0.154	0.202	0.2	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.141	0.159	0.1	-	n/a	0.2	n/a	0.135	0.145	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E4. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, 100 Year Wet

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00068	0.0016	0.18	0.08	n/a	0.1	n/a	0.00102	0.0017	0.3	0.1	n/a	0.1	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00041	0.0010	0.11	0.05	n/a	0.08	n/a	0.00046	0.0010	0.1	0.06	n/a	0.08	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.0468	0.0606	0.1	-	n/a	0.1	n/a	0.0370	0.0551	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0389	0.0497	0.1	-	n/a	0.1	n/a	0.0269	0.0320	0.04	-	n/a	0.04	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000009	0.000015	0.5	-	n/a	0.7	n/a	0.000011	0.000016	0.6	-	n/a	0.8	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000008	0.000011	0.4	-	n/a	0.6	n/a	0.000008	0.000011	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00248	0.00311	0.002	-	n/a	0.002	n/a	0.00169	0.00200	0.002	-	n/a	0.001	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00201	0.00256	0.002	-	n/a	0.001	n/a	0.00144	0.00161	0.001	-	n/a	0.001	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00044	0.00054	0.02	-	n/a	0.02	n/a	0.00034	0.00038	0.01	-	n/a	0.02	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00041	0.00049	0.02	-	n/a	0.02	n/a	0.00033	0.00035	0.01	-	n/a	0.01	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00037	0.00041	0.2	-	n/a	0.2	n/a	0.00032	0.00035	0.2	-	n/a	0.2	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00034	0.00038	0.2	-	n/a	0.2	n/a	0.00030	0.00032	0.1	-	n/a	0.2	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.00004	0.00008	0.8	0.1	n/a	0.8	n/a	0.00005	0.00008	1.1	0.15	n/a	0.8	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.00003	0.00005	0.6	0.09	n/a	0.5	n/a	0.00003	0.00005	0.7	0.09	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000014	0.000016	0.05	-	n/a	0.05	n/a	0.000012	0.000013	0.04	-	n/a	0.04	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000013	0.000015	0.04	-	n/a	0.05	n/a	0.000012	0.000012	0.04	-	n/a	0.04	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0103	0.0124	1.4	0.6	n/a	0.4	n/a	0.0071	0.0107	0.9	0.4	n/a	0.3	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0080	0.0104	1.1	0.4	n/a	0.3	n/a	0.0049	0.0066	0.7	0.3	n/a	0.2	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0143	0.0177	0.3	-	n/a	0.2	n/a	0.0101	0.0119	0.2	-	n/a	0.1	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0128	0.0159	0.3	-	n/a	0.2	n/a	0.0095	0.0105	0.2	-	n/a	0.1	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0417	0.0516	0.1	-	n/a	0.1	n/a	0.0261	0.0348	0.1	-	n/a	0.1	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0336	0.0437	0.1	-	n/a	0.1	n/a	0.0214	0.0258	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E5. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, 100 Year Dry

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.779	1.231	0.4	-	n/a	0.06	n/a	0.272	0.447	0.1	-	n/a	0.02	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.406	0.775	0.2	-	n/a	0.04	n/a	0.303	0.408	0.2	-	n/a	0.02	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	2.10	2.31	0.01	-	n/a	0.004	n/a	6.46	7.74	0.04	-	n/a	0.013	n/a
High Flow	-	150	600	0.324	1.00	2.21	2.31	0.01	-	n/a	0.004	n/a	5.91	7.06	0.04	-	n/a	0.012	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	1.78	2.91	0.6	-	n/a	0.09	n/a	0.234	0.323	0.1	-	n/a	0.01	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.893	1.94	0.3	-	n/a	0.06	n/a	0.219	0.228	0.1	-	n/a	0.01	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00815	0.0121	0.41	0.05	n/a	0.01	n/a	0.00515	0.00656	0.26	0.03	n/a	0.01	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00481	0.00823	0.24	0.03	n/a	0.01	n/a	0.00508	0.00605	0.25	0.03	n/a	0.01	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	46.6	65.7	0.4	-	n/a	0.5	n/a	30.6	35.9	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	32.1	49.3	0.3	-	n/a	0.4	n/a	29.4	33.9	0.2	-	n/a	0.3	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.0119	0.0212	-	-	n/a	-	n/a	0.0123	0.0288	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.0158	0.0202	-	0.8	n/a	1.0	0.5	0.0191	0.0269	-	1.0	n/a	1.3	0.7
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0385	0.0905	0.8	-	n/a	0.9	n/a	0.0502	0.105	1.0	-	n/a	1.1	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0637	0.0860	1.3	-	0.2	0.9	n/a	0.0742	0.0993	1.5	-	0.2	1.0	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00529	0.00639	1.1	-	n/a	1.3	1.7	0.00789	0.00952	1.6	-	3.6	1.9	2.5
High Flow	-	0.0050	-	0.0018	0.0046	0.00453	0.00583	0.9	-	n/a	1.2	1.3	0.00712	0.00867	1.4	-	n/a	1.7	1.9
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000035	0.000044	3.7	0.3	n/a	0.1	n/a	0.000026	0.000040	2.8	0.2	n/a	0.1	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000029	0.000036	3.2	0.2	n/a	0.1	n/a	0.000028	0.000037	3.1	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00017	0.00023	0.2	-	n/a	0.2	n/a	0.00080	0.00101	0.8	-	n/a	1.0	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00012	0.00018	0.1	-	n/a	0.2	n/a	0.00069	0.00089	0.7	-	n/a	0.9	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00062	0.00084	0.2	-	n/a	0.008	n/a	0.00037	0.00055	0.1	-	n/a	0.005	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00044	0.00068	0.1	-	n/a	0.006	n/a	0.00037	0.00050	0.1	-	n/a	0.005	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00039	0.00054	0.4	0.1	n/a	0.1	n/a	0.00101	0.00139	1.1	0.3	n/a	0.3	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00046	0.00053	0.5	0.1	n/a	0.1	n/a	0.00101	0.00128	1.1	0.3	n/a	0.3	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.0462	0.127	0.0	-	n/a	0.1	n/a	0.126	0.228	0.1	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.0879	0.121	0.1	-	n/a	0.1	n/a	0.157	0.211	0.2	-	n/a	0.2	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E5. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, 100 Year Dry

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00015	0.00018	0.04	0.02	n/a	0.01	n/a	0.00011	0.0002	0.03	0.01	n/a	0.02	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00016	0.00017	0.04	0.02	n/a	0.01	n/a	0.00015	0.0002	0.04	0.02	n/a	0.02	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.1212	0.1905	0.2	-	n/a	0.2	n/a	0.0729	0.1127	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0697	0.1288	0.1	-	n/a	0.2	n/a	0.0695	0.1015	0.1	-	n/a	0.1	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000011	0.000016	0.6	-	n/a	0.8	n/a	0.000008	0.000015	0.4	-	n/a	0.7	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000012	0.000015	0.6	-	n/a	0.7	n/a	0.000008	0.000013	0.4	-	n/a	0.7	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00229	0.00308	0.002	-	n/a	0.002	n/a	0.00705	0.00910	0.007	-	n/a	0.005	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00157	0.00252	0.002	-	n/a	0.001	n/a	0.00606	0.00798	0.006	-	n/a	0.004	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00117	0.00161	0.05	-	n/a	0.06	n/a	0.00082	0.00100	0.03	-	n/a	0.04	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00079	0.00128	0.03	-	n/a	0.05	n/a	0.00075	0.00092	0.03	-	n/a	0.04	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00042	0.00049	0.2	-	n/a	0.2	n/a	0.00069	0.00083	0.3	-	n/a	0.4	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00041	0.00047	0.2	-	n/a	0.2	n/a	0.00062	0.00076	0.3	-	n/a	0.4	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.0000111	0.0000227	0.2	0.03	n/a	0.2	n/a	0.00003	0.00006	0.7	0.10	n/a	0.6	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.0000167	0.0000217	0.3	0.05	n/a	0.2	n/a	0.00004	0.00005	0.7	0.11	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000059	0.000083	0.2	-	n/a	0.3	n/a	0.000024	0.000030	0.1	-	n/a	0.1	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000038	0.000065	0.1	-	n/a	0.2	n/a	0.000022	0.000028	0.1	-	n/a	0.1	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.00486	0.0063	0.6	0.3	n/a	0.2	n/a	0.0061	0.0123	0.8	0.3	n/a	0.4	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.00402	0.0047	0.5	0.2	n/a	0.1	n/a	0.0062	0.0114	0.8	0.3	n/a	0.3	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0150	0.0176	0.3	-	n/a	0.2	n/a	0.0252	0.0309	0.5	-	n/a	0.3	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0146	0.0168	0.3	-	n/a	0.2	n/a	0.0231	0.0283	0.5	-	n/a	0.3	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0153	0.0168	0.04	-	n/a	0.05	n/a	0.0936	0.1159	0.3	-	n/a	0.3	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0160	0.0167	0.05	-	n/a	0.05	n/a	0.0823	0.1034	0.2	-	n/a	0.3	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E5. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, 100 Year Dry

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.162	0.338	0.1	-	n/a	0.02	n/a	0.0719	0.213	0.04	-	n/a	0.01	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.198	0.303	0.1	-	n/a	0.01	n/a	0.134	0.199	0.1	-	n/a	0.01	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	5.17	6.90	0.03	-	n/a	0.012	n/a	2.91	3.58	0.02	-	n/a	0.006	n/a
High Flow	-	150	600	0.324	1.00	4.43	5.95	0.03	-	n/a	0.010	n/a	2.84	3.35	0.02	-	n/a	0.006	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	0.123	0.144	0.04	-	n/a	0.004	n/a	0.107	0.118	0.04	-	n/a	0.004	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.122	0.137	0.04	-	n/a	0.004	n/a	0.109	0.116	0.04	-	n/a	0.004	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00392	0.00545	0.20	0.02	n/a	0.01	n/a	0.00252	0.00333	0.13	0.01	n/a	0.003	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00372	0.00489	0.19	0.02	n/a	0.00	n/a	0.00268	0.00319	0.13	0.01	n/a	0.003	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	29.1	36.3	0.2	-	n/a	0.3	n/a	27.4	35.2	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	25.0	28.4	0.2	-	n/a	0.2	n/a	21.8	26.6	0.2	-	n/a	0.2	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.00857	0.02427	-	-	n/a	-	n/a	0.0073	0.0225	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.01623	0.02289	-	0.8	n/a	1.1	0.6	0.0153	0.0214	-	0.8	n/a	1.1	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0635	0.0960	1.3	-	0.9	1.0	n/a	0.073	0.092	1.5	-	1.0	0.9	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0783	0.0918	1.6	-	0.2	0.9	n/a	0.077	0.089	1.5	-	0.2	0.9	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00625	0.00800	1.2	-	n/a	1.6	2.1	0.00640	0.00802	1.3	-	2.9	1.6	2.1
High Flow	-	0.0050	-	0.0018	0.0046	0.00517	0.00615	1.0	-	n/a	1.2	n/a	0.00487	0.00605	1.0	-	n/a	1.2	n/a
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000041	0.000075	4.3	0.3	n/a	0.2	n/a	0.000050	0.000078	5.3	0.4	n/a	0.2	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000031	0.000048	3.4	0.2	n/a	0.1	n/a	0.000029	0.000047	3.2	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00031	0.00044	0.3	-	n/a	0.4	n/a	0.00014	0.00020	0.1	-	n/a	0.2	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00024	0.00035	0.2	-	n/a	0.3	n/a	0.00011	0.00014	0.1	-	n/a	0.1	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00021	0.00029	0.1	-	n/a	0.003	n/a	0.00016	0.00020	0.04	-	n/a	0.002	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00021	0.00027	0.1	-	n/a	0.002	n/a	0.00016	0.00018	0.04	-	n/a	0.002	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00101	0.00123	1.1	0.3	n/a	0.3	n/a	0.00076	0.00103	0.8	0.2	n/a	0.2	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00087	0.00110	1.0	0.2	n/a	0.3	n/a	0.00063	0.00069	0.7	0.2	n/a	0.2	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.134	0.195	0.1	-	n/a	0.2	n/a	0.154	0.202	0.2	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.141	0.159	0.1	-	n/a	0.2	n/a	0.135	0.145	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E5. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, 100 Year Dry

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00068	0.0016	0.18	0.08	n/a	0.1	n/a	0.00102	0.0017	0.3	0.1	n/a	0.1	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00041	0.0010	0.11	0.05	n/a	0.08	n/a	0.00046	0.0010	0.1	0.06	n/a	0.08	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.0468	0.0606	0.1	-	n/a	0.1	n/a	0.0370	0.0551	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0389	0.0497	0.1	-	n/a	0.1	n/a	0.0269	0.0320	0.04	-	n/a	0.04	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000009	0.000015	0.5	-	n/a	0.7	n/a	0.000011	0.000016	0.6	-	n/a	0.8	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000008	0.000011	0.4	-	n/a	0.6	n/a	0.000008	0.000011	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00248	0.00311	0.002	-	n/a	0.002	n/a	0.00169	0.00200	0.002	-	n/a	0.001	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00201	0.00256	0.002	-	n/a	0.001	n/a	0.00144	0.00161	0.001	-	n/a	0.001	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00044	0.00054	0.02	-	n/a	0.02	n/a	0.00034	0.00038	0.01	-	n/a	0.02	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00041	0.00049	0.02	-	n/a	0.02	n/a	0.00033	0.00035	0.01	-	n/a	0.01	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00037	0.00041	0.2	-	n/a	0.2	n/a	0.00032	0.00035	0.2	-	n/a	0.2	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00034	0.00038	0.2	-	n/a	0.2	n/a	0.00030	0.00032	0.1	-	n/a	0.2	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.00004	0.00008	0.8	0.12	n/a	0.8	n/a	0.00005	0.00008	1.1	0.15	n/a	0.8	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.00003	0.00005	0.6	0.09	n/a	0.5	n/a	0.00003	0.00005	0.7	0.09	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000014	0.000016	0.0	-	n/a	0.1	n/a	0.000012	0.000013	0.04	-	n/a	0.04	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000013	0.000015	0.0	-	n/a	0.0	n/a	0.000012	0.000012	0.04	-	n/a	0.04	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0103	0.0124	1.4	0.6	n/a	0.4	n/a	0.00708	0.0107	0.9	0.4	n/a	0.3	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0080	0.0104	1.1	0.4	n/a	0.3	n/a	0.00488	0.00663	0.7	0.3	n/a	0.2	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0143	0.0177	0.3	-	n/a	0.2	n/a	0.0101	0.0119	0.2	-	n/a	0.1	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0128	0.0159	0.3	-	n/a	0.2	n/a	0.0095	0.0105	0.2	-	n/a	0.1	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0417	0.0516	0.1	-	n/a	0.1	n/a	0.0261	0.0348	0.1	-	n/a	0.1	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0336	0.0437	0.1	-	n/a	0.1	n/a	0.0214	0.0258	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E6. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Adit Lag

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.779	1.231	0.4	-	n/a	0.06	n/a	0.272	0.447	0.1	-	n/a	0.02	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.406	0.775	0.2	-	n/a	0.04	n/a	0.303	0.408	0.2	-	n/a	0.02	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	2.10	2.31	0.01	-	n/a	0.004	n/a	6.46	7.74	0.0	-	n/a	0.01	n/a
High Flow	-	150	600	0.324	1.00	2.21	2.31	0.01	-	n/a	0.004	n/a	5.91	7.06	0.0	-	n/a	0.01	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	1.78	2.91	0.6	-	n/a	0.09	n/a	0.234	0.323	0.1	-	n/a	0.01	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.893	1.94	0.3	-	n/a	0.06	n/a	0.219	0.228	0.1	-	n/a	0.01	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00815	0.0121	0.41	0.05	n/a	0.01	n/a	0.00515	0.00656	0.3	0.03	n/a	0.01	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00481	0.00823	0.24	0.03	n/a	0.01	n/a	0.00508	0.00605	0.3	0.03	n/a	0.01	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	46.6	65.7	0.4	-	n/a	0.5	n/a	30.6	35.9	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	32.1	49.3	0.3	-	n/a	0.4	n/a	29.4	33.9	0.2	-	n/a	0.3	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.0119	0.0212	-	-	n/a	-	n/a	0.0123	0.0288	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.0158	0.0202	-	0.8	n/a	1.0	0.5	0.0191	0.0269	-	1.0	n/a	1.3	0.7
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0385	0.0905	0.8	-	0.5	0.9	n/a	0.0502	0.105	1.0	-	n/a	1.1	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0637	0.0860	1.3	-	0.2	0.9	n/a	0.0742	0.0993	1.5	-	0.2	1.0	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00529	0.00639	1.1	-	n/a	1.3	1.7	0.00789	0.00952	1.6	-	3.6	1.9	2.5
High Flow	-	0.0050	-	0.0018	0.0046	0.00453	0.00583	0.9	-	n/a	1.2	1.3	0.00712	0.00867	1.4	-	n/a	1.7	1.9
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000035	0.000044	3.7	0.3	n/a	0.1	n/a	0.000026	0.000040	2.8	0.2	n/a	0.1	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000029	0.000036	3.2	0.2	n/a	0.1	n/a	0.000028	0.000037	3.1	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00017	0.00023	0.2	-	n/a	0.2	n/a	0.00080	0.00101	0.8	-	n/a	1.0	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00012	0.00018	0.1	-	n/a	0.2	n/a	0.00069	0.00089	0.7	-	n/a	0.9	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00062	0.00084	0.2	-	n/a	0.008	n/a	0.00037	0.00055	0.1	-	n/a	0.00	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00044	0.00068	0.1	-	n/a	0.006	n/a	0.00037	0.00050	0.1	-	n/a	0.00	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00039	0.00054	0.4	0.1	n/a	0.1	n/a	0.00101	0.00139	1.1	0.3	n/a	0.3	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00046	0.00053	0.5	0.1	n/a	0.1	n/a	0.00101	0.00128	1.1	0.3	n/a	0.3	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.0462	0.127	0.0	-	n/a	0.1	n/a	0.126	0.228	0.1	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.088	0.121	0.1	-	n/a	0.1	n/a	0.157	0.211	0.2	-	n/a	0.2	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E6. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Adit Lag

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00015	0.00018	0.04	0.02	n/a	0.01	n/a	0.00011	0.0002	0.0	0.0	n/a	0.0	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00016	0.00017	0.04	0.02	n/a	0.01	n/a	0.00015	0.0002	0.0	0.0	n/a	0.0	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.1212	0.1905	0.2	-	n/a	0.2	n/a	0.0729	0.1127	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0697	0.1288	0.1	-	n/a	0.2	n/a	0.0695	0.1015	0.1	-	n/a	0.1	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000011	0.000016	0.6	-	n/a	0.8	n/a	0.000008	0.000015	0.4	-	n/a	0.7	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000012	0.000015	0.6	-	n/a	0.7	n/a	0.000008	0.000013	0.4	-	n/a	0.7	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00229	0.00308	0.002	-	n/a	0.002	n/a	0.00705	0.00910	0.007	-	n/a	0.005	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00157	0.00252	0.002	-	n/a	0.001	n/a	0.00606	0.00798	0.006	-	n/a	0.004	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00117	0.00161	0.05	-	n/a	0.06	n/a	0.00082	0.00100	0.0	-	n/a	0.0	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00079	0.00128	0.03	-	n/a	0.05	n/a	0.00075	0.00092	0.0	-	n/a	0.0	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00042	0.00049	0.2	-	n/a	0.2	n/a	0.00069	0.00083	0.3	-	n/a	0.4	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00041	0.00047	0.2	-	n/a	0.2	n/a	0.00062	0.00076	0.3	-	n/a	0.4	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.0000111	0.0000227	0.2	0.03	n/a	0.2	n/a	0.00003	0.00006	0.7	0.10	n/a	0.6	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.0000167	0.0000217	0.3	0.05	n/a	0.2	n/a	0.00004	0.00005	0.7	0.11	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000059	0.000083	0.2	-	n/a	0.3	n/a	0.000024	0.000030	0.1	-	n/a	0.1	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000038	0.000065	0.1	-	n/a	0.2	n/a	0.000022	0.000028	0.1	-	n/a	0.1	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0049	0.0063	0.6	0.3	n/a	0.2	n/a	0.0061	0.0123	0.8	0.3	n/a	0.4	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0040	0.0047	0.5	0.2	n/a	0.1	n/a	0.0062	0.0114	0.8	0.3	n/a	0.3	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0150	0.0176	0.3	-	n/a	0.2	n/a	0.0252	0.0309	0.5	-	n/a	0.3	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0146	0.0168	0.3	-	n/a	0.2	n/a	0.0231	0.0283	0.5	-	n/a	0.3	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0153	0.0168	0.04	-	n/a	0.05	n/a	0.094	0.116	0.3	-	n/a	0.3	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0160	0.0167	0.05	-	n/a	0.05	n/a	0.082	0.103	0.2	-	n/a	0.3	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E6. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Adit Lag

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.162	0.338	0.1	-	n/a	0.02	n/a	0.0719	0.213	0.04	-	n/a	0.01	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.198	0.303	0.1	-	n/a	0.01	n/a	0.134	0.199	0.1	-	n/a	0.01	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	5.17	6.90	0.0	-	n/a	0.01	n/a	2.91	3.58	0.02	-	n/a	0.01	n/a
High Flow	-	150	600	0.324	1.00	4.43	5.95	0.0	-	n/a	0.01	n/a	2.84	3.35	0.02	-	n/a	0.01	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	0.123	0.144	0.04	-	n/a	0.004	n/a	0.107	0.118	0.04	-	n/a	0.004	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.122	0.137	0.04	-	n/a	0.004	n/a	0.109	0.116	0.04	-	n/a	0.004	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00392	0.00545	0.2	0.02	n/a	0.01	n/a	0.00252	0.00333	0.1	0.01	n/a	0.003	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00372	0.00489	0.2	0.02	n/a	0.005	n/a	0.00268	0.00319	0.1	0.01	n/a	0.003	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	29.1	36.3	0.2	-	n/a	0.3	n/a	27.4	35.2	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	25.0	28.4	0.2	-	n/a	0.2	n/a	21.8	26.6	0.2	-	n/a	0.2	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.00857	0.02427	-	-	n/a	-	n/a	0.0073	0.0225	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.01623	0.02289	-	0.8	n/a	1.1	0.6	0.0153	0.0214	-	0.8	n/a	1.1	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0635	0.0960	1.3	-	0.9	1.0	n/a	0.0733	0.0921	1.5	-	1.0	0.9	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0783	0.0918	1.6	-	0.2	0.9	n/a	0.0773	0.0890	1.5	-	0.2	0.9	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00625	0.00800	1.2	-	n/a	1.6	2.1	0.00640	0.00802	1.3	-	n/a	1.6	2.1
High Flow	-	0.0050	-	0.0018	0.0046	0.00517	0.00615	1.0	-	n/a	1.2	n/a	0.00487	0.00605	1.0	-	n/a	1.2	n/a
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000041	0.000075	4.3	0.3	n/a	0.2	n/a	0.000050	0.000078	5.3	0.4	n/a	0.2	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000031	0.000048	3.4	0.2	n/a	0.1	n/a	0.000029	0.000047	3.2	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00031	0.00044	0.3	-	n/a	0.4	n/a	0.00014	0.00020	0.1	-	n/a	0.2	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00024	0.00035	0.2	-	n/a	0.3	n/a	0.00011	0.00014	0.1	-	n/a	0.1	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00021	0.00029	0.1	-	n/a	0.00	n/a	0.00016	0.00020	0.0	-	n/a	0.002	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00021	0.00027	0.1	-	n/a	0.00	n/a	0.00016	0.00018	0.0	-	n/a	0.002	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00101	0.00123	1.1	0.3	n/a	0.3	n/a	0.00076	0.00103	0.8	0.2	n/a	0.2	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00087	0.00110	1.0	0.2	n/a	0.3	n/a	0.00063	0.00069	0.7	0.2	n/a	0.2	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.134	0.195	0.1	-	n/a	0.2	n/a	0.154	0.202	0.2	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.141	0.159	0.1	-	n/a	0.2	n/a	0.135	0.145	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E6. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Adit Lag

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)							Post-closure Phase (3 Years)						
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00068	0.0016	0.2	0.1	n/a	0.1	n/a	0.00102	0.0017	0.3	0.1	n/a	0.1	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00041	0.0010	0.1	0.1	n/a	0.1	n/a	0.00046	0.0010	0.1	0.06	n/a	0.08	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.0468	0.0606	0.1	-	n/a	0.1	n/a	0.0370	0.0551	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0389	0.0497	0.1	-	n/a	0.1	n/a	0.0269	0.0320	0.0	-	n/a	0.0	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000009	0.000015	0.5	-	n/a	0.7	n/a	0.000011	0.000016	0.6	-	n/a	0.8	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000008	0.000011	0.4	-	n/a	0.6	n/a	0.000008	0.000011	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00248	0.00311	0.002	-	n/a	0.002	n/a	0.00169	0.00200	0.002	-	n/a	0.001	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00201	0.00256	0.002	-	n/a	0.001	n/a	0.00144	0.00161	0.001	-	n/a	0.001	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00044	0.00054	0.0	-	n/a	0.0	n/a	0.00034	0.00038	0.01	-	n/a	0.02	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00041	0.00049	0.0	-	n/a	0.0	n/a	0.00033	0.00035	0.01	-	n/a	0.01	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00037	0.00041	0.2	-	n/a	0.2	n/a	0.00032	0.00035	0.2	-	n/a	0.2	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00034	0.00038	0.2	-	n/a	0.2	n/a	0.00030	0.00032	0.1	-	n/a	0.2	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.00004	0.00008	0.8	0.1	n/a	0.8	n/a	0.00005	0.00008	1.1	0.2	n/a	0.8	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.00003	0.00005	0.6	0.1	n/a	0.5	n/a	0.00003	0.00005	0.7	0.09	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000014	0.000016	0.05	-	n/a	0.1	n/a	0.000012	0.000013	0.04	-	n/a	0.04	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000013	0.000015	0.04	-	n/a	0.0	n/a	0.000012	0.000012	0.04	-	n/a	0.04	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0103	0.0124	1.4	0.6	n/a	0.4	n/a	0.0071	0.0107	0.9	0.4	n/a	0.3	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0080	0.0104	1.1	0.4	n/a	0.3	n/a	0.0049	0.0066	0.7	0.3	n/a	0.2	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0143	0.0177	0.3	-	n/a	0.2	n/a	0.0101	0.0119	0.2	-	n/a	0.1	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0128	0.0159	0.3	-	n/a	0.2	n/a	0.0095	0.0105	0.2	-	n/a	0.1	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0417	0.0516	0.1	-	n/a	0.1	n/a	0.0261	0.0348	0.1	-	n/a	0.1	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0336	0.0437	0.1	-	n/a	0.1	n/a	0.0214	0.0258	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E7. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Adit Concentration

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)							Operation Phase (22 years)						
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.779	1.23	0.4	-	n/a	0.06	n/a	0.272	0.447	0.1	-	n/a	0.02	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.406	0.775	0.2	-	n/a	0.04	n/a	0.303	0.408	0.2	-	n/a	0.02	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	2.10	2.31	0.01	-	n/a	0.004	n/a	6.46	7.74	0.04	-	n/a	0.013	n/a
High Flow	-	150	600	0.324	1.00	2.21	2.31	0.01	-	n/a	0.004	n/a	5.91	7.06	0.04	-	n/a	0.012	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	1.78	2.91	0.6	-	n/a	0.09	n/a	0.234	0.323	0.1	-	n/a	0.01	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.893	1.94	0.3	-	n/a	0.06	n/a	0.219	0.228	0.1	-	n/a	0.01	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00815	0.0121	0.41	0.05	n/a	0.01	n/a	0.00515	0.00656	0.26	0.03	n/a	0.01	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00481	0.00823	0.24	0.03	n/a	0.01	n/a	0.00508	0.00605	0.25	0.03	n/a	0.01	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	46.6	65.7	0.4	-	n/a	0.5	n/a	30.6	35.9	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	32.1	49.3	0.3	-	n/a	0.4	n/a	29.4	33.9	0.2	-	n/a	0.3	n/a
Phosphorus																			
Low Flow	n/a	-	-	0.0057	0.0076	0.0119	0.0212	-	-	n/a	-	n/a	0.0123	0.0288	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.0158	0.0202	-	0.8	n/a	1.0	0.5	0.0191	0.0269	-	1.0	n/a	1.3	0.7
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0385	0.0905	0.8	-	n/a	0.9	n/a	0.0502	0.105	1.0	-	n/a	1.1	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0637	0.0860	1.3	-	0.2	0.9	n/a	0.0742	0.0993	1.5	-	0.2	1.0	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00529	0.00639	1.1	-	n/a	1.3	1.7	0.00789	0.00952	1.6	-	3.6	1.9	2.5
High Flow	-	0.0050	-	0.0018	0.0046	0.00453	0.00583	0.9	-	n/a	1.2	1.3	0.00712	0.00867	1.4	-	n/a	1.7	1.9
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000035	0.000044	3.7	0.3	n/a	0.1	n/a	0.000026	0.000040	2.8	0.2	n/a	0.1	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000029	0.000036	3.2	0.2	n/a	0.1	n/a	0.000028	0.000037	3.1	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00017	0.00023	0.2	-	n/a	0.2	n/a	0.00080	0.00101	0.8	-	n/a	1.0	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00012	0.00018	0.1	-	n/a	0.2	n/a	0.00069	0.00089	0.7	-	n/a	0.9	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00062	0.00084	0.2	-	n/a	0.008	n/a	0.00037	0.00055	0.1	-	n/a	0.005	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00044	0.00068	0.1	-	n/a	0.006	n/a	0.00037	0.00050	0.1	-	n/a	0.005	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00039	0.00054	0.4	0.1	n/a	0.1	n/a	0.00101	0.00139	1.1	0.3	n/a	0.3	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00046	0.00053	0.5	0.1	n/a	0.1	n/a	0.00101	0.00128	1.1	0.3	n/a	0.3	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.0462	0.127	0.0	-	n/a	0.1	n/a	0.126	0.228	0.1	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.088	0.121	0.1	-	n/a	0.1	n/a	0.157	0.211	0.2	-	n/a	0.2	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E7. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Adit Concentration

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00015	0.00018	0.04	0.02	n/a	0.01	n/a	0.00011	0.0002	0.03	0.01	n/a	0.02	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00016	0.00017	0.04	0.02	n/a	0.01	n/a	0.00015	0.0002	0.04	0.02	n/a	0.02	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.121	0.190	0.2	-	n/a	0.2	n/a	0.0729	0.113	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0697	0.1288	0.1	-	n/a	0.2	n/a	0.0695	0.102	0.1	-	n/a	0.1	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000011	0.000016	0.6	-	n/a	0.8	n/a	0.000008	0.000015	0.4	-	n/a	0.7	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000012	0.000015	0.6	-	n/a	0.7	n/a	0.000008	0.000013	0.4	-	n/a	0.7	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00229	0.00308	0.002	-	n/a	0.002	n/a	0.00705	0.00910	0.007	-	n/a	0.005	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00157	0.00252	0.002	-	n/a	0.001	n/a	0.00606	0.00798	0.006	-	n/a	0.004	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00117	0.00161	0.05	-	n/a	0.06	n/a	0.00082	0.00100	0.03	-	n/a	0.04	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00079	0.00128	0.03	-	n/a	0.05	n/a	0.00075	0.00092	0.03	-	n/a	0.04	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00042	0.00049	0.2	-	n/a	0.2	n/a	0.00069	0.00083	0.3	-	n/a	0.4	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00041	0.00047	0.2	-	n/a	0.2	n/a	0.00062	0.00076	0.3	-	n/a	0.4	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.0000111	0.0000227	0.2	0.03	n/a	0.2	n/a	0.00003	0.00006	0.7	0.10	n/a	0.6	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.0000167	0.0000217	0.3	0.05	n/a	0.2	n/a	0.00004	0.00005	0.7	0.11	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000059	0.000083	0.2	-	n/a	0.3	n/a	0.000024	0.000030	0.1	-	n/a	0.1	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000038	0.000065	0.1	-	n/a	0.2	n/a	0.000022	0.000028	0.1	-	n/a	0.1	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.00486	0.00628	0.6	0.3	n/a	0.2	n/a	0.00606	0.0123	0.8	0.3	n/a	0.4	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.00402	0.00474	0.5	0.2	n/a	0.1	n/a	0.00617	0.0114	0.8	0.3	n/a	0.3	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0150	0.0176	0.3	-	n/a	0.2	n/a	0.0252	0.0309	0.5	-	n/a	0.3	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0146	0.0168	0.3	-	n/a	0.2	n/a	0.0231	0.0283	0.5	-	n/a	0.3	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0153	0.0168	0.04	-	n/a	0.05	n/a	0.094	0.116	0.3	-	n/a	0.3	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0160	0.0167	0.05	-	n/a	0.05	n/a	0.082	0.103	0.2	-	n/a	0.3	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E7. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Adit Concentration

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.162	0.338	0.1	-	n/a	0.02	n/a	0.0719	0.213	0.04	-	n/a	0.01	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.198	0.303	0.1	-	n/a	0.01	n/a	0.134	0.199	0.1	-	n/a	0.01	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	5.17	6.90	0.03	-	n/a	0.01	n/a	2.91	3.58	0.02	-	n/a	0.006	n/a
High Flow	-	150	600	0.324	1.00	4.43	5.95	0.03	-	n/a	0.01	n/a	2.84	3.35	0.02	-	n/a	0.006	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	0.123	0.144	0.04	-	n/a	0.004	n/a	0.107	0.118	0.04	-	n/a	0.004	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.122	0.137	0.04	-	n/a	0.004	n/a	0.109	0.116	0.04	-	n/a	0.004	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00392	0.00545	0.2	0.02	n/a	0.01	n/a	0.00252	0.00333	0.1	0.01	n/a	0.003	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00372	0.00489	0.2	0.02	n/a	0.005	n/a	0.00268	0.00319	0.1	0.01	n/a	0.003	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	29.1	36.3	0.2	-	n/a	0.3	n/a	27.4	35.2	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	25.0	28.4	0.2	-	n/a	0.2	n/a	21.8	26.6	0.2	-	n/a	0.2	n/a
Phosphorus																			
Low Flow	n/a	-	-	0.0057	0.0076	0.00857	0.02427	-	-	n/a	-	n/a	0.0073	0.0225	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.01623	0.02289	-	0.8	n/a	1.1	0.6	0.0153	0.0214	-	0.8	n/a	1.1	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0635	0.0960	1.3	-	0.9	1.0	n/a	0.073	0.092	1.5	-	1.0	0.9	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0783	0.0918	1.6	-	0.2	0.9	n/a	0.077	0.089	1.5	-	0.2	0.9	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00625	0.00800	1.2	-	n/a	1.6	2.1	0.00640	0.00802	1.3	-	n/a	1.6	2.1
High Flow	-	0.0050	-	0.0018	0.0046	0.00517	0.00615	1.0	-	n/a	1.2	n/a	0.00487	0.00605	1.0	-	n/a	1.2	n/a
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000041	0.000075	4.3	0.3	n/a	0.2	n/a	0.000050	0.000078	5.3	0.4	n/a	0.2	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000031	0.000048	3.4	0.2	n/a	0.1	n/a	0.000029	0.000047	3.2	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00031	0.00044	0.3	-	n/a	0.4	n/a	0.00014	0.00020	0.1	-	n/a	0.2	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00024	0.00035	0.2	-	n/a	0.3	n/a	0.00011	0.00014	0.1	-	n/a	0.1	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00021	0.00029	0.1	-	n/a	0.003	n/a	0.00016	0.00020	0.0	-	n/a	0.002	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00021	0.00027	0.1	-	n/a	0.002	n/a	0.00016	0.00018	0.0	-	n/a	0.002	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00101	0.00123	1.1	0.3	n/a	0.3	n/a	0.00076	0.00103	0.8	0.2	n/a	0.2	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00087	0.00110	1.0	0.2	n/a	0.3	n/a	0.00063	0.00069	0.7	0.2	n/a	0.2	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.134	0.195	0.1	-	n/a	0.2	n/a	0.154	0.202	0.2	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.141	0.159	0.1	-	n/a	0.2	n/a	0.135	0.145	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E7. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Adit Concentration

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)								
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	
Total Lead																				
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00068	0.0016	0.18	0.08	n/a	0.12	n/a	0.00102	0.0017	0.3	0.1	n/a	0.1	n/a	
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00041	0.0010	0.11	0.05	n/a	0.08	n/a	0.00046	0.0010	0.1	0.06	n/a	0.08	n/a	
Total Manganese																				
Low Flow	-	0.71	0.80	0.0331	0.1350	0.0468	0.0606	0.1	-	n/a	0.1	n/a	0.0370	0.0551	0.1	-	n/a	0.1	n/a	
High Flow	-	0.70	0.79	0.0475	0.0812	0.0389	0.0497	0.1	-	n/a	0.1	n/a	0.0269	0.0320	0.04	-	n/a	0.04	n/a	
Total Mercury																				
Low Flow	-	0.00002	-	0.000005	0.000005	0.000009	0.000015	0.5	-	n/a	0.7	n/a	0.000011	0.000016	0.6	-	n/a	0.8	n/a	
High Flow	-	0.00002	-	0.000005	0.000010	0.000008	0.000011	0.4	-	n/a	0.6	n/a	0.000008	0.000011	0.4	-	n/a	0.6	n/a	
Total Molybdenum																				
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00248	0.00311	0.002	-	n/a	0.002	n/a	0.00169	0.00200	0.002	-	n/a	0.001	n/a	
High Flow	-	1.00	2.00	0.00143	0.0240	0.00201	0.00256	0.002	-	n/a	0.001	n/a	0.00144	0.00161	0.001	-	n/a	0.001	n/a	
Total Nickel																				
Low Flow	-	-	0.025	0.00025	0.00025	0.00044	0.00054	0.02	-	n/a	0.02	n/a	0.00034	0.00038	0.01	-	n/a	0.02	n/a	
High Flow	-	-	0.025	0.00029	0.00057	0.00041	0.00049	0.02	-	n/a	0.02	n/a	0.00033	0.00035	0.01	-	n/a	0.01	n/a	
Total Selenium																				
Low Flow	-	0.002	-	0.00010	0.00014	0.00037	0.00041	0.2	-	n/a	0.2	n/a	0.00032	0.00035	0.2	-	n/a	0.2	n/a	
High Flow	-	0.002	-	0.00007	0.00011	0.00034	0.00038	0.2	-	n/a	0.2	n/a	0.00030	0.00032	0.1	-	n/a	0.2	n/a	
Total Silver																				
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.00004	0.00008	0.8	0.12	n/a	0.8	n/a	0.00005	0.00008	1.1	0.15	n/a	0.8	n/a	
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.00003	0.00005	0.6	0.09	n/a	0.5	n/a	0.00003	0.00005	0.7	0.09	n/a	0.5	n/a	
Total Thallium																				
Low Flow	-	0.0003	-	0.00002	0.00004	0.000014	0.000016	0.05	-	n/a	0.05	n/a	0.000012	0.000013	0.04	-	n/a	0.04	n/a	
High Flow	-	0.0003	-	0.00002	0.0001	0.000013	0.000015	0.04	-	n/a	0.05	n/a	0.000012	0.000012	0.04	-	n/a	0.04	n/a	
Total Zinc																				
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0103	0.0124	1.4	0.6	n/a	0.4	n/a	0.0071	0.0107	0.9	0.4	n/a	0.3	n/a	
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0080	0.0104	1.1	0.4	n/a	0.3	n/a	0.0049	0.0066	0.7	0.3	n/a	0.2	n/a	
Dissolved Aluminum																				
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0143	0.0177	0.3	-	n/a	0.2	n/a	0.0101	0.0119	0.2	-	n/a	0.1	n/a	
High Flow	-	0.05	0.10	0.0286	0.0620	0.0128	0.0159	0.3	-	n/a	0.2	n/a	0.0095	0.0105	0.2	-	n/a	0.1	n/a	
Dissolved Iron																				
Low Flow	-	-	0.350	0.0173	0.0500	0.0417	0.0516	0.1	-	n/a	0.1	n/a	0.0261	0.0348	0.1	-	n/a	0.1	n/a	
High Flow	-	-	0.350	0.0331	0.1360	0.0336	0.0437	0.1	-	n/a	0.1	n/a	0.0214	0.0258	0.1	-	n/a	0.1	n/a	

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E8. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Background

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)							Operation Phase (22 years)						
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.779	1.23	0.4	-	n/a	0.06	n/a	0.272	0.45	0.1	-	n/a	0.02	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.406	0.775	0.2	-	n/a	0.04	n/a	0.303	0.408	0.2	-	n/a	0.02	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	2.1	2.3	0.0	-	n/a	0.00	n/a	6.5	7.7	0.04	-	n/a	0.013	n/a
High Flow	-	150	600	0.324	1.00	2.2	2.3	0.0	-	n/a	0.00	n/a	5.9	7.1	0.04	-	n/a	0.012	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	1.78	2.91	0.6	-	n/a	0.1	n/a	0.234	0.323	0.1	-	n/a	0.0	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.89	1.94	0.3	-	n/a	0.06	n/a	0.219	0.228	0.1	-	n/a	0.01	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00815	0.0121	0.4	0.05	n/a	0.01	n/a	0.00515	0.00656	0.3	0.03	n/a	0.01	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00481	0.00823	0.2	0.03	n/a	0.01	n/a	0.00508	0.00605	0.3	0.03	n/a	0.01	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	46.6	65.7	0.4	-	n/a	0.5	n/a	30.6	35.9	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	32.1	49.3	0.3	-	n/a	0.4	n/a	29.4	33.9	0.2	-	n/a	0.3	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.0119	0.0212	-	-	n/a	-	n/a	0.0123	0.0288	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.0158	0.0202	-	0.8	1.0	1.0	0.5	0.0191	0.0269	-	1.0	1.2	1.3	0.7
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0385	0.0905	0.8	-	n/a	0.9	0.8	0.0502	0.105	1.0	-	0.7	1.1	1.0
High Flow	-	0.05	0.10	0.352	1.05	0.0637	0.0860	1.3	-	0.2	0.9	0.1	0.0742	0.0993	1.5	-	0.2	1.0	0.1
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00529	0.00639	1.1	-	2.4	1.3	1.7	0.00789	0.00952	1.6	-	3.6	1.9	2.5
High Flow	-	0.0050	-	0.0018	0.0046	0.00453	0.00583	0.9	-	2.5	1.2	1.3	0.00712	0.00867	1.4	-	3.9	1.7	1.9
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000035	0.000044	3.7	0.3	n/a	0.1	n/a	0.000026	0.000040	2.8	0.2	n/a	0.1	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000029	0.000036	3.2	0.2	n/a	0.08	n/a	0.000028	0.000037	3.1	0.2	n/a	0.08	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00017	0.00023	0.2	-	n/a	0.2	n/a	0.00080	0.00101	0.8	-	n/a	1.0	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00012	0.00018	0.1	-	n/a	0.2	n/a	0.00069	0.00089	0.7	-	n/a	0.9	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00062	0.00084	0.2	-	n/a	0.008	n/a	0.00037	0.00055	0.1	-	n/a	0.005	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00044	0.00068	0.1	-	n/a	0.006	n/a	0.00037	0.00050	0.1	-	n/a	0.005	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00039	0.00054	0.4	0.1	n/a	0.1	n/a	0.00101	0.00139	1.1	0.3	n/a	0.3	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00046	0.00053	0.5	0.1	n/a	0.1	n/a	0.00101	0.00128	1.1	0.3	n/a	0.3	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.046	0.127	0.05	-	n/a	0.1	n/a	0.126	0.228	0.13	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.088	0.121	0.1	-	n/a	0.1	n/a	0.157	0.211	0.2	-	n/a	0.2	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E8. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Background

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00015	0.00018	0.04	0.02	n/a	0.01	n/a	0.00011	0.0002	0.03	0.01	n/a	0.02	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00016	0.00017	0.04	0.02	n/a	0.01	n/a	0.00015	0.0002	0.04	0.02	n/a	0.02	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.1212	0.1905	0.2	-	n/a	0.2	n/a	0.0729	0.1127	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0697	0.1288	0.1	-	n/a	0.2	n/a	0.0695	0.1015	0.1	-	n/a	0.1	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000011	0.000016	0.6	-	n/a	0.8	n/a	0.000008	0.000015	0.4	-	n/a	0.7	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000012	0.000015	0.6	-	n/a	0.7	n/a	0.000008	0.000013	0.4	-	n/a	0.7	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00229	0.00308	0.002	-	n/a	0.002	n/a	0.00705	0.00910	0.007	-	n/a	0.005	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00157	0.00252	0.002	-	n/a	0.001	n/a	0.00606	0.00798	0.006	-	n/a	0.004	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00117	0.00161	0.05	-	n/a	0.06	n/a	0.00082	0.00100	0.03	-	n/a	0.04	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00079	0.00128	0.03	-	n/a	0.05	n/a	0.00075	0.00092	0.03	-	n/a	0.04	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00042	0.00049	0.2	-	n/a	0.2	n/a	0.00069	0.00083	0.3	-	n/a	0.4	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00041	0.00047	0.2	-	n/a	0.2	n/a	0.00062	0.00076	0.3	-	n/a	0.4	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.0000111	0.0000227	0.2	0.03	n/a	0.2	n/a	0.00003	0.00006	0.7	0.10	n/a	0.6	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.0000167	0.0000217	0.3	0.05	n/a	0.2	n/a	0.00004	0.00005	0.7	0.1	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000059	0.000083	0.2	-	n/a	0.3	n/a	0.000024	0.000030	0.1	-	n/a	0.1	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000038	0.000065	0.1	-	n/a	0.2	n/a	0.000022	0.000028	0.1	-	n/a	0.1	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0049	0.0063	0.6	0.3	n/a	0.2	n/a	0.0061	0.0123	0.8	0.3	n/a	0.4	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0040	0.0047	0.5	0.2	n/a	0.1	n/a	0.0062	0.0114	0.8	0.3	n/a	0.3	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0150	0.0176	0.3	-	n/a	0.2	n/a	0.0252	0.0309	0.5	-	n/a	0.3	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0146	0.0168	0.3	-	n/a	0.2	n/a	0.0231	0.0283	0.5	-	n/a	0.3	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0153	0.0168	0.04	-	n/a	0.05	n/a	0.094	0.116	0.3	-	n/a	0.3	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0160	0.0167	0.05	-	n/a	0.05	n/a	0.082	0.103	0.2	-	n/a	0.3	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E8. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Background

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)							Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	
Ammonia																				
Low Flow	-	1.86	21.9	0.0992	0.225	0.162	0.338	0.1	-	n/a	0.02	n/a	0.072	0.213	0.0	-	n/a	0.01	n/a	
High Flow	-	1.86	21.9	0.0088	0.0570	0.198	0.303	0.1	-	n/a	0.01	n/a	0.134	0.199	0.1	-	n/a	0.01	n/a	
Chloride																				
Low Flow	-	150	600	0.398	1.00	5.2	6.9	0.0	-	n/a	0.01	n/a	2.9	3.6	0.0	-	n/a	0.01	n/a	
High Flow	-	150	600	0.324	1.00	4.4	5.9	0.0	-	n/a	0.01	n/a	2.8	3.4	0.0	-	n/a	0.01	n/a	
Nitrate																				
Low Flow	-	3.00	32.8	0.0117	0.0117	0.123	0.144	0.0	-	n/a	0.00	n/a	0.107	0.118	0.0	-	n/a	0.00	n/a	
High Flow	-	3.00	32.8	0.0046	0.0090	0.122	0.137	0.0	-	n/a	0.00	n/a	0.109	0.116	0.0	-	n/a	0.00	n/a	
Nitrite																				
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00392	0.00545	0.2	0.02	n/a	0.01	n/a	0.00252	0.00333	0.1	0.01	n/a	0.00	n/a	
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00372	0.00489	0.2	0.02	n/a	0.00	n/a	0.00268	0.00319	0.1	0.01	n/a	0.00	n/a	
Sulphate																				
Low Flow	-	128	-	24.6	36.4	29.1	36.3	0.2	-	n/a	0.3	n/a	27.4	35.2	0.2	-	n/a	0.3	n/a	
High Flow	-	128	-	12.5	38.0	25.0	28.4	0.2	-	n/a	0.2	n/a	21.8	26.6	0.2	-	n/a	0.2	n/a	
Phosphorus																				
Low Flow	-	-	-	0.0057	0.0076	0.0086	0.0243	-	-	n/a	-	n/a	0.0073	0.0225	-	-	n/a	-	n/a	
High Flow	0.02	-	-	0.0160	0.0377	0.0162	0.0229	-	0.8	1.0	1.1	0.6	0.0153	0.0214	-	0.8	1.0	1.1	0.6	
Total Aluminum																				
Low Flow	-	0.05	0.10	0.0706	0.110	0.0635	0.096	1.3	-	0.9	1.0	0.9	0.0733	0.092	1.5	-	1.0	0.9	0.8	
High Flow	-	0.05	0.10	0.352	1.05	0.0783	0.092	1.6	-	0.2	0.9	0.1	0.0773	0.089	1.5	-	0.2	0.9	0.1	
Total Arsenic																				
Low Flow	-	0.0050	-	0.0022	0.0038	0.00625	0.00800	1.2	-	2.8	1.6	2.1	0.00640	0.00802	1.3	-	2.9	1.6	2.1	
High Flow	-	0.0050	-	0.0018	0.0046	0.00517	0.00615	1.0	-	2.8	1.2	1.3	0.00487	0.00605	1.0	-	2.7	1.2	1.3	
Total Cadmium																				
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000041	0.000075	4.3	0.3	n/a	0.2	n/a	0.000050	0.000078	5.3	0.4	n/a	0.2	n/a	
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000031	0.000048	3.4	0.2	n/a	0.10	n/a	0.000029	0.000047	3.2	0.2	n/a	0.10	n/a	
Total Chromium																				
Low Flow	-	-	0.0010	0.00009	0.00016	0.00031	0.00044	0.3	-	n/a	0.4	n/a	0.00014	0.00020	0.1	-	n/a	0.2	n/a	
High Flow	-	-	0.0010	0.00020	0.00059	0.00024	0.00035	0.2	-	n/a	0.3	n/a	0.00011	0.00014	0.1	-	n/a	0.1	n/a	
Total Cobalt																				
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00021	0.00029	0.1	-	n/a	0.003	n/a	0.00016	0.00020	0.0	-	n/a	0.002	n/a	
High Flow	-	0.004	0.110	0.00031	0.00064	0.00021	0.00027	0.1	-	n/a	0.002	n/a	0.00016	0.00018	0.0	-	n/a	0.002	n/a	
Total Copper																				
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00101	0.00123	1.1	0.3	n/a	0.3	n/a	0.00076	0.00103	0.8	0.2	n/a	0.2	n/a	
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00087	0.00110	1.0	0.2	n/a	0.3	n/a	0.00063	0.00069	0.7	0.2	n/a	0.2	n/a	
Total Iron																				
Low Flow	-	-	1.00	0.0827	0.440	0.134	0.195	0.13	-	n/a	0.2	n/a	0.154	0.202	0.2	-	n/a	0.2	n/a	
High Flow	-	-	1.00	0.268	1.15	0.141	0.159	0.1	-	n/a	0.2	n/a	0.135	0.145	0.1	-	n/a	0.1	n/a	

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E8. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Background

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00068	0.0016	0.18	0.08	n/a	0.12	n/a	0.00102	0.0017	0.3	0.1	n/a	0.1	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00041	0.0010	0.11	0.05	n/a	0.08	n/a	0.00046	0.0010	0.1	0.06	n/a	0.08	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.0468	0.0606	0.1	-	n/a	0.1	n/a	0.0370	0.0551	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0389	0.0497	0.1	-	n/a	0.1	n/a	0.0269	0.0320	0.0	-	n/a	0.0	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000009	0.000015	0.5	-	n/a	0.7	n/a	0.000011	0.000016	0.6	-	n/a	0.8	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000008	0.000011	0.4	-	n/a	0.6	n/a	0.000008	0.000011	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00248	0.00311	0.002	-	n/a	0.002	n/a	0.00169	0.00200	0.002	-	n/a	0.001	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00201	0.00256	0.002	-	n/a	0.001	n/a	0.00144	0.00161	0.001	-	n/a	0.001	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00044	0.00054	0.02	-	n/a	0.02	n/a	0.00034	0.00038	0.01	-	n/a	0.02	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00041	0.00049	0.02	-	n/a	0.02	n/a	0.00033	0.00035	0.01	-	n/a	0.01	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00037	0.00041	0.2	-	n/a	0.2	n/a	0.00032	0.00035	0.2	-	n/a	0.2	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00034	0.00038	0.2	-	n/a	0.2	n/a	0.00030	0.00032	0.1	-	n/a	0.2	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.00004	0.00008	0.8	0.12	n/a	0.8	n/a	0.00005	0.00008	1.1	0.2	n/a	0.8	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.00003	0.00005	0.6	0.09	n/a	0.5	n/a	0.00003	0.00005	0.7	0.1	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000014	0.000016	0.0	-	n/a	0.1	n/a	0.000012	0.000013	0.0	-	n/a	0.0	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000013	0.000015	0.0	-	n/a	0.0	n/a	0.000012	0.000012	0.0	-	n/a	0.0	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0103	0.0124	1.4	0.6	n/a	0.4	n/a	0.0071	0.0107	0.9	0.4	n/a	0.3	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0080	0.0104	1.1	0.4	n/a	0.3	n/a	0.0049	0.0066	0.7	0.3	n/a	0.2	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0143	0.0177	0.3	-	n/a	0.2	n/a	0.0101	0.0119	0.2	-	n/a	0.1	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0128	0.0159	0.3	-	n/a	0.2	n/a	0.0095	0.0105	0.2	-	n/a	0.1	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0417	0.0516	0.12	-	n/a	0.15	n/a	0.0261	0.0348	0.07	-	n/a	0.1	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0336	0.0437	0.10	-	n/a	0.12	n/a	0.0214	0.0258	0.06	-	n/a	0.07	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E9. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Solids

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)							Operation Phase (22 years)						
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.779	1.231	0.4	-	n/a	0.06	n/a	0.272	0.447	0.1	-	n/a	0.02	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.406	0.775	0.2	-	n/a	0.04	n/a	0.303	0.408	0.2	-	n/a	0.02	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	2.10	2.31	0.01	-	n/a	0.004	n/a	6.46	7.74	0.04	-	n/a	0.013	n/a
High Flow	-	150	600	0.324	1.00	2.21	2.31	0.01	-	n/a	0.004	n/a	5.91	7.06	0.04	-	n/a	0.012	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	1.78	2.91	0.6	-	n/a	0.1	n/a	0.234	0.323	0.1	-	n/a	0.01	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.893	1.94	0.3	-	n/a	0.06	n/a	0.219	0.228	0.1	-	n/a	0.01	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00815	0.0121	0.4	0.05	n/a	0.01	n/a	0.00515	0.00656	0.3	0.03	n/a	0.01	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00481	0.00823	0.2	0.03	n/a	0.01	n/a	0.00508	0.00605	0.3	0.03	n/a	0.01	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	46.6	65.7	0.4	-	n/a	0.5	n/a	30.6	35.9	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	32.1	49.3	0.3	-	n/a	0.4	n/a	29.4	33.9	0.2	-	n/a	0.3	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.0119	0.0212	-	-	n/a	-	n/a	0.0123	0.0288	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.0158	0.0202	-	0.8	n/a	1.0	0.5	0.0191	0.0269	-	1.0	n/a	1.3	0.7
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0385	0.0905	0.8	-	n/a	0.9	n/a	0.0502	0.105	1.0	-	n/a	1.1	1.0
High Flow	-	0.05	0.10	0.352	1.05	0.0637	0.0860	1.3	-	0.2	0.9	n/a	0.0742	0.0993	1.5	-	0.2	1.0	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00529	0.00639	1.1	-	2.4	1.3	1.7	0.00789	0.00952	1.6	-	3.6	1.9	2.5
High Flow	-	0.0050	-	0.0018	0.0046	0.00453	0.00583	0.9	-	n/a	1.2	1.3	0.00712	0.00867	1.4	-	3.9	1.7	1.9
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000035	0.000044	3.7	0.3	n/a	0.1	n/a	0.000026	0.000040	2.8	0.2	n/a	0.1	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000029	0.000036	3.2	0.2	n/a	0.08	n/a	0.000028	0.000037	3.1	0.2	n/a	0.08	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00017	0.00023	0.2	-	n/a	0.2	n/a	0.00080	0.00101	0.8	-	n/a	1.0	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00012	0.00018	0.1	-	n/a	0.2	n/a	0.00069	0.00089	0.7	-	n/a	0.9	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00062	0.00084	0.2	-	n/a	0.008	n/a	0.00037	0.00055	0.1	-	n/a	0.005	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00044	0.00068	0.1	-	n/a	0.006	n/a	0.00037	0.00050	0.1	-	n/a	0.005	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00039	0.00054	0.4	0.1	n/a	0.1	n/a	0.00101	0.00139	1.1	0.3	n/a	0.3	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00046	0.00053	0.5	0.1	n/a	0.1	n/a	0.00101	0.00128	1.1	0.3	n/a	0.3	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.0462	0.127	0.05	-	n/a	0.1	n/a	0.126	0.228	0.13	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.088	0.121	0.1	-	n/a	0.1	n/a	0.157	0.211	0.2	-	n/a	0.2	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E9. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Solids

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Construction Phase (2 years)						Operation Phase (22 years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ:Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00015	0.00018	0.04	0.02	n/a	0.01	n/a	0.00011	0.0002	0.03	0.01	n/a	0.02	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00016	0.00017	0.04	0.02	n/a	0.01	n/a	0.00015	0.0002	0.04	0.02	n/a	0.02	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.1212	0.1905	0.2	-	n/a	0.2	n/a	0.0729	0.1127	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0697	0.1288	0.1	-	n/a	0.2	n/a	0.0695	0.1015	0.1	-	n/a	0.1	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000011	0.000016	0.6	-	n/a	0.8	n/a	0.000008	0.000015	0.4	-	n/a	0.7	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000012	0.000015	0.6	-	n/a	0.7	n/a	0.000008	0.000013	0.4	-	n/a	0.7	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00229	0.00308	0.002	-	n/a	0.002	n/a	0.00705	0.00910	0.007	-	n/a	0.005	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00157	0.00252	0.002	-	n/a	0.001	n/a	0.00606	0.00798	0.006	-	n/a	0.004	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00117	0.00161	0.05	-	n/a	0.06	n/a	0.00082	0.00100	0.03	-	n/a	0.04	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00079	0.00128	0.03	-	n/a	0.05	n/a	0.00075	0.00092	0.03	-	n/a	0.04	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00042	0.00049	0.2	-	n/a	0.2	n/a	0.00069	0.00083	0.3	-	n/a	0.4	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00041	0.00047	0.2	-	n/a	0.2	n/a	0.00062	0.00076	0.3	-	n/a	0.4	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.0000111	0.0000227	0.2	0.03	n/a	0.2	n/a	0.00003	0.00006	0.7	0.1	n/a	0.6	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.0000167	0.0000217	0.3	0.05	n/a	0.2	n/a	0.00004	0.00005	0.7	0.1	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000059	0.000083	0.2	-	n/a	0.3	n/a	0.000024	0.000030	0.1	-	n/a	0.1	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000038	0.000065	0.1	-	n/a	0.2	n/a	0.000022	0.000028	0.1	-	n/a	0.1	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0049	0.0063	0.6	0.3	n/a	0.2	n/a	0.0061	0.0123	0.8	0.3	n/a	0.4	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0040	0.0047	0.5	0.2	n/a	0.1	n/a	0.0062	0.0114	0.8	0.3	n/a	0.3	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0150	0.0176	0.3	-	n/a	0.2	n/a	0.0252	0.0309	0.5	-	n/a	0.3	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0146	0.0168	0.3	-	n/a	0.2	n/a	0.0231	0.0283	0.5	-	n/a	0.3	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0153	0.0168	0.04	-	n/a	0.05	n/a	0.094	0.116	0.3	-	n/a	0.33	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0160	0.0167	0.05	-	n/a	0.05	n/a	0.082	0.103	0.2	-	n/a	0.30	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E9. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Solids

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Ammonia																			
Low Flow	-	1.86	21.9	0.0992	0.225	0.162	0.338	0.1	-	n/a	0.02	n/a	0.0719	0.213	0.04	-	n/a	0.01	n/a
High Flow	-	1.86	21.9	0.0088	0.0570	0.198	0.303	0.1	-	n/a	0.01	n/a	0.134	0.199	0.1	-	n/a	0.01	n/a
Chloride																			
Low Flow	-	150	600	0.398	1.00	5.17	6.90	0.03	-	n/a	0.01	n/a	2.91	3.58	0.02	-	n/a	0.006	n/a
High Flow	-	150	600	0.324	1.00	4.43	5.95	0.03	-	n/a	0.01	n/a	2.84	3.35	0.02	-	n/a	0.006	n/a
Nitrate																			
Low Flow	-	3.00	32.8	0.0117	0.0117	0.123	0.144	0.04	-	n/a	0.004	n/a	0.107	0.118	0.04	-	n/a	0.004	n/a
High Flow	-	3.00	32.8	0.0046	0.0090	0.122	0.137	0.04	-	n/a	0.004	n/a	0.109	0.116	0.04	-	n/a	0.004	n/a
Nitrite																			
Low Flow	0.18	0.02	1.00	0.0005	0.0005	0.00392	0.00545	0.2	0.02	n/a	0.01	n/a	0.00252	0.00333	0.1	0.01	n/a	0.003	n/a
High Flow	0.18	0.02	1.00	0.0005	0.0005	0.00372	0.00489	0.2	0.02	n/a	0.005	n/a	0.00268	0.00319	0.1	0.01	n/a	0.003	n/a
Sulphate																			
Low Flow	-	128	-	24.6	36.4	29.1	36.3	0.2	-	n/a	0.3	n/a	27.4	35.2	0.2	-	n/a	0.3	n/a
High Flow	-	128	-	12.5	38.0	25.0	28.4	0.2	-	n/a	0.2	n/a	21.8	26.6	0.2	-	n/a	0.2	n/a
Phosphorus																			
Low Flow	-	-	-	0.0057	0.0076	0.00857	0.02427	-	-	n/a	-	n/a	0.0073	0.0225	-	-	n/a	-	n/a
High Flow	0.02	-	-	0.0160	0.0377	0.01623	0.02289	-	0.8	n/a	1.1	0.6	0.0153	0.0214	-	0.8	n/a	1.1	0.6
Total Aluminum																			
Low Flow	-	0.05	0.10	0.0706	0.110	0.0635	0.0960	1.3	-	n/a	1.0	n/a	0.073	0.092	1.5	-	n/a	0.9	n/a
High Flow	-	0.05	0.10	0.352	1.05	0.0783	0.0918	1.6	-	0.2	0.9	n/a	0.077	0.089	1.5	-	0.2	0.9	n/a
Total Arsenic																			
Low Flow	-	0.0050	-	0.0022	0.0038	0.00625	0.00800	1.2	-	2.8	1.6	2.1	0.00640	0.00802	1.3	-	2.9	1.6	2.1
High Flow	-	0.0050	-	0.0018	0.0046	0.00517	0.00615	1.0	-	n/a	1.2	1.3	0.00487	0.00605	1.0	-	n/a	1.2	1.3
Total Cadmium																			
Low Flow	0.00013	0.0000095	0.00048	0.000019	0.000100	0.000041	0.000075	4.3	0.3	n/a	0.2	n/a	0.000050	0.000078	5.3	0.4	n/a	0.2	n/a
High Flow	0.00013	0.0000091	0.00046	0.000411	0.011000	0.000031	0.000048	3.4	0.2	n/a	0.10	n/a	0.000029	0.000047	3.2	0.2	n/a	0.1	n/a
Total Chromium																			
Low Flow	-	-	0.0010	0.00009	0.00016	0.00031	0.00044	0.3	-	n/a	0.4	n/a	0.00014	0.00020	0.1	-	n/a	0.2	n/a
High Flow	-	-	0.0010	0.00020	0.00059	0.00024	0.00035	0.2	-	n/a	0.3	n/a	0.00011	0.00014	0.1	-	n/a	0.1	n/a
Total Cobalt																			
Low Flow	-	0.004	0.110	0.00009	0.00049	0.00021	0.00029	0.1	-	n/a	0.003	n/a	0.00016	0.00020	0.0	-	n/a	0.002	n/a
High Flow	-	0.004	0.110	0.00031	0.00064	0.00021	0.00027	0.1	-	n/a	0.002	n/a	0.00016	0.00018	0.0	-	n/a	0.002	n/a
Total Copper																			
Low Flow	0.004	0.00094	0.0042	0.00078	0.00700	0.00101	0.00123	1.1	0.3	n/a	0.3	n/a	0.00076	0.00103	0.8	0.2	n/a	0.2	n/a
High Flow	0.004	0.00090	0.0042	0.00181	0.0120	0.00087	0.00110	1.0	0.2	n/a	0.3	n/a	0.00063	0.00069	0.7	0.2	n/a	0.2	n/a
Total Iron																			
Low Flow	-	-	1.00	0.0827	0.440	0.134	0.195	0.13	-	n/a	0.2	n/a	0.154	0.202	0.15	-	n/a	0.2	n/a
High Flow	-	-	1.00	0.268	1.15	0.141	0.159	0.1	-	n/a	0.2	n/a	0.135	0.145	0.1	-	n/a	0.1	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

¹ Approved and working BC water quality guidelines; CCME guideline applied in the absence of applicable BC MOE guideline.

² If applicable, otherwise: - no guideline available

Table 13-E9. Lower Brucejack Creek (BJ200m D/S) Hazard Quotients, Conservative Solids

	SBEB (mg/L)	30-day Guideline ¹ (mg/L)	Maximum Guideline ¹ (mg/L)	Mean Baseline (mg/L)	Maximum Baseline (mg/L)	Closure Phase (2 years)						Post-closure Phase (3 Years)							
						Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline	Mean Predicted (mg/L)	Maximum Predicted (mg/L)	HQ: Mean Predicted/ Guideline	HQ: Mean Predicted/ SBEB ²	HQ: Mean Predicted/ Baseline	HQ: Maximum Predicted/ Guideline	HQ: Maximum Predicted/ Baseline
Total Lead																			
Low Flow	0.00821	0.0038	0.0129	0.00050	0.00300	0.00068	0.0016	0.18	0.08	n/a	0.1	n/a	0.00102	0.0017	0.3	0.1	n/a	0.1	n/a
High Flow	0.00821	0.0038	0.0122	0.00153	0.02100	0.00041	0.0010	0.11	0.05	n/a	0.08	n/a	0.00046	0.0010	0.1	0.06	n/a	0.08	n/a
Total Manganese																			
Low Flow	-	0.71	0.80	0.0331	0.1350	0.0468	0.0606	0.1	-	n/a	0.1	n/a	0.0370	0.0551	0.1	-	n/a	0.1	n/a
High Flow	-	0.70	0.79	0.0475	0.0812	0.0389	0.0497	0.1	-	n/a	0.1	n/a	0.0269	0.0320	0.0	-	n/a	0.0	n/a
Total Mercury																			
Low Flow	-	0.00002	-	0.000005	0.000005	0.000009	0.000015	0.5	-	n/a	0.7	n/a	0.000011	0.000016	0.6	-	n/a	0.8	n/a
High Flow	-	0.00002	-	0.000005	0.000010	0.000008	0.000011	0.4	-	n/a	0.6	n/a	0.000008	0.000011	0.4	-	n/a	0.6	n/a
Total Molybdenum																			
Low Flow	-	1.00	2.00	0.00067	0.00094	0.00248	0.00311	0.002	-	n/a	0.002	n/a	0.00169	0.00200	0.002	-	n/a	0.001	n/a
High Flow	-	1.00	2.00	0.00143	0.0240	0.00201	0.00256	0.002	-	n/a	0.001	n/a	0.00144	0.00161	0.001	-	n/a	0.001	n/a
Total Nickel																			
Low Flow	-	-	0.025	0.00025	0.00025	0.00044	0.00054	0.02	-	n/a	0.02	n/a	0.00034	0.00038	0.01	-	n/a	0.02	n/a
High Flow	-	-	0.025	0.00029	0.00057	0.00041	0.00049	0.02	-	n/a	0.02	n/a	0.00033	0.00035	0.01	-	n/a	0.01	n/a
Total Selenium																			
Low Flow	-	0.002	-	0.00010	0.00014	0.00037	0.00041	0.2	-	n/a	0.2	n/a	0.00032	0.00035	0.2	-	n/a	0.2	n/a
High Flow	-	0.002	-	0.00007	0.00011	0.00034	0.00038	0.2	-	n/a	0.2	n/a	0.00030	0.00032	0.1	-	n/a	0.2	n/a
Total Silver																			
Low Flow	0.00035	0.00005	0.00010	0.00003	0.00006	0.00004	0.00008	0.8	0.1	n/a	0.8	n/a	0.00005	0.00008	1.1	0.2	n/a	0.8	n/a
High Flow	0.00035	0.00005	0.00010	0.00028	0.00750	0.00003	0.00005	0.6	0.09	n/a	0.5	n/a	0.00003	0.00005	0.7	0.09	n/a	0.5	n/a
Total Thallium																			
Low Flow	-	0.0003	-	0.00002	0.00004	0.000014	0.000016	0.0	-	n/a	0.1	n/a	0.000012	0.000013	0.0	-	n/a	0.0	n/a
High Flow	-	0.0003	-	0.00002	0.0001	0.000013	0.000015	0.0	-	n/a	0.0	n/a	0.000012	0.000012	0.0	-	n/a	0.0	n/a
Total Zinc																			
Low Flow	0.0185	0.0075	0.0330	0.0034	0.0250	0.0103	0.0124	1.4	0.6	n/a	0.4	n/a	0.0071	0.0107	0.9	0.4	n/a	0.3	n/a
High Flow	0.0185	0.0075	0.0330	0.0091	0.0250	0.0080	0.0104	1.1	0.4	n/a	0.3	n/a	0.0049	0.0066	0.7	0.3	n/a	0.2	n/a
Dissolved Aluminum																			
Low Flow	-	0.05	0.10	0.0064	0.0223	0.0143	0.0177	0.3	-	n/a	0.2	n/a	0.0101	0.0119	0.2	-	n/a	0.1	n/a
High Flow	-	0.05	0.10	0.0286	0.0620	0.0128	0.0159	0.3	-	n/a	0.2	n/a	0.0095	0.0105	0.2	-	n/a	0.1	n/a
Dissolved Iron																			
Low Flow	-	-	0.350	0.0173	0.0500	0.0417	0.0516	0.1	-	n/a	0.1	n/a	0.0261	0.0348	0.07	-	n/a	0.1	n/a
High Flow	-	-	0.350	0.0331	0.1360	0.0336	0.0437	0.1	-	n/a	0.1	n/a	0.0214	0.0258	0.06	-	n/a	0.07	n/a

Notes:

- no guideline available

HQ = hazard quotient; grey shading indicates HQ > 1.0

SBEB = science based environmental benchmark

High Flow = June through October

Low Flow = November through May

n/a = parameter is not a COPC because predicted concentration is less than appropriate guideline; see Figure 13.6.1 for further details.

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